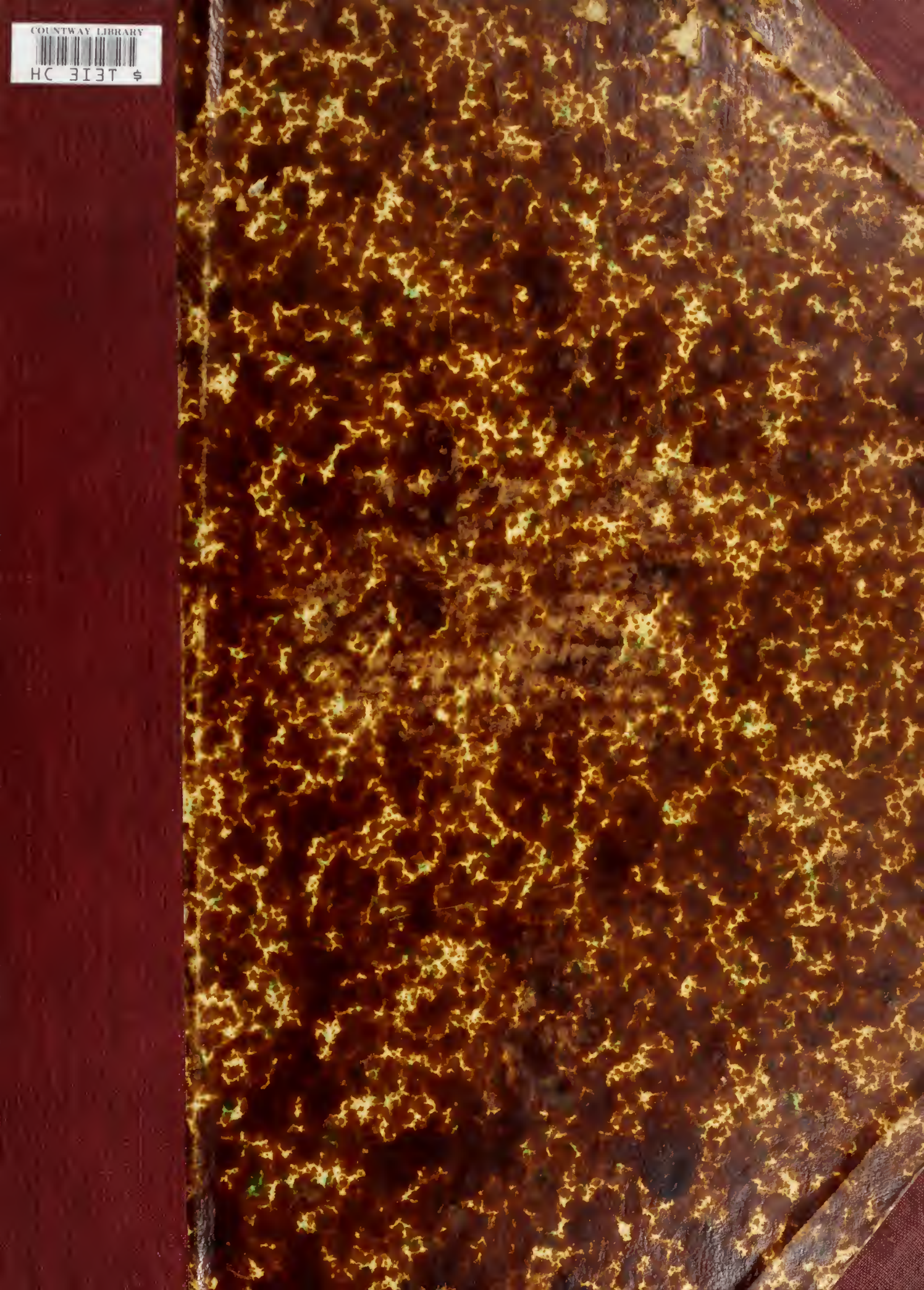

THE CALIFORNIA STATE JOURNAL OF MEDICINE

EDITED BY

PHILIP MILLS JONES, M. D.

VOLUME VII

1909

PUBLISHED BY THE
MEDICAL SOCIETY STATE OF CALIFORNIA
SAN FRANCISCO

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California State Journal of Medicine.

Owned and Published Monthly by the

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VOL. VII JAN., 1909. No. 1

EDITORIAL NOTES.

VOLUME SEVEN.

And here beginneth the seventh volume of *your* JOURNAL; and, incidentally, about this time there also beginneth another session of the legislature. But more of that anon. Let us, for a moment, think only of pleasant things. The JOURNAL was born out of the chaos of a reorganization of the State Society into a very troublous world. After a breathless — though bloodless — conflict of some years, the angel of peace seemed about to hover over the abiding-place of the JOURNAL, when lo! on a sudden it all went up in smoke, together with several other pieces of personal property in San Francisco. Then the strenuous life was resumed. But in spite of the turmoil of strife, and in spite of disaster, the work of organization has gone steadily forward, and for it and the betterment of the medical profession your JOURNAL has constantly worked. It is with a feeling of pleasant anticipation that we now look forward to the future and to the months of the present year that are to unwind themselves and be woven into the tapestry of the fates. Your JOURNAL—and never for a moment forget that it *is* your JOURNAL—your own property as much as that of any other member of the Society or any member of the Publication Committee—your JOURNAL, then be it said, will improve during this and other years to come, *just as much as you will help it.* Where you see something to criticize, please do so; honest criticism is the most valuable thing obtainable, and it is seldom forthcoming. Where you can suggest a change or an improvement, do it, and have absolute confidence that your suggestion will be gratefully received and, if possible, adopted. Above all, be a little charitable; remember that there are many things about the game of publishing a journal which you do not always realize or understand. Let us all pull together, this coming year, and we will go far on the road to unity, peace and concord. May the year bring added strength to our organization, our county societies and our State Society; and to each and every one of us may it bring many good things, but especially peace, harmony and happiness.

OUR LAW.

We may truthfully refer to the law regulating the practice of medicine as "our law," for two reasons. It not only regulates the manner in which physicians may gain permission to practice in California, but it had its very origin with the members of our profession. Indeed, it may be said that all laws regulating medical practice have originated with medical men. The explanation is a very simple one and is not at all the one generally assigned as the reason why we fought to secure the law and still fight to maintain it; it is not to secure or create a "medical trust," though some people are fond of asserting that such is the case. The layman does not realize the danger of allowing his water supply to become infected, but the physician does. The layman can not tell anything as to the qualifications of the man who holds himself out to treat the sick; he can not differentiate the quack from the qualified doctor—and this, too, he does not know; but the physician does. Because the better class of physicians have everywhere recognized their full duty to the people, they have striven to secure the enactment of proper medical laws which will and do, in large measure, prevent unscrupulous and unqualified doctors from practicing their partly-gained profession and preying upon the public. The better element in the medical profession in this state secured the passage of the law of 1876, and for a quarter of a century fought to retain it. The same sort of movement occurred when the law of 1901 was secured, and again with that of 1907; it was and is the fight of the upright and honest members of our own profession to secure adequate protection to the public against the small, dishonest element which, for its own base purposes, desires to extend little or no protection to the ignorant sick. And so it has been in every state in the Union. Medical laws exist because the decent element in the profession is, fortunately, preponderant, and that element has everywhere secured the enactment of medical laws. It is because the people do not understand these things that they listen to the clamor of the rejected ones when they howl for sympathy and cry "medical trust," or the almost equally loud clamor of those who desire to secure dishonest gain by running medical schools that do not and can not give a proper medical education. It is truly "our law" and, while it controls us, we made it.

CONSTANT WARFARE.

The warfare between honesty and dishonesty will probably never end; that the fight against a proper medical law will ever cease, one can not say. The fight against the law always comes from physicians of two classes. No attacks upon the law originate with the laymen any more than do the laws or the desire to secure them originate with the laymen, for the simple reason that the laymen know practically nothing about it at all. All those who have desired to practice medicine and have been rejected, are antagonistic to the law which has kept them from their desires. All those who desired to run "diploma mills" are antagonistic to the law, for it prevents them from making unhallowed gain. These are the two elements which invariably unite in attacking this or any other medical law. But the trouble is, the people do not understand the facts, and so either sympathize with the man who clamors that he is persecuted, or believe his cry that there is a "medical trust" and are naturally, though mistakenly, resentful. At the present session of the legislature there will be introduced, undoubtedly, about the usual number of bills intended to emasculate the present law. Some of these will probably call for separate boards of examiners for every conceivable and inconceivable form of "school." Others will be amendments that will be very specious and will contain sections making the act about as useful as a means of protection as would be a lead sword in a duel. It is easy to foresee that these bills will be introduced, and therefore this presentation of the matter that we may refresh our minds and be prepared to set before our representatives data which they should have to guide them.

THE GIST OF THE LAW.

The essential provisions of the law are simple and of easy comprehension. The law says that any person who desires to treat the sick or injured must demonstrate to the satisfaction of the examining board the fact that he possesses enough knowledge of the human body, its make-up and its common disorders, not to do any harm. On matters of treatment all physicians differ, more or less; but this does not apply to facts of anatomy, physiology, chemistry, surgery and the like. There is a wide difference of opinion, for instance, as to the best way to treat almost every known disease, but there is no room for a difference of opinion as to the location of the heart and the liver. Obviously, any one so grossly ignorant of anatomy as not to be able to correctly locate the proper position of the heart and the liver, would be a danger to the people of the community and should under no circumstances be permitted to practice upon the ignorant sick. Those subjects upon which the various schools of medicine differ radically are excluded from the examination, the argument being that if the applicant demonstrates a sufficient knowledge of the subjects covering the make-up of the body and the essentials of its disorders, he will know enough to do small harm, no matter what line of therapy he may think is best. Remember always that the medical act is a police law intended for the protection of the people, and for that alone. It is not intended in any way either to help or to hinder physicians; it is solely for the protection of the people against ignorance and quackery.

PLENTY OF CRITICISM.

There has been in the past plenty of criticism of the Board of Medical Examiners and of their examinations, and doubtless there will always be plenty and to spare. Every one who fails to pass feels personally aggrieved and thinks that he has been injured. Every one whose credentials are defective—because some school has not played fair with him and has taken his money and graduated him in violation of some wise provision of the Association of American Medical Colleges—is also aggrieved and is complaining of the injustice of the law. And just so long as the board does its duty there will be plenty of kickers of both of these classes; but that is exactly what the law is intended to do—to exclude the unfit. The claim has been made repeatedly that "catch questions" were the order of the day. One may well doubt whether a single catch question was ever intentionally included in an examination. Each examiner asks questions which appeal to him, for one reason or another, and which he thinks cover the subject he has in hand. To another person, not following his line of work or thought, the questions may appear to be very difficult or even unfair. It is notorious in all states that new examiners ask difficult questions and mark the answers very low. We have had numerous illustrations of this in our own state, but in all such cases the board reviews the answers and in some instances has requested the particular examiner, in view of the difficult questions he has asked, to mark his papers very liberally. Furthermore, whatever criticism having any foundation in fact may have been advanced, is directed at the administration of the law and not at the law itself. It has been asserted that the legislature is to investigate certain acts of the board which have been reported to be not according to the law. That is all very well; if members of the legislature or any others wish to investigate, let them do so; if they find that any members of the board have done what should not have been done, let proper correction be made—but that is no reason for in any way altering the law to its weakening or detriment. The most preposterous allegations have been made in times past, and probably will be made in times to come. The absurdity of some of them is past understanding and is only exceeded by the absurdity of some of the answers to questions at the examinations. Here is one noted at the December examination which is so absolutely ridiculous that it passes belief. The question was: "Name the most prominent preventable diseases, and indicate the mode of prevention." The answer was: "Gonorrhœa; means of prevention is incontinence." Should that man be allowed to practice medicine?

RAILWAY SURGEONS.

Railway surgeons are not essentially different, as human beings, from other sorts of surgeons; but no small portion of their work is different. They not only see a good deal of emergency surgery, which must be studied in the light of numerous exigencies that do not present themselves in the ordinary course of surgical work, but they occupy a dual position of responsibility that is sometimes misunderstood. They are responsible to the patient, of course; and equally, of course, they have a responsible relation to the railway companies they serve. It is therefore with particular pleasure that the JOURNAL announces the establishment of a department of railway surgery which will be devoted to the doings of the Pacific Association of Railway Surgeons, and to items of interest connected with that Association. And, be it said in passing, the Association, which was born some six years ago, has attained a sturdy growth and come into vigorous life. It numbers several hundred members and in its membership represents every railroad on the Pacific and every state in this territory. Already work has begun on the program for the next meeting (to be held in San Francisco in August, 1909), and it promises to be the best the Association has yet presented. Any railway surgeon on the Coast who does not belong to the Association, but would like to join, should apply to the secretary, Dr. G. R. Carson, Flood Building, San Francisco.

SANE VIEWS.

So much awful piffle has been written on the "sexual life" and the "sexual question" and the so-called "social evil" (as though there were but one only social evil!) that it is distinctly refreshing to find an author expressing views that are based on plain, ordinary common sense. We are so hedged about and trammeled with laws, written or unwritten, that are founded on the superstitions or the religions of our bygone ancestors—or even on their bellyaches and their bad dreams—that probably the vast majority of people look upon it as a crime to express any views contrary to these arbitrary, and often vicious, fixed standards. But now comes one who is not afraid to think in terms of common sense, who is not afraid to make his clear thinking into a book.*

While human passions last there will be, as there always has been, prostitution in some form. Books of preachments have been written about it, but "So-called moral sermons lead to nothing in this domain." So long as we are blind to actual facts that exist, we can make mighty little progress; few writers on the subject have ventured to state many actual facts that find expression by Forel. "A peculiarity of the sexual appetite in man, which is fatal for society, is his desire for change. This desire is not only one of the principal causes of polygamy, but also of prostitution and other analogous organizations." But it is useless to try and quote all the sane remarks of Forel; they would fill many issues of the JOURNAL.

* The Sexual Question: a scientific, physiological, hygienic and sociological study for the cultured classes. By August Forel. English adaptation by C. F. Marshall. New York: The Rebman Company.

SMALL PLACES DO GREAT THINGS.

It is not always the large community that sets the example in doing things. Elsewhere is the report of a meeting of the Placer County Society in which is given a resume of the work of stamping out malaria in Auburn. It is a sermon in a very few words and one which we should take to heart. For malaria, typhoid, smallpox or diphtheria to exist in a community in these days is a disgrace to human intelligence. They do exist because the people do not understand what they mean, nor how easy it is to get rid of them. Let the people once know exactly the truth about these preventable diseases and they will demand legislative aid in stamping them out; let the people know what we are striving for through our local and state health boards and through our medical law, and they will demand the fullest support from the legislature. There have been enough public meetings held during the past six months to show pretty conclusively what the temper of the people is when these things are explained to them. It's a case of dollars or lives, hogs or children, and the people are only just beginning to realize that fact. The greatest asset of any nation is the health of its citizens; without that factor, all the potential wealth of a country is as nothing. We have gone blindly on ignoring that fact for a very long time, and now we are coming to a change. Natural resources are receiving attention at every hand, and the greatest of them all—public health—is receiving its share with daily growing interest. And it is time that it should be so. Let the merchant see just where and how much he is injured by the presence of these preventable diseases, and he will soon perceive the economy of doing away with them. The problem is by no means so difficult as it would appear; its solution is in the awakening of the people.

THE SKIN REACTION AFTER THE USE OF TUBERCULIN OINTMENT.*

HARRY E. ALDERSON, M. D., San Francisco.

This article is based on personal observations made in 100 patients on whom I have made 123 inunctions with tuberculin ointment and 45 control inunctions with various bacterial preparations which will be indicated later. Sixty-two positive reactions were observed and studied. The great majority of these cases were definitely tubercular, as proven by the various well established means of diagnosis and were chosen mainly through a desire to see a large number of examples of the eruption and to observe its nature and note, if possible, any variations.

Dermatologically the subject is of very great interest and the work has suggested many questions for investigation. All observers have noted the

* Read before the San Francisco County Medical Society.

strong resemblance that the reaction bears to *lichen scrofulosorum* (a disease which has been reported only a very few times in this country). So many new problems have presented themselves and so much more work is necessary (particularly in the line of animal experimentation) that this paper is offered as a preliminary report. It necessarily involves also a review of the literature on the subject. The absolute diagnostic value of the measure will not be discussed, but in my series of 100 cases with 62 reactions, certain facts were noted which I deem worth while reporting. It would not be wise at this time to draw any definite conclusions. It is only from many series of cases and experiments as suggested here, that one would be justified in forming conclusions. Therefore the following facts are submitted, to add to other evidence which has already been presented in the medical literature and which, during the next few months, will be very largely augmented by work of many others.

A review of recent literature on the subject must necessarily be presented here. Moro and Boganoff (*Wiener klinische Wochenschrift,* Aug. 1, 1907) report some experiments which were initiated by E. Moro of Munich in July, 1907. He originated a salve (which now bears his name) composed of equal parts of Koch's old tuberculin and anhydrous lanolin and he found that in tuberculosis cases a papular eruption appeared in areas rubbed with this salve. In *La Presse Medicale,* July 29, 1908, he briefly reviews the development of his idea and refers to the phenomenon as the "percutaneous reaction" in contradistinction to Pirquet's "cuti-reaction," the former consisting of applying the tuberculin to the intact skin by means of an ointment, and the latter, the introducing of the tuberculin into an incised wound produced in the skin. In this article, Moro refers to M. J. Lignieres, who presented some results of animal experimentation before L'Academie des Sciences de Paris (Oct. 28, 1907). He first shaved the skin of the animal and then rubbed dead tubercle bacilli or tuberculin into the surface. In positive cases, an edematous, red, and painful swelling appeared in this area twenty-four hours later. Reference is also made to work of H. Naegli, Ackerblom and Vernier (reported in *Therapeut. Monatschefte,* January 1, 1908), in which they call attention to similar experiments and corresponding results in man. Moro makes the comment that these cases do not properly represent the percutaneous reaction, because in shaving, minute abrasions are produced, in which instances the process is not the same.

Naturally the specific nature of this test has been much considered and much evidence has been presented on both sides of the question. E. Moro (in *Munchener Medizinische Wochenschrift,* Feb. 4, 1908, No. 5, pp. 209-264), reports that the test proved specific in 89 cases and that positive reactions were paralleled in each case by the other tests also. Wolf-Eisner (*Beitrage zur Klinik der Tuberculose,* Wurzburg, No. X No. 2, p. 129-224) makes the statement that in 70% of all tuberculosis cases tested, the cutaneous and subcutaneous methods gave positive findings. Dr. Gerald Webb at the last meeting of the Colorado State Medical Society (*Journal A. M. A.,* Vol. 4, No. 15, p. 1271) made a report of 155 "Moro inunction reactions" in which he stated that in 85 apparently normal individuals 66 gave no reaction, but 19 gave a positive response. Of these 19 positive tests, 14 were later found by other means to have tuberculosis and of the 66 negative cases two were later found to be tubercular. In 15 well marked cases, 7 were negative and 8 positive. It is not stated whether any of these that failed to react were advanced cases. In 39 suspects, 8 gave a negative result and 31 were positive. In 12 that were diagnosed clinically as "early cases," there occurred 11 positive reactions and one was negative to the test. Moro in all his work has maintained that the reaction is specific, in the face of some seemingly unfavorable evidence. In a very recent paper (*Munchener medizin. Wochenschrift,* 1908, No. 39, p. 2025) he describes some unusual forms of the reaction and certain occurrences which seem to indicate its non-specificity; but in view of his many other experiences, he is not yet ready to abandon his position. In several children and in one adult tubercular, he noted what he called a "nervous reflex reaction" at a point away from the area which had received the tuberculin inunction and which had itself given a positive response. In several instances this reflex eruption appeared at a symmetrical point on the opposite side of the body, resembling in many ways the primary reaction. In other cases the arrangement was not symmetrical, but the reflex occurred at another point. Sometimes the reflex appeared simultaneously with the regular reaction and sometimes it came later. It was observed to recur several times in the same subject. One child developed a characteristic papular eruption on the skin of the abdomen where the salve had been rubbed just below the xiphoid appendix. This eruption gradually spread so as to extend half way around the thorax, terminating at the spinal column, after the manner of zoster. A child with *lichen scrofulosorum* was given an inunction and the reaction which followed, was very intense. Two days later the lichen had completely disappeared. He reported also some *modified* reactions which he had obtained by using ointments made of anhydrous lanolin and acetic acid, and also with formic acid and again with triturated caterpillars. All of these substances contain elements which always have an irritating effect on the skin.

In commenting upon these exceptional occurrences, Moro states that the nervous reflex process is a vaso motor phenomenon, "an angioneurotic inflammation, a slow reflex." He states that it is his conviction that this nervous reaction is specific. He asserts that in tubercular individuals there exists "a special sensibility of the nervous system, as indicated by profuse perspiration, paresies and paralyses, troubles of sensation, troubles of menstruation, functional dyspepsias, neurites et cetera." Moro and the other observers have never seen gen-

eral symptoms or a febrile reaction following this test.

An interesting communication from E. Senger (in *Berliner klinische Wochenschrift,* June 8, 1908, Vol. XLV, No. 23, pp. 1081-1120) seems to have some bearing on the question of the specificity of the test. He has been using a 3% tuberculin-lanolin salve in lupus vulgaris. He states that by rubbing this salve directly over the lupus lesions, a very intense local inflammatory reaction occurs, which he likens to an explosion. This inflammatory outburst is limited strictly to the lupus lesions, which fact has been taken advantage of by Senger in differentiating tubercular from other lesions of the skin. The inflammation finally results in suppuration. At this stage, he applies the Roentgen Ray for the final cure. Naturally he regards this prenomenon as specific. It would be most interesting to observe the effect of tuberculin lanolin applied locally to other tuberculous skin conditions.

My personal experiences have extended over a period of three months, during which time I have been given the privilege of utilizing for this purpose cases in the services of Drs. Long and King at the U. S. Marine Hospital, patients in the private practice of Dr. Rothschild, cases in the service of Dr. H. P. Hill at St. Luke's Hospital; also patients at the University of California Hospital, the San Francisco Fruit and Flower Mission clinics, and in Dr. Langley Porter's service at Lane Hospital. The great majority of these patients were adults.

In the preparation of the tuberculin-lanolin ointment, reliable anhydrous lanolin must be used, and it is necessary that it be thoroughly rubbed up for at least one-half hour. The jar containing the same should have a tightly fitting cover and must be kept cool. Under these conditions it will retain its efficiency for several weeks. I have recently been able to obtain strong reactions with a salve over six weeks old. It is not necessary to have the skin surgically clean,—simple cleansing is best. Scrubbing with soap and water and then alcohol, is very apt to produce considerable hyperemia or even abrasions, and this is to be avoided. A non-hairy region is chosen, as for instance, the skin over the deltoid, biceps, or pectoralis major. A portion of the ointment about the size of a small pea (containing approximately 0.10 tuberculin) is rubbed into an area of two or three square inches for one-half to one minute. A smooth glass rod or the rounded end of a test tube is very suitable for this purpose. I found finger cots to be unsatisfactory, as by their use, there was more danger of producing abrasions. In the event of a strong reaction, within forty-eight hours, and rarely before twenty-four hours have elapsed, there occurs a papular eruption in the area rubbed. This reaction, as I have seen it, consists of papules varying greatly in number and degree of redness; but these individual elements are of a constant type anatomically. The papule is usually small (about 2 mm. in diameter) and a lanugo hair can generally be seen piercing its apex. It is therefore follicular. It varies in color from a very pale pink to a bright violaceous red. In vigorous reactions, the primary papules may be two or three times this size, distinctly edematous, on an inflammatory base, and capped with a small pale yellow crust. Usually there are only a few of these papules, but in vigorous reactions there may be a hundred or more on a distinctly erythematous base and the whole patch may be somewhat raised by the local edema. Pustules are not seen until late, when they are due to secondary infection from rubbing or scratching.

In the majority of my cases the eruption did not appear until twenty-four to forty-eight hours after the inunction. The most favorable time to observe the same was after forty-eight hours. A reaction is considered positive when it occurs within forty-eight hours and it very rarely appears later than this. In negative cases there is absolutely no change in the skin. Usually the papules undergo a gradual involution, becoming brownish, then yellow and finally leaving a faint yellowish stain which disappears in the course of a week or two. The lesions remain discrete throughout. In one case (a very lively reaction) I noted marked desquamation strictly limited to the area of eruption. Twenty-four days later (when the patient left the hospital), there still remained discrete yellow pigmented spots and the overlying epidermis was still in an active state of desquamation. I have often noticed in the final stages of the reaction a slight desquamation, but in none was it so profuse as in this case. I have never personally observed a general skin reaction, and never have I noted a recurrence of the eruption after a subsequent tuberculin injection made after the final disappearance of the skin lesions. Dr. Porter's case, which will be referred to later, developed a general eruption some days after I last observed the child. Only a very small number of the patients had any subjective symptoms and these only spoke of a pruritus which was barely noticeable.

In this percutaneous reaction, one factor which has a very prominent part in the Pirquet cutireaction, is not present,—i. e. mechanical injury to the skin. The ointment is rubbed over the intact epidermis and the tuberculin enters through the natural openings in the skin, where, after a number of hours, a certain pathological process develops. In the Pirquet, an incision is made into the corium, and it is well known that a simple incision will result in certain microscopic changes. Recent studies by Jules Lemaire and M. Ferrand (*La Presse Medicale,* Sept. 28, 1907) show very well the manner in which the trauma affects the reaction. They observe that the extent of dermal destruction and the importance of the afflux of leukocytes in the neighborhood appear to be determined by the depth of the incision. They noted dilatation of the lymph spaces, marked infiltration of the region with many polynuclear leukocytes and other elements of the blood collected mostly along the line of incision and around the blood vessels and glandular elements of the skin. There were also large numbers of lymphocytes in these areas. The authors make the comment, however, that "the infiltration is all out

of proportion to the small epidermal wound." They finally conclude that the process is a specific one, in as much as they were "unable to produce the same *with all its characters,*" by using other agents, (such as glycerin, carbolized and pure, or terebinthinum). This suggests several most interesting lines of inquiry.

From one of my lively reactions I removed (under local ethyl chloride anesthesia) a small piece of skin, including the edge of a papule and a small part of the adjacent tissue. The papule was about fifty hours old. The specimen was fixed and hardened in alcohol and mounted in paraffine. Sections were stained with Unna's polychrome methylene blue, hematoxylon and eosin, picric acid, acid orcein, and carbol fuchsin and methylene blue. Examination of the same revealed a process similar in many respects, to the Pirquet; but with the difference that the traumatic factor was absent. The Pirquet shows a mixed picture of mechanical traumatism and reaction to the toxin. The percutaneous reaction papule represents, if anything, a truer picture of the process.

Briefly the following was observed: General edema in which both corium and epidermis participate. Marked dilatation of interepithelial lymph spaces in epidermis with frequent vacuolation of the nuclei here. Occasional wandering lymphocytes in these dilated channels, particularly just over the largest infiltrating masses. Corium shows marked dilatation of subpapillary vessels and their extensions into the papillæ, with a narrow zone of infiltrating cells surrounding them. The corium outside the limits of the papule shows this condition. The most marked infiltration is seen around the sebaceous gland and hair follicle. The coil glands were not affected, strange to say. The cellular infiltration consists principally of mononuclear cells resembling lymphocytes. Very few polynuclears are to be noted. There is quite a noticeable *increase* in mast cells, particularly in the subpapillary region and along the vessels. There is considerable proliferation of the connective tissue nuclei everywhere, but especially in the vicinity of the blood vessels and the follicle. Elastic tissue unchanged. Collagen edematous and shows somewhat diminished affinity for the acid dye. No tubercle bacilli were found.

It is hoped to have in the near future sections of different papules representing all stages in their evolution.

The great majority of the patients tested by me were definitely tubercular, as shown either by the presence of tubercle bacilli, unmistakable physical signs, or febrile reaction following tuberculin injection. I desired to observe as large a number of these papular eruptions as possible and in this, was not disappointed, for fifty-three positive reactions appeared in fifty-three proven tuberculosis cases. In eight suspects, there was a definite reaction (two of whom were sickly infants and living with mother and grandmother who were both positively tubercular,—and five of whom gave every evidence, excepting bacteriological, of having the disease). One case gave an alcoholic history and had tuberculosis in his family. One convalescent typhoid gave a typical though feeble reaction. On careful physical examination by Dr. Long at the Marine Hospital, no signs of tuberculosis were found and he had no symptoms. He was discharged from the hospital in a few days and so it was not determined whether or not he would respond to the tuberculin injection. It is hoped that he will soon appear at headquarters, when this will be done. Thirty-eight did not react. Eleven of these were well proven advanced tuberculars and one died of the disease in a few days. Of course it is well known that advanced cases fail to respond to other tests. Eleven of the remaining twenty-seven were suspects; but were negative to the usual well established tests. The sixteen remaining negative cases, were positively not tubercular (2 bubo, 1 chancroid, 6 typhoid, 1 intestinal indigestion, 2 syphilis, 1 carcinoma, 1 hernia, 1 gonorrhea, 1 estivo-autumnal fever, and one absolutely well individual.)

For control, I used ointments made with anhydrous lanolin, pneumococcus, streptococcus gonococcus and tubercle bacillus vaccines, diphtheria toxin and finally pure anhydrous lanolin. The bacterial emulsions were kindly sent me by Mulford & Co. and the diphtheria toxin, by Cutter's Laboratory. In each one of forty-five cases, one of these various controls was used and in no instance was there afterwards observed the slightest change in the skin, with the exception of one case, which showed a small, but very mature pustule in the area rubbed with the diphtheria toxin. I have not seen pustules in the tuberculin percutaneous reaction excepting when due to secondary infection. In each case where the control was used, it was rubbed into an area corresponding in position with that which received the tuberculin-lanolin. This is interesting in view of the fact that Moro has recently observed so-called "nervous reactions" on corresponding regions. In one of my cases, something suggesting this was noted. This was in an infant with tubercular dactylitis in the service of Dr. Langley Porter at Lane Hospital. The tuberculin ointment was applied to the flexor surface of the right forearm. A characteristic reaction appeared in this area and extended around over the dorsal surface of the forearm and hand. On my second inspection, I observed the eruption on the left forearm and hand in corresponding areas. Dr. Porter saw the child from day to day and he informs me that a general eruption occurred all over the body. He will tell of the further progress of the case. If the nervous reflex were a common occurrence it most certainly would have appeared in more of my cases, and particularly would have been observed where both sides of the body were rubbed, one, with tuberculin salve and the other with the control, because these cases were frequently examined on both sides of the body.

One man (in the Marine Hospital) with secondary luetic eruption and at the same time, tubercle bacilli in his sputum, was given an inunction on one arm with tuberculin lanolin and on a corresponding area on the opposite arm, with streptococcus lanolin. Within forty-eight hours a definite reac-

tion appeared on the area rubbed with tuberculin-lanolin. The control gave no reaction, nor did it appear subsequently. The patient was at the time receiving mercurial inunctions. The tuberculin reaction subsided in three days,—an unusual occurrence. It would be most interesting to observe other cases similar to this and even in uncomplicated tuberculars, it might be worth while inquiring into any possible influence that mercury might have on the reaction.

In conclusion I shall briefly recapitulate my results as follows:

Sixty-two positive reactions:—

53 proven tuberculosis cases.

7 suspects, with evidence strongly in favor of tuberculosis.

1 convalescent typhoid.

1 non-tubercular, but alcoholic and giving tubercular family history.

Thirty-eight did not react:

16 positively not tubercular.

11 were negative to the other tests.

11 were definitely advanced cases of tuberculosis.

In closing I wish to thank Drs. Rothschild, Long, King, Russ, Porter, E. Keys, E. F. Glaser, and H. P. Hill, for many courtesies and all this material which they have placed at my disposal. I am indebted to Dr. Dudley Tait for kind suggestions and literature on the subject.

Discussion.

Dr. King: With regard to the case of zoster, I cannot say that it has any bearing on the reaction of the inunctions. On Sept. 28th the salve was put on the arm. Three days ago the man called my attention to a very marked zoster on the right side. One area was over the sacrum, one over the gluteal muscle and the rest on the outer and anterior surface of the thigh. There were probably six or eight distinct patches about the size of a silver dollar. It was a typical zoster eruption, not in any way like the eruption seen with the Moro salve. Another case gave distinct signs of consolidation of both apices. The Moro test was applied but gave no reaction in four days, the Calmette application was tried and gave no reaction after the fourth day. I was going to give this man the diagnostic tuberculin injection but he left the hospital, with a promise to return.

Dr. Ebright: Both Dr. Rothschild and Dr. Alderson are to be congratulated upon their papers as they touched in an admirable way a subject which has received a great deal of consideration in the hands of the big men in the last year and the subject is far from being closed. The question is, of course, as to the specific nature of the reaction and of that there seems to be little doubt. But is the patient suffering from active tuberculosis? It seems to have been shown that cases having had tuberculosis may show just as active a reaction as a patient who has active tuberculosis and for that reason the value of the reaction is not so great as it otherwise would be. In adults, those who have recovered from previous tuberculosis constitute considerable numbers, and if we find in a suspected case a positive reaction we are far from sure of the diagnosis. That has been admitted by Von Pirquet and Moro and most of the other observers. I remember a case in the City and County Hospital of a man with a joint which appeared to be tuberculous. He was given a subcutaneous injection of tuberculin and had a pronounced reaction. We sent the man to the surgical clinic to have the thing attended to surgically. Dr. Terry concluded to try mercury on this man, however, and the trouble cleared up immediately. The use of subcutaneous tuberculin I am afraid of as I have seen three cases where reaction did not subside and the patients died within a few months, patients in whom the symptoms had not been previously very marked. It seems to me that the subcutaneous use of tuberculin as a diagnostic means ought to be very closely restricted as also the eye reaction. I do not see my way clear to use the latter in view of the fact that many eyes have shown bad results, particularly in children. The choice of the Moro and Von Pirquet reaction is an interesting one. In the first place, the solutions need to be kept fresh, the Pirquet does not keep very long and the making up of the salve for the Moro reaction is rather delicate. I am predisposed in favor of the Pirquet reaction and interpreting the results of it, it seems to me that in cases where the diagnosis can be made by finding the bacilli, there is no use of going further, and in cases of positive reaction it is not so certain as to be of decisive value. The negative reaction is more important than the positive reaction in adults. In children under a year or a year and a half old, in whom there is little possibility that previous tuberculosis could have been present, a positive reaction is conclusive in about 98% of the cases.

Dr. Porter: The case that Dr. Alderson cited is one that presented to me an interesting phase that apparently did not appeal to Dr. Alderson. The child had the Moro salve applied but two weeks previously had been tested for tuberculosis by the Von Pirquet reaction. The Pirquet gave a positive though not a very severe reaction. Dr. Alderson's test with the Moro salve gave a positive reaction within forty-eight hours. At that time it gave the localized reaction and during the next two weeks there was general reaction. It looked almost as though the child had measles, the head was covered with an eczema and one could hardly tell what had happened to the face and neck. We are dealing here with sensitization. If a child has had the Pirquet reaction and you apply the Moro test you are dealing with a sensitized child. If you give two Moro tests within the critical period you are dealing with a sensitized child. If you give the Moro test after the subcutaneous test you may do a great deal of harm. Children or adults with active tuberculosis are very frequently inoculating themselves and you may with one of these reactions do damage to the organism because of a sensitization from this autogenous product. The damage that has been done by horse serum is well known and I have no doubt that the reaction in this case of Dr. Alderson was an analogous reaction. Fortunately the child was not seriously injured. This child had a tubercular dactylitis and the process lighted up and became more active for twenty-four hours or more after the reaction appeared on the skin. The question of practicability of these reactions has been dealt with very clearly by all writers. There is only one point which I would like to suggest, and that is the use of this reaction in young infants. A great many infants waste and the best attempts to keep them gaining weight and to straighten them out are vain and one wonders if he is not dealing with tuberculosis in the infant; we find this condition more common than we give it credit for. In looking up the statistics, the European statistics, I find 8% of the post mortems on infants show tuberculosis. In such cases I have no doubt that the tuberculin tests may be used with good effect and some of these infants saved through appropriate treatment.

Dr. Schmoll: The search for pathognomonic symptoms explains the enthusiasm with which these reactions have been received. We thought that by means of the anaphylactic reaction we had a sure means by diagnosing an existing tuberculosis. A

vear ago the Calmette reaction was received with great enthusiasm. Since the dangers of the procedure have been shown it has been abandoned almost completely. It is clear that the Moro reaction is based upon the same principle, the hypersensibility of the tissues of the organism affected by tuberculosis to the tubercular toxin. From a general standpoint the reaction is based upon the same principles as the Pirquet reaction and the ophthalmo reaction. Now it has been shown by statistics which have been gathered in Liettheim's Clinic from a series of 600 cases and that such a reaction exists in about 33 per cent of the cases which were clearly not tubercular. It has been found in postmortems that in a certain number of cases with a positive ophthalmo reaction there was no trace of tuberculosis. This proves that such a reaction may exist without any tubercular infection. On the other hand an old healed tubercular process may produce a reaction, while the existing process may be of a non-tubercular nature. On the other hand, the reaction may be absent in a clear case of tuberculosis. I think that it was in the same series of 600 cases that the anaphylactic reaction was absent in about 40 per cent of the cases in which the tubercle bacilli were found, where the discase therefore was clearly tuberculosis. It seems to me that the Moro reaction is bound to have the same fallacies and statistics lately published show that the Moro reaction gives about the same percentage of failures in clinical cases of tuberculosis as the ophthalmo reaction. As clinicians we should feel that such a reaction based upon the hypersensitiveness of the cells can only form one ring in the chain of evidence and our clinical diagnosis should be by no means based on a reaction which we do not understand and which has proven a fallacy in a great number of cases.

Dr. Tait: I am much surprised to hear some of the members refer to the specific character of these reactions, especially that of the Moro test. I can hardly accept that opinion in view of the experimental work done by Arloing in France, and Moro himself. Arloing demonstrated, about a year ago, that the occular reaction which was merely a phenomenon of vaso-dilatation, occurring in what we called a condition of intoxinization in a body sensitized by one of the various toxins. He found, contrary to what has been reported, that the eye reaction occurred with the typhoid, the diphtheria and the streptococcus toxins, and also in animals sensitized with tetanus toxin. Moro recently has come to the same conclusion as to the phenomenon of vaso-dilatation, and I cannot understand how one of the writers to-night refers to the specific character of this test in view of Moro's positive findings with formic acid, acetic acid and extract of caterpillars. Certainly in these experiments the theory of anti-bodies may positively be eliminated.

Dr. Chipman: I can only add a word in regard to what we might consider the value of the tuberculin reactions in a dermatologic sense. Here they can be of service in a number of cases, not so much perhaps in the frankly tubercular cases such as tuberculosis vernucosa cutis and lupus vulgaris, as in the group of so-called para-tuberculoses such as lupus erythematosus, acnitis, folliclis, lichen scrofulosorum and several others. There are perhaps six or eight dermatologic affections which are supposed to be tubercular—cases in which the tubercle bacillus has not been found but which are supposed to be due to the climination of some tubercular toxin. If, by means of the Moro reaction or any other tuberculin test we can arrive at a positive diagnosis it will be of great assistance. One affection—erythema induratum—clinically bears a striking resemblance to syphilitic gumma. It occurs on the legs, principally in young women who are on their feet much of the time and particularly in strumous subjects and those of tubercular family history. Of course in a negative way anti-syphilitic treatment would serve if the case were luetic; but if not, the tuberculin test would be positive.

Dr. Alderson, closing: There is not much more to be said. One of the gentlemen in discussing my paper, spoke of having read of a number of cases coming to post mortem, and I understood him to say that during life they had failed to respond to the tuberculin test, but were later found to have definite tubercular lesions. In advanced cases these tests often fail and these cases (if I understood the gentleman correctly), must have been advanced to have gone to autopsy. Regarding the conditions following the reaction in cases of bone and visceral tuberculosis, I cannot say very much. The gentlemen from the Marine Hospital will be able to tell more than I because they have been interested in the other side of the question, i. e., the course of the disease. I have been studying the question mainly from a dermatologist's point of view. Quite a number of the cases that gave the reaction at the Marine Hospital were cases of bone tuberculosis. There were two marked cases of tuberculosis of the testicle. In none of my one hundred and twenty-three inunctions did I note any after effects. Only sixty-two gave the reaction and only one out of these sixty-two developed a general eruption (the case in Dr. Porter's service at Lane Hospital.) Regarding the statement as to the specificity of the test, I did say something about it, but merely quoted others who have had extensive experience, and there were no personal conclusions presented. Moro in his latest paper states that he feels that in spite of the evidence to the contrary he is not ready to abandon his position and that the reaction is specific. Those reactions occurring after the use of formic acid, acetic acid, and the caterpillar preparation (all of which contain clements very irritating to the skin), were designated by Moro as "attenuated reactions." An "attenuated reaction" has not the same significance that a positive one would have. As I stated in my paper several times, a great deal more work will have to be done, and so regarding the question of specificity, my humble opinion at this time would not be worth much. Of course this is the main point being worked out now.

Dr. Rothschild, closing: I have to agree with Dr. Ebright that the reaction does not only take place in active tuberculosis but also in all cases which have been entirely free from clinical symptoms for some time. But if in such a case which has no clinical symptoms the reaction is positive, it is of so much more value if we have a case of latent tuberculosis. I have never seen any cases of tuberculosis die after one injection of tuberculin if the tuberculin had been used with discretion. That is one point which I have always considered most important in the use of tuberculin, namely, that the amount used should be very small. I also called attention to the fact that I began with a very small amount, gradually going up to avoid just such effects. I cannot believe it possible that any case of tuberculosis would die after an injection of one third mg. subcutaneously or one tenth intravenously as I recommended them for diagnostic purposes to-night, and I have never read of it. Of course it is not wise to consider only one symptom of any disease and base the early diagnosis on that one symptom. I also called attention in my paper to the importance of combining the other symptoms with the one method under discussion. In tuberculosis of infants the Moro method is of great diagnostic value. I have a child under treatment at present with a light cough, loss of weight, slight fever in the afternoon and otherwise there are no symptoms. The Moro test gave positive reaction. The child is now under

treatment and there is no question about it to-day that the child had a beginning tuberculosis. The Moro test was in this case of great importance. I disagree decidedly with the remarks of Dr. Tait that Moro himself is not positive of the correctness of his method. Dr. Moro's last publication in one of the September numbers of the Munich Medical Weekly gave 722 cases in which he got a positive reaction and many of these were undoubtedly cases in the beginning stage and there he expresses himself most positively and enthusiastically in regard to his method. I have also stated that cases of advanced tuberculosis did often not give a positive reaction but in such cases it is not necessary to get a reaction because they can be easily diagnosed without the Moro method or any tuberculin method. If besides the tuberculin ointment other chemicals give similar reaction if rubbed into the skin, there is no reason whatsoever why the tuberculin test should lose any value. We are only talking about the reaction of the tuberculin ointment and if this ointment gives a positive test in cases of tuberculosis and does not give a reaction in cases that did not have any tuberculosis, there is undoubtedly great importance attached to this method.

THE ROSE BRADFORD KIDNEY.*

By H. D'ARCY POWER, M. D., San Francisco.

The greatest problems are those nearest home, and the least understood diseases are those of every-day occurrence. For the commonest exanthemata we have no specifics. Gout and its allied ailments is a center for divided opinions, and the kidney, the subject of my paper, while from the nature of its position and functions of easy access to observation and experimentation, is nevertheless, a battle-ground for clinician and nosologist, and a therapeutic wilderness almost uncharted. The more or less clear pathological and clinical pictures that have given grounds for a definite nosology in the case of the stomach, liver and heart are here lost in symptom complexes that seemingly bear little relation to the underlying pathology; and so we have a conflicting nomenclature with the accompaniment of hazy notions as to nature, prognosis and treatment.

Leaving aside the degenerative diseases of the kidney we have in every-day practice to deal with the hyperplastic conditions associated with the name of Bright, and it is to one member of this series that I would direct your attention. The group as a whole may be classified by virtue of their assumed pathological bases into:

1. Acute hyperamnia sine exudate.
2. Acute tubular nephritis or catarrhal inflammation of the tubules.
3. Acute productive nephritis.
4. Chronic productive nephritis.
5. Fibrosis of the kidney.

The first is purely a vascular disturbance.

The second is like the first plus tubular desquamation.

The third is further characterized by an added interstitial hyperplasia.

The fourth is a chronic subacute continuation of the third, plus degenerative changes.

The fifth is a simple fibrosis usually due to toxic stimulation of the interstitial fiberoblasts, or it may be a replacement fibrosis.

The first three acute conditions are neither pathologically nor symptomatically differentiated with any sharpness among themselves, but form an easily recognizable group. The fourth, chronic productive nephritis, with albuminuria, anemia, and edema is also a well defined condition, not easily overlooked. Finally, the fibrotic conditions usually spoken of as chronic interstitial nephritis, or granular contracted kidney, exist in the minds of most practitioners as the well known symptom complex, so often seen in men advanced in life, where the combination of arterio sclerosis with left sided cardiac hypertrophy, polyuria, and the train of terminal symptoms, forms a picture we daily see and rarely mistake.

That fibrotic kidneys occasionally occur in the young has long been known, and at one time their occurrence as a final stage in the evolution of the large white kidney, of chronic productive nephritis was very positively asserted; but that the young should suffer from a special form of fibrotic kidney, inflammatory in origin, having a pathology distinct from the granular contracted kidney of later life, and presenting a quite distinct clinical evolution is a new conception, due chiefly to the labors of Dr. Rose Bradford, whose name is now commonly associated with the condition I am about to describe. Those who would go fully into the matter should read the last of the Croonian lectures delivered before the Royal College of Physicians of London on the 16th of June, 1904, and reported in the Lancet of August the 6th of that year. It will suffice here to point out in connection with the pathological differences that Dr. Bradford lays stress on the much more regular distribution of the interstitial overgrowth in the new type and states that the arterial changes met with in the red contracted kidney are not often met within this. Dr. Bradford thus described the morbid anatomy.

"In the second form of chronic Bright's disease, to which it is somewhat difficult to apply a name, but which may be called for purposes of somplicity the contracted white kidney, the organ is very much smaller than the normal, rivaling the granular kidney in size and sometimes weighing as little as from one and a half to two ounces. The color both of the surface, and the organ on section may vary, but it is usually of an opaque whitish yellow, but very commonly showing here and there areas of congestion, so as to produce, especially on the surface of the organ, a mottled appearance. The capsule is usually markedly thickened and sometimes very considerably so. On stripping, it leaves a coarsely granular surface, the granulations being of large size and extremely well marked. The stripping of the capsules does not commonly lead to much tearing of the renal substance, and often to none at all. The cortex is greatly diminished in amount and may even be reduced to 1-16 inch on section. The reduction of the amount of the cortex is

* Read before the San Francisco County Medical Society.

general, but at the same time is not necessarily uniform. The section of the cortex presents commonly a distinctly mottled appearance; the pyramidal portion of the kidney, like that of the large white kidney, is usually somewhat congested, but not to the same marked extent, so that the contrast between the cortex and medulla, which is such a striking phenomenon of the large white kidney, is not nearly so obvious in the contracted white kidney. On microscopic examination the most striking phenomena are, on one hand the large area in which there are but little remains of renal tissue, owing to the very great overgrowth of fibrous tissue. Many of the tubules have lost their epithelium, and the great diminution of the size of the kidney is very largely dependent on such shedding, and on the subsequent collapse of the walls of the tubules. In some areas may be found more or less extensive areas of renal tubules, with the epithelium comparatively little altered. In others the tubules are lined by hyaline and glass-like cells and it is by no means uncommon to find here and there dilated tubules lined with pavement like epithelium, approaching to the character of cysts. The glomerula chamber is thickened and the vessels of the tuft present marked changes both in the hyaline degeneration and in the fibroid overgrowth. There is a very great overgrowth of the interstitial tissue of the kidney generally and areas are found scattered over the kidney consisting of but little except fibrous tissue. The miscroscopic appearances of such a kidney present points of resemblance to those found in the true granular kidney. On the whole it may be said that the overgrowth of fibrous tissue in the contracted white kidney is more uniform than that seen in the true granular kidney and the epithelial changes are more marked. Further, in contracted white kidney the arterial lesions only exceptionally reach the high degree of development seen in the true granular kidney, and this is not only true of the arterial lesions of the vessels of the body generally, but also of those in the kidney."

The symptomatology has been described at length by Dr. Bradford and more recently by Dr. W. M. Robson in the Practitioner for February, from which journal I abstract the following:

The disease is very insidious. The patient may be free from symptoms and imagine himself in good health, until carried off suddenly by acute uremia. With this variety, there are marked nutritional changes and great emaciation. The wasting may be so severe as to be comparable with that of malignant disease, the similarity becoming more marked, owing to the anemia which is also present. A progressive weakness, leading to inability to work, is sometimes the symptom for which medical advice is first sought. Deep pigmentation of the skin is of frequent occurrence, and has led to a confusion with Addison's disease. The mucous membranes, however, so far as I am aware, do not become pigmented, as in Addison's disease, and the pulse tension is high rather than low.

As in other forms of Bright's disease, cardio-vascular changes are common. The heart is, as a rule, hypertrophied, the apex beat being displaced downwards and outwards, and the impulse is heaving in character. The arteries are thickened and fibrous, and the arterial tension is higher than normal. Taken as a whole, I should say that the cardio-vascular changes are, clinically, much more marked in this form of Bright's disease than in chronic tubal nephritis, but not so obvious as in many cases of chronic red granular kidney.

Headache is troublesome, very common, and is usually frontal, or occipital. The severity of this symptom may be so great as to suggest intra-cranial tumor.

The urine is not scanty, and, in the majority of cases, there is polyuria. It is pale in color, acid in reaction, and of low specific gravity, 1004 to 1010. Albumen is present in considerable quantity, and, on boiling, the urine may give a deposit of one-quarter or one-half. Since there is polyuria, the amount of albumen excreted in twenty-four hours may be more than in the case of chronic tubal nephritis, although the percentage quantity in the urine is less. It is very rare, indeed, for albumen to be entirely absent from the urine.

Bleeding from the mucous membranes is not an infrequent symptom. Profuse hematuria and hematemesis have been recorded.

Ocular changes are very frequent in this form of Bright's disease, and changes in the fundus oculi should always be looked for when it is suspected. The most serious complication of this complaint is uremia, which very frequently leads to the fatal termination. Usually, the patient has sought advice for failure of health previous to the onset of uremic symptoms, but, on the other hand, it has happened that a young adult, in apparently normal health, has been seized with fits of an epileptiform nature, and died within a few days of the onset. The uremia may be of an acute fulminating type, passing into coma from which there is no recovery, but other forms occur, such as maniacal frenzy and sudden asthmatical dyspnea. The uremic symptoms may be more chronic, and last for weeks, as in my patiert, who had bleeding from the gums. In his case there were vomiting, headache, and twitchings lasting for a fortnight, followed by gradual coma in which he died. In acute nephritis, in a large percentage of cases, the uremic symptoms pass off, and the patient returns to health again. In chronic tubal nephritis, also, we find uremia passing off, to return again, perhaps after months or years. With contracted white kidney, however, when once uremia comes on, we must apprehend an immediate fatal termination.

As regards cerebral hemorrhage, which is such a frequent cause of death in chronic granular kidney, I have not met with a case, nor have I seen it quoted in the literature. This would appear to be one form of difference between these two forms of kidney disease. Dr. Rose Bradford asserts that inflammation of the serous membranes occurs, but, up to the present, I have not met with this complication.

Edema, as we see it in acute and chronic parenchymatous nephritis, does not occur, but in cases in which the heart becomes dilated, owing to continued high arterial tension, anasarca may supervene from backward pressure in the veins. With such a failing heart, the character of the pulse is likely to change from high tension to low tension with accelerated rate. To briefly recapitulate the salient points in the symptomatology, we must remember that the disease occurs in young adults, and is markedly latent. Polyuria with much albumen, absence of edema, cardio-vascular and fundus oculi changes, with a fatal termination from acute uremia, completes the story.

In the light of Rose Bradford's description it will probably occur to all of us that cases corresponding to these have occurred in our practice. Personally I can recall some instances of fatal uremia in young people that came under my observation years ago, but the clinical notes are gone and autopsies were not made. However, in recent times two cases came under my personal charge, in which I had the opportunity to verify the diagnosis post mortem that will illustrate Bradford's differentiation, and of one of these I am able to show you both the gross and microscopic morbid anatomy.

Case "A" A young lady at 23, of good family history and excellent health in childhood, commenced shortly after her entrance into society to suffer with headaches. Beyond the usual strain incident to the social duties of the well-to-do there was nothing in the way of habits or dissipation to account for their continuance or persistency. She sought medical advice and the discovery of a few casts and occasionally a little albumen led to a diagnosis of "Bright's disease," together with a bad prognosis. About a year after this discovery she was brought to me, still complaining of the headache, to which was added a marked anemia, general malaise and restlessness. The blood pressure was high, the urine almost normal—at times quite so—while the blood pressure was raised there was no marked arterial degeneration. The patient, an unusually intelligent girl, had read or learned enough concerning her disease to take a gloomy view of her future and absolutely refused any treatment requiring an interruption of her daily life. I saw her from time to time during the next six months until one morning she walked into my consulting room stating that she was "blind with headache." After a few inquiries, during which she stated she had been to the theatre the previous night, she started to leave the room, but fell in the passage in violent convulsions. From that time until six days later, when she died, consciousness was not regained. Violent clonic eclampsia finally wore her out. There was no suppression of urine. On autopsy nothing abnormal was found outside the kidneys, which were reduced to half the normal size, presented the general characters given by Dr. Bradford, and in addition the intertubular infiltration was in a condition of complete hyaline degeneration. The specimens, microphotographs and full notes were lost in the fire of 1906.

The second case, which I am able to present to you in better detail, was that of a young woman of the same age, viz: 23, to whom I was called in consultation three days before her death. The main features are as follows: The family history was negative. The patient at five years of age came in contact with paint and suffered with plumbism in the form of wrist-drop. She recovered but was a weakly child, but never seriously sick; attended school; puberty was delayed and menstruation scanty. On leaving school she engaged in various employments. One year prior to her final illness she had an attack of left sided facial palsy. She recovered and shortly afterwards had parotiditis in a severe form. From this time on until her death, ten months later, she suffered from very rapid action of the heart and her health manifestly failed, anemia and slight dyspnea were present, and she lost flesh. At this time the integrity of her kidneys seems to have been doubted and urinary examinations were made, but with negative results. She remained at work until five days before the time of my attendance, when increasing weakness, tachycardia and a second attack of facial palsy, this time on the right side, compelled her to take to bed. Five days later her condition becoming worse I was called in consultation. She was extremely pale, somewhat emaciated, lethargic in manner and speech, complained of great weakness. The temperature was normal, the pulse 180, small and very incompressible, the respiration 36. There was complete paralysis of the seventh nerve on the right, the chorda tympani not involved. The skin was pale with some ecchymoses on the lower limbs. Thoracic examination showed slight displacement of the apex beat to the left, and a very well defined pericardial murmur. The second aortic was slightly accentuated. Lungs were normal except for general dullness, with fine, moist rales over the left base. Abdominal and pelvic examination negative, blood hemaglobin, 65 per cent, erythrocytes 4,500,000, leukocytes 4000. The urine was stated to be normal in amount, but that on the last examination, two days before, a trace of albumen had been present. Since then the patient had passed very little urine, but had also taken little nourishment. A sample secured that day gave a little more albumen (½ per cent) and a few granular casts. The attendant physician had so far made no diagnosis. The urinary findings were such as might accompany any general dyscrasia. The most notable symptoms were the long continued tachycardia and the now existent pericarditis and left pulmonary edema. I pointed out that these were strongly suggestive of a renal lesion, notwithstanding the absence of edema or typical urinary findings. The patient's age militated against the existence of a fibrotic kidney. I suggested a line of treatment and reserved definite diagnosis until further developments occurred. I had not long to wait. The following evening violent clonic convulsions occurred and when I again saw her on the following morning she was in clearly marked uremic coma, in which she expired next morning. With the onset of the convulsions I became convinced that we were dealing with a Rose Bradford kidney and wrote out the anticipated autopsy findings and read them to Drs. Eklund and Stark. These received exact verification and I will now draw your attention to their character. The kidneys weigh ————————, and an examination of them, together with the accompanying microphotographs taken on Lumiére color plates, will show how entirely they agree with Dr. Bradford's description. The heart is remarkable; while the right side is thin and normal, the left ventricle exhibits walls of enormous thickness, compared with its small cavity. The arteries were not particularly sclerotic and it appears to me that the high vascular tensions which must have engendered this hypertrophy, was due rather to tonic contraction of the muscular coats than to fibrotic change or endarteritis. The liver was firmer than usual, the spleen decidedly so. The pericardium contained 30 cc. fluid and was markedly thickened. It was firmly attached by adhesions to a considerable pleural surface. The lower lobe of the left lung was in a condition of engorgement, such as characterizes a so-called hypostatic pneumonia. All other organs were apparently normal. Microscopic sections of the liver and spleen show these organs had also undergone fibrotic change. The trabecula

of the spleen are markedly thickened; the interlobular hepatic stroma shows a similar change.

It seems to me that the recognition of cases such as these is of considerable practical importance and that a study of them leads to many interesting questions.

What is their etiology? Are they due to autogenous toxins, to infection, or to an unrecognized lesion of the kidneys? Are the changes in other organs primary or coincident, or may not the kidney lesions themselves be secondary to a morbid condition elsewhere, to an affection of one of the internal secretions or some lack of adjustment in the chemical inter-relations of the body, such as may result from deficiency or excess of known or unknown harmones? Why is the condition so long latent and so sudden in its termination? I put out these questions, not at present to attempt their answer, but to show that here is another field in which every observant practitioner can from time to time contribute material. So far as my own speculations are concerned, it would seem as though an affection equally distributed between two kidneys must have its source in an underlying blood-carried toxin, the point to ascertain being whether this is of a general or local origin, and if the latter, where? I think we can easily understand the cause of the sudden termination, if we look on the functional capacity of the kidney as being greatly in excess of the ordinary demand. With the progressive destruction of the secreting or excreting structures, this reserve is gradually called upon and exhausted, but so long as any excess remains no retention toxemia can occur. Directly that margin is overstepped the blood becomes rapidly surcharged with the products of metabolism, which in their turn act on the kidney protoplasm increasingly depressing its eliminative power and thus by action and reaction leading to a rapidly accelerating abolition of all activity.

Discussion.

Dr. Lartigau: It seems to me that Dr. Power's very interesting paper should not pass without some discussion. Personally I cannot accept in toto the conclusions which Dr. Power has presented here this evening. Furthermore, I cannot see that this type of kidney lesion differs from the ordinary interstitial nephritis so commonly observed in adults. The occurrence of such lesions in the very young does not, it seems to me, justify a separate classification. It seems to me that all the lesions which I saw in the specimens which Dr. Power showed us to-night may be duplicated in any of the fibrotic kidneys seen in older or younger individuals. So far as the clinical picture is concerned, it conforms to that usually found in chronic interstitial nephritis. Certainly a fibrosis of Bowman's capsule is found in fibrotic lesions of the younger subjects and some amount of replacement hyperplasia elsewhere in the kidney. So I must personally dissent from the views expressed by Dr. Power and cannot subscribe to this so-called new type of kidney lesion.

Dr. Spencer: I have been very much entertained by the excellence of the paper read by Dr. Power, but like Dr. Lartigau, I cannot think that the data and the specimens shown represent a new type of pathologic kidney. I can recall having seen many specimens similar in all respects to the specimens which Dr. Power has shown. Clinically I cannot see any great difference between these and the clinical symptoms manifested in chronic intestitial nephritis either in the young adult or in older individuals. I cannot subscribe to this description as representing a new pathologic and clinical entity..

Dr. D'Arcy Power, closing discussion: To begin with I did not discover the Rose-Bradford kidney, nor do I think the criticism very pertinent. The fact that we meet with these cases in young people is well known. I can go back to the literature of 1874 when a kidney lesion of this nature was described in a child seven years of age. The point is that the average kidney disease of the interstitial type is not met with in young people. The fibrotic kidney is very common but has well marked clinical features. Nearly always there are accompanying arterial changes and changes in other organs, and a loss of function of the body at large. That is well known. But here we have a type occurring in young people, which, as Bradford has shown, is not pathologically the same as the granular contracted kidney. There is a difference in the distribution of the lesions, a difference in the cortex. These peculiarities are met with in the young and not in the old. If we met with these kidneys in old people, then there would have been some point to the criticism. When we find one type in young people, ending always in the same way, there is reason to believe that we are dealing with an entity with a different pathology and it is not pertinent to say that because you find these lesions separately in various fibrotic kidneys that therefore there is no such a disease as Rose-Bradford has described.

GERMAN MEASLES.*

By EDWARD GRAY, M. D., Eldridge.

Rubella, rotheln or, in familiar English parlance, German measles, is an exanthematous disease which has received recognition as an independent disorder only within so recent time, and the articles upon it in the various text-books vary so widely in certain particulars that it has seemed desirable to present before you an essay upon this subject which shall have regard to the diagnosis and prognosis in particular.

During the years 1877 to 1887 more than one hundred articles were written upon this disorder. It attracted notice in Germany quite a number of years before it was written upon by British or American practitioners. It is now, at last, generally recognized as not a hybrid of measles and scarlet fever but a disease *sui generis.*

That rubella is a germ-disease is shown by its analogy with all such diseases, its period of invasion, exacerbation and decline; but the cause or *materies morbi,* has not yet been discovered. It is a contagious disorder affecting children chiefly, and these mainly between the ages of three and fifteen years. The oldest of our patients is twenty-two. Sporadic cases are very rare and it occurs in epidemics affecting mainly the families of the better classes and the inmates of institutions, orphan asylums in particular. The proportion of those who are exposed and escape is larger than in the case of scarlatina or measles, so that we may properly infer that the contagion is less active than that of those

* Read before the Sonoma County Medical Society.

diseases. The contagion resides probably in the oral secretions and certainly, judging by our recent experience here, in the desquamated epithelium. The disorder is contagious probably from the first outbreak of the rash until desquamation is nearly complete. It does not protect against either measles or scarlatina nor do they protect against it. It is carried by fomites.

The chief symptoms of rubella are a stage of incubation; a stage of invasion (sometimes absent); a maculo-popular exanthem or rash; fever, generally of mild type; swelling and induration of the post-cervical glands; swelling of the tonsils and sometimes pharyngitis; and desquamation of cuticle.

The period of incubation is somewhat variable, within the figures, usually of eight to sixteen days. You will find recorded in the books other figures as low as four days and as high as twenty-five. Twelve days was the average period here, as nearly as we could determine, as it was that of the first case which presented itself. In no case that I have seen has the stage of incubation been so brief as in scarlet fever.

A stage of invasion is often seen in the severer cases. It may last from three hours to fifteen hours, but is usually brief and in mild cases is often conspicuously absent. A very common history is that the child has gone to bed apparently quite well and wakes in the morning with the rash. Headache, rigors, convulsions and vomiting are all exceptional. Rigors occurred, however, in two of our cases and vomiting in perhaps six, or one-tenth of our cases. At the close of the prodromal stage there occurs one important symptom which persists through the eruptive stage, namely the enlargement of the post-cervical glands. Of this more anon.

We have now reached, chronologically, the great symptom which appeals to the eye, namely the rash. This begins near the borders of the maxilla and spreads rapidly downward over the whole body, reaching the feet in from twelve to twenty hours. It consists of very minute macules or maculo-papules of a pale rose color, with areas of untinged skin between. The more discrete the eruption the more it looks like measles; the more confluent it becomes the more it resembles scarlet fever; but the color never, in my observation, has the vividness belonging to the latter disease. The color is best seen upon the back and the inner surface of the thighs. It is hardly elevated above the surface. The duration of the eruption is from one and a half to three days, two and a half or three being usual time. General erythematous redness of the skin has been noticed. "The eruption may reach its height in one part before appearing in another. This is a point of value in diagnosis and of contrast to scarlatina and measles." A faint staining or pigmentation of the skin remaining for a few days after the rash has disappeared is sometimes observable; rather frequently so to judge by our cases.

The temperature usual and proper to rubella is quite below that of either measles or scarlet fever; in the milder cases, 100° to 101° F.; in the more acute cases higher, the books mentioning 103° as a maximum. The epidemic at this "Home" furnished records running all the way from 99.5° to 109° F. The high temperature last mentioned will be adverted to further on. The pulse and respiration rate accords with the degree of fever.

Next after the eruption the cardinal symptom of rubella is the swelling of the post-cervical and suboccipital glands. "Probably in no case is it found wanting." Certainly it was present in four-fifths of the cases of our late epidemic. Search from the occiput down to the shoulders and not near the angle of the jaw. This sign may be called well nigh pathognomonic. "In scarlatina, diphtheria and other throat affections, the glands which present enlargement are those at the angle of as well as beneath the lower jaw."

Mild sore throat may be present; it was so in six or eight of our cases, but absent in the large majority of them. Dry cough and bronchitis referred to by Anders have always been conspicuously absent in cases coming under my observation.

Swelling and itching of the skin are usually present, but not often marked.

Leukocytosis is not present in this disease; but I regret to report that we found it impracticable to test this point.

The final symptom is desquamation. Typically it is fine, bran-like or furfuraceous; often scanty in amount, but sometimes moderately copious and in small flakes. The quantity is sometimes so little that the doctor or the family is led to think that there is none; while, on the other hand, it is occasionally abundant enough to shake out a measurable quantity from the sheets every morning. My recent experience leads me to believe that the ordinary practitioner sees but a portion of the period of desquamation. The three earliest cases of this summer were allowed to leave the hospital when apparently the skin was clean, about two weeks after the onset, with the result that they were found to be desquamating freely ten to twenty days thereafter. The desquamation is directly proportional to the intensity of the eruption and prolonged in the ratio of the greater thickness of the cuticle. One patient here with notably thick cuticle took seven or eight weeks to complete the process. In case of doubt put the patient into a bath. As the water begins to dry off the skin, the shedding of the cuticle shows most plainly.

I feel convinced that in private practice it is apt to occur that the patients are allowed to dress early and much of the phenomena of desquamation escapes observation. We certainly received some enlightenment on this point this summer.

Diagnosis. "This," says Holt, "is a matter of extreme difficulty and sometimes even impossible." To this I would add that it can only be impossible as against very mild and irregular scarlet fever, or an atactic case of each disease. As against measles

a diagnosis should be, usually, a matter of no doubt. While the rash of rubella often strikingly resembles that of measles, it is lighter in color and devoid of crescentic grouping. But beyond this and much more important is the difference in the prodromata; the abrupt onset of rubella without catarrhal symptoms, and the three days of the latter in measles with such symptoms. Also the presence of bronchitis and broncho-pneumonia in measles and their absence in rubella. Typical cases of scarlet fever and rubella are readily distinguished; for the former is a more intense disease in every way; in the color of the rash, in the bright blush leaving no visible sound skin in the affected area; in the vomiting, the pronounced sore throat; and the strawberry tongue; in the longer duration of the eruption and the much higher degree of the fever; in the complications; and in the lamellar character of the desquamation and large size of the flakes. Doubt and difficulty are bound to arise, however, in attempting to discriminate between certain very mild cases of scarlet fever and rubella. The eruption may be scanty and the constitutional signs so little marked as to afford no sure way of decision. It is just here that the position of the swollen glands becomes of so much importance. Scarlet fever involves the tonsils very commonly; if now the swollen glands lie at the angle of the jaw or under the tongue, the malady is doubtless scarlatina and you should be on your guard against a post-scarlatinal nephritis (particularly in these mild cases); if, on the other hand, the glands involved all lie back of the sterno-mastoid then the disease is rubella. I am stating this principle as shown to me by experience and not as recorded in the formal text-books. There is one other important difference between rubella and scarlatina residing in the difference of the time of incubation; the average for rubella is two to three times as long as for scarlet fever. By contrasting a very short period for rubella and a very long one for scarlet fever one might obtain an incubation of almost equal length; but it is clear that such is not a lawful way to do.

One other principle seems to me worthy of recalling to mind; namely, that in a considerable epidemic there will be some cases at least to conform to the average type. Now no one of the cases in our recent epidemic was typical of scarlet fever, while a number tallied admirably with rubella. I beg you to bear this in mind when the mortality shall come to be recorded.

It is quite possible that a few cases of rubella showing the mildest symptoms and a temperature of little over 99° F. (especially if not taken by rectum), and a scanty exanthem may be mistaken for a heat rash, a lichen or some other skin lesion. Only the occurrence of the subsequent desquamation can show the diagnosis here. One case in our series escaped notice during the eruptive stage, but was detected in desquamation.

As to prognosis you will find the books in some confusion, if not contradiction. Holt says: "There are few diseases so free from danger as rubella. Complications and sequelæ are very seldom seen and when present are usually of the mildest character." Note the word "usually." Most other writers call the prognosis invariably good. Anders, however, is more guarded, adding these restrictions: "but when the surroundings are unhygienic, or in cases in which the child has been delicate previously, it is more serious. Complications, especially pneumonia or diphtheria, may prove fatal, and in some cases the mortality reported has been as high as 9 per cent." Note the wide variation between "invariably good" and 9 per cent. The latter figure is certainly high. In our recent experience the mortality was 5 per cent, or three cases. Two were boys and one a girl; all died of acute or ulcerative endocarditis after a period of illness of seven days, two and a half, and one day, respectively. The maximum temperature of these three cases was 109.2°, 106° and 109.6°. A fourth death did occur from abscess of the lung, but as this was in the person of a child known to have chronic bronchitis and weak lungs and occurred fifteen days after the onset of rubella, which was of mild type, it seems only fair to impute this to the known state of the lungs and not to the rubella. But, if counted, it makes the rate of mortality 6 2-3 per cent.

Here, then, as in so many other like cases, the prognosis is better in private practice than among institutions and hospitals.

Among our cases there was one relapse, a recrudescence of the rash and fever before the desquamation was nearly completed. I have been unable to find any reference to the possibility of such an occurrence in the seven formal works of reference available to me. The patient referred to recovered without an untoward symptom.

The only sequela in this series of cases was of acute nephritis occurring in the third week and recovering promptly in the course of eight to ten days.

Otitis, conjunctivitis or keratitis, amygdalitis, pleuritis, pneumonitis did not appear.

Treatment. There is no treatment for rubella as such. The mild cases require nothing but confinement to bed, restriction of the diet and careful watching.

More severe cases must be treated symptomatically as the indications arise. Sponging, tepid baths; sometimes such heart tonics as strychnia, spartein sulphate, digitalin, aromatic ammonia, may be called for. Disinfection of the person and his clothing and bedding, especially near the close of the stage of desquamation, is decidedly indicated. In short, the regime required for stamping out any contagious disease should be put into force and maintained. We adopted caps and gowns for the visiting physicians and the nurses and a disinfecting spray for the shoes, and rigid disinfection of the underwear of the patients.

This paper will not have been in vain if you shall think somewhat more seriously of rubella than heretofore.

BIER TREATMENT IN SURGICAL DISEASES. *

By A. W. MORTON, M. D., San Francisco.

I take great pleasure in bringing the subject of the Bier treatment in surgical diseases before this scientific body, in the hope that it may stimulate a discussion of the subject. I believe that this new treatment marks an era in the treatment of diseases which has not been equalled since the days of antiseptic surgery.

The treatment was presented to the profession in 1892 by August Bier of Germany. It has been very thoroughly brought forward in his book on hyperemia as a therapeutic agent, which has passed through the fifth edition. It has received the endorsement of the surgeons abroad, so that it is in very general use in most of the clinics in Europe. Many objections have been made to the simple and natural remedy, especially by the scalpel hero, who knows no other curative remedy save his knife. I am sorry to say we have physicians who have nothing to offer against disease but drugs. "I leave it to you to decide who is the greatest quack, the naturopathic ignoramus, the scalpel hero, or the prescription writer." We have been very slow in this country in using this easy, effective, quick pain relieving, and I might say natural, remedy. There has been very little written about it in the English language.

Bier's attention was attracted to the therapeutic value of an increased amount of blood in diseased tissue from the observations of the pathologist, Rokipausky, who had observed that persons who suffered from hyperemia of the lungs never developed pulmonary tuberculosis, while those who suffered with heart disease, which produced ischemia of the lungs, were prone to develop pulmonary tuberculosis.

Bier promulgated the theory that an extra amount of blood or hyperemia was needed in diseased tissue to antagonize any infection which might be in the parts. If the tissue had become injured or diseased from any cause, an extra amount of blood should be in the parts to repair the injury. The inflammation which we have been antagonizing by every means known to the medical profession is only nature's method of relief, and only needs to be assisted by increasing it. In other words, we are told by Bier, that we must unlearn all our teaching as to the treatment of inflammation; instead of using rest, elevation, cold and blood letting to relieve the hyperemia of an acute infection, we must use methods to increase the amount of blood in the parts.

This was such a radical departure from our time-honored theories, that it brought about a storm of antagonism, which is gradually changing to enthusiasm.

There are many theories as to the action of the hyperemia: Bier is satisfied to attribute the good results to the increased phagocytosis. Leukocytosis has been offered to explain the changes that take place in the tissues. The blood serum becomes more germicidal by producing defensive proteid substances known as alexins, and at the same time the increased tissue cells produce antitoxins; this is offered as a very plausible theory.

To my mind, the raising of the opsonic index gives the best explanation of the good results taking place in the Bier treatment. It is generally found that in most of the diseases amenable to treatment by hyperemia the local opsonic index is below the normal, and that the local condition will repair when the local opsonic index is brought up to the normal. Ollister reports cases of tubercular adenitis where the general opsonic index was 0.8, and the local opsonic index of the serum 0.4; after the use of hyperemia the local opsonic index increased to 0.7, when repair took place.

The hyperemia of Bier is produced in three ways; by means of the hot air apparatus; cupping apparatus of glass and rubber, which is made to fit the different parts of the body; and the Esmark elastic bandage; the latter is the simplest and most effective method; but it can only be applied to the extremities, head and testicles.

The elastic bandage is applied to the extremities by winding it around the limb a number of times, just above the diseased part. This compresses the veins, but does not interfere with the arteries, so that the part below the bandage is soon filled with blood, which can be increased or diminished as desired. The bandage should be shifted each time it is applied, or gauze placed beneath it so that the skin will not become irritated. I have been using instead of the Esmark rubber bandage, a woven elastic bandage, which prevents the irritation of the skin.

The bandage should not be retained more than ten hours a day, and it is claimed to be better to make the bandage tighter and to keep it in position one or two hours night and morning. The bandage should never produce pain; if so, it must be adjusted until it is comfortable to the patient. In old or debilitated patients it is well to bandage the extremity below the diseased part during the time the elastic bandage is placed on the limb, so as to prevent edema of the extremity.

The suction apparatus can be applied with advantage to any part of the body, not being confined simply to the joints. It has had a very extensive use in the treatment of abscesses and joint diseases. It is also applied to the abdomen, as well as the chest in thoracic diseases.

The indications for the use of hyperemia embrace the whole domain of the practice of medicine and surgery. While we do not claim that it is a panacea in all diseases, it is a very useful adjunct in treating many of them, and as our knowledge advances, we extend its application to more locations and different diseases.

Bier originally used it in tubercular conditions involving the extremities, and then later he applied it to un-united fractures, rheumatic joints and other chronic conditions. It is now being used extensively in acute infections such as phlegmons, abscesses,

* Read at the Thirty-Eighth Annual Meeting of the State Society, Coronado, April, 1908.

gonorrheal rheumatism, ulcers and many other conditions.

As to its general use, Bier says: "I believe that the practical use of hyperemia represents the most general and comprehensive mode of treatment in medicine, for I do not know of another remedy that could be so successfully employed in so many directions. I have described such a variety of different troubles that many may think I have gone too far; but on the contrary, I am convinced that this remedy used by nature in such a profuse measure to combat all sorts of lesions, is destined to be far more extensively used than has hitherto been attempted."

I will report the case of a patient who suffered from tuberculosis of the knee joint:

In the month of March, 1907, Mr. P., a school boy, 16 years of age, called at my office accompanied by his mother. The young man gave a history of having injured his knee joint slightly some months previously, and since that time it had gradually grown worse. The joint was considerably swollen, with slight flexion of the knee. He gave the history and symptoms of tuberculosis. He was placed in the hospital for one week, during which time he was given the tuberculin test, which proved our conclusions as to the cause of trouble. During that time he was instructed how to apply the elastic bandage, so as to produce a hyperemia of the knee joint. It was placed around the thigh, just above the knee, each turn overlapping the other. The bandage was to be adjusted so that it would not produce pain. The limb below the knee during the time the bandage was in place would slightly swell, become warmer and of a bluish red color. He was told to remove the bandage should the limb become cold or painful, and also instructed as to applying the bandage in different places each time, so as to prevent irritation of the skin. He returned home after the first week, and was cautioned not to use the knee to excess, but explained that we preferred him to use the limb gently. The bandage was continued to be applied for three hours night and morning. Later it was applied on his going to bed at night and removed on getting up in the morning. This was the only treatment recommended in the case, except he was given a general tonic. After seven months of continuous treatment the knee had entirely recovered, except it appears a little larger, but it has perfect movement.

Un-united Fracture of the Leg. During the summer of 1907, Mr. P., aged about 30 years, entered the City and County Hospital with a compound fracture of the tibia and fibula of the lower third of the leg. After a severe infection and a couple of attempts to repair the delayed union, I found that so much of the tibia had been lost, that it was necessary to transplant the upper end of the fibula in the tibial space, which resulted in a non-union. After wearing a plaster cast for several months, a sinus continued to discharge and there appeared to be no attempt to repair. In January of 1908, I commenced a systematic treatment by the application of the elastic bandage so as to produce hyperemia below the knee. This was continued faithfully for a period of three months. Within about six weeks' time the sinus healed, and at the end of three months the bone was firmly united and he was discharged cured.

A Case of a Compound Fracture with Infection. A laborer about 38 years of age entered the City and County Hospital during January, 1908. He had some time previously suffered from a fracture of the middle third of the right leg, which had been wired a few weeks before. The wound was open, with the ends of the bone exposed, and pus invaded the tissues around the fracture and burrowed to the posterior part of the leg. I made a long incision on the back part of the leg, so as to drain the pus, untwisted the wires which were in the bone, but left them in position so as to assist immobilizing the fracture. I then severed the tendo achillis so as to overcome the deformity. The parts were then enclosed in a wet dressing of acetate of aluminum, splints applied so as to immobilize the bones, and a bandage applied around the thigh just above the knee, so as to produce an intense hyperemia, for a period of three hours. I made the prognosis that the patient would recover as rapidly under the Bier treatment as though he had a simple fracture. At the end of ten days the wound over the fracture was skin-grafted, as well as the posterior incision, as the pus had disappeared previous to this. In four weeks' time bony union was firm, and at the end of five weeks the patient was walking on the injured limb and was discharged as cured seven weeks after the operation.

Phlegmon of the Middle Finger and Palmer Surface of the Right Hand. A young lady, aged 19, a school teacher, entered the hospital in the month of January, 1908, with a phlegmon involving the middle finger of the right hand, which had been under treatment for some two weeks previous. The finger was twice the normal size; the joints were exposed from ulceration as a result of the infection and pus that had burrowed into the palmer surface of the hand. She had been advised by two competent men to have the finger amputated, to which I concurred, and explained that if we were able to save the finger it would likely remain ankylosed. At her refusal to have the finger amputated, I opened the palmer surface of the hand and finger, applied a wet dressing of acetate of aluminum and placed a bandage around the wrist, (three hours night and morning), which gave her relief from pain on each application of the bandage, so much so that she often requested the bandage be applied for that purpose. At the end of the first week, the pus had about disappeared from the finger, and skin was grafted over two large areas on the back of the finger where the skin had sloughed previous to our treatment. At the end of two weeks, she returned home and continued to apply the bandage night and morning. In two months time the finger had regained its normal size and appearance. The movement of the joint is nearly normal, so much so that she could play the piano and completely close and extend the finger.

Paralysis Left Facial Nerve. Mr. M., lawyer, 32 years of age, developed syphilis during 1907. On January 8th, 1908, left side of face became paralyzed, embracing the muscles supplied by the facial nerve. He had been taking very large doses of mercury with inunctions for the same. The past month had been spent at the springs, and his treatment continued without any improvement. On April the 8th, I commenced intra-venous injections of bi-chloride of mercury; on the 11th of April I commenced the application of the bandage about the neck to produce hyperemia of the brain, as there had not been any results from the treatment. After the second application of the bandage he was able to close his eyelid, which had not occurred since his paralysis. I did not at first attribute the result to the hyperemia, but supposed that the mercury was doing the work. The next day he could not close his lid or work the muscles of the face. After his treatment of one hour he could close the eye and use the muscles of the paralyzed side so that he could whistle. Each time (within an hour or two) after his treatment, the paralysis would return, but not so completely as at first, and the application of the bandage would restore the function of the muscles. The mercury was continued as well as the hyperemia night and morning, and he returned home on April 18th very much improved and able to use the muscles of the face. This man was very intelligent and not hysterical in any respect, and it was certainly amazing to be able to see the paralysis disappear under

each treatment, and all evidence of it gone in one week, except the retention of some atrophy.

I have selected only a few cases as typical from a great number in which I have used the Bier treatment during the last year. My experience with the treatment previous to the last year had been confined to a number of cases of delayed union in fractures, and I have never seen this remedy fail to restore union where the bones were in approximation. While the results in chronic conditions have been far better than I could have anticipated, the work that I have observed with it in acute conditions during the past year has simply been marvelous, and I am of the opinion that as we better understand the indications and the use of this simple remedy, it will revolutionize our treatment in acute as well as chronic conditions.

Discussion.

Dr. W. W. Richardson, Los Angeles: I have listened with much interest to this paper of Dr. Morton's as I have had some, although a limited, experience with Bier's hyperemia treatment, and I am glad to hear that Dr. Morton's experience has been favorable. Even if this treatment should not in other hands prove of the same benefit which it has in those of its originator, it has taught us a new pathology and a new therapy. At least if not altogether new, it has brought to general attention facts which were not commonly accepted. The theory upon which the treatment is based allows itself to be summed up in two postulates. 1. The group of tissue changes which we are accustomed to class as inflammation, is but the attempt of nature to remove or render harmless some insult to which the tissues have been subjected. 2. The characteristic and essential feature of inflammation is hyperemia. If we can accept these two statements, it follows from itself that the hyperemia of inflammation is a beneficial process and should be encouraged rather than fought, as has been the custom. In practice, Bier states that in general, that form of hyperemia should be selected which is already present in the process to be influenced. As blood stasis is characteristic of all inflammation, we would expect that a passive hyperemia would be most often indicated and so, we find, in Bier's practice. If we accept Wright's teaching that the bactericidal quality of the blood depends upon certain substances contained in the serum which so act upon the bacteria as to render them vulnerable to the attack of the leukocytes, the rationale of Bier's treatment is evident. A combination of vaccine and Bier's hyperemia would appear rational. Without attempting to go into the details of technic, it may be said in general, that in acute inflammations the bandage is allowed to remain longer, from twenty to twenty-two hours daily, and a considerable degree of edema is permissible, but in tuberculous affections it is applied but once daily and worn from one to three hours at the longest, and only a moderate edema at most is permissible. In no case should the application of the bandage cause pain. Pain is an indication of faulty application or that the case is unsuitable to treatment.

The technic of the suction cups is equally important. The cup should be applied for only three-quarters of an hour daily and even for that time the application is not continuous, but is interrupted every five minutes with a three-minute interval. The air exhaustion should be sufficient only to cause the cup to adhere and should never cause pain. The experience of many surgeons with Bier's treatment does not seem to have been as favorable as that reported by Bier, but in some cases this may be owing to errors of technic. No one should condemn this treatment unless he has followed in all minutiae the exact technic as outlined by Bier. No one should attempt the treatment unless he is willing to master all of the details, by careful study of Bier's writings and careful observation of the patient during treatment.

Dr. S. J. Hunkin, San Francisco: This treatment is not particularly new. We have been using it for at least fifteen years in tuberculous joints, so that it is not new in this particular application of it. I have used it and have noticed something which has not been brought out. I have found it to be of no value in tuberculosis except that it controls the pain. It is perhaps the best thing that can be applied to a very painful knee to control the pain. I think it also favors the breaking down of the tuberculous tissue. You will find when using it to control the pain, that the tuberculous tissue breaks down more often than in cases where it has not been used. It is true that this breaking down does no particular harm, the abscess discharges and the area soon heals. The control of the joint is not lessened by the treatment. In cases of double infection where there is a sinus going down to the bone, the Bier treatment shortens the course of the disease. The infection is stopped in two or three days. What has surprised me is the ending of Dr. Morton's paper where he says that he uses this treatment in tuberculosis of the joints for three hours morning and evening. Bier himself would be sorry to see his treatment used in that way.

Dr. A. W. Morton, San Francisco: In speaking about the results in tuberculous joints, Bier's reports are at hand and with such an authority as Bier with the statistics that he gives, it is worth our while to give the same due consideration. As to the time the treatment is applied, as was said, in acute conditions he recommends as long as twenty hours, but he has to apply the tourniquet very gently. In his last article he recommends a shorter period of time with a more intense hyperemia, that is, produce the hyperemia so that you get the bluish tinge, so that the veins stand out prominent on the part. The case of which I started to speak was one of tuberculosis of the joint that had developed from an abscess of the tibia at the tibial head and involved the joint. I was nine months treating that case and now the boy has perfect use of the ankles. There is simply a slight enlargement over the head of the tibia. Under excision of the joint we could have had that patient recover and well inside of eight or ten weeks, with what result? A painful operation and a risk to many of the dangers of a surgical operation, which you do not have with the Bier treatment. For that reason, it seems to me, as we are relieving pain during the time of the application of the bandage, that it is well worth our consideration in these cases.

INTESTINAL PARALYSIS.*

(Pseudo-ileus. Dynamic ileus. Adynamic ileus.)

By E. G. McCONNELL, M. D., San Francisco.

In general use the term intestinal paralysis does not imply that contractibility of the muscularis is necessarily lost. In the majority of cases it refers to a reflex excitation of the inhibitory nerves, by which the peristalsis is interrupted.

Functional insufficiency of the peristalsis of a part or of the entire intestine, without being caused by a mechanical obstacle, was first correctly recognized by Henrot in 1865.

The original classification by this author, of the various conditions leading to intestinal paralysis, is

* Read before the Cooper College Science Club.

still serviceable for a summary representation of this subject. 1st. Intestinal paralysis by causes not directly affecting the intestine. Among the etiological factors under this heading the following conditions may be arranged: Acute ascites; traumatic injury to the testicle; operations upon hemorrhoids; inflamed hydroceles, buboes, abscesses and other inflammatory processes of the inguinal region and abdominal walls. Nothnagel has observed a case after punctures of the abdominal wall for ascites. Hemmeter has reported a case of a female, aged 50 years, who had complete suppression of stool. She had been given castor oil, calomel and salts with no effect, fecal vomiting set in with intense pain in the epigastrium radiating to the navel, a large colon enema brought away very little fecal matter. During the laparotomy the intestines were found everywhere permeable, but a gall stone the size of a hazel nut was found in the cystic duct and twelve gall stones in the gall bladder were removed. The patient made an uneventful recovery and was in perfect health and had regular evacuations when last seen, three months after the operation. Dr. John B. Murphy has reported the case of a patient who was shot, the bullet having passed in behind the clavicle and downward. When Dr. Murphy saw him on the 6th day after the accident, his abdomen was enormously distended, there was protusion of his bowel on account of the distention of his abdomen; his respiration was compromised; there was complete absence of peristalsis. On placing the patient on his left side, there was flatness to a certain line; on turning the patient on the opposite side there was flatness to a certain line with resonance on the other side. What was the conclusion? It was that the bullet had passed down through the diaphragm and had penetrated either the stomach or intestine, and the peritoneal cavity was full of fluid. A laparotomy was done, and the peritoneum found absolutely free from fluid, when he was turned on the table the fluid in his paralyzed intestine flowed to the most dependent portion. When turned on the other side, with the abdomen open, the fluid flowed to the opposite side as it would through a rubber tube, so complete was the paralysis of his intestine. Strange to say, the condition immediately cleared up following the laparotomy. Peristalsis set in within two hours after the operation. He began to have bowel movements, gas passed off and he recovered.

Under second heading we have: Intestinal paresis from causes acting directly on the intestine, and producing at least a partially demonstrable anatomical lesion. After completion of an intra-abdominal operation, intestinal resection, removal of neoplasm and similar work where the lumen of the intestine has been restored. No evacuation of feces or gases may occur on the following days in spite of the re-establishment of the permeability. Meteorism develops, gradually the pulse sinks, and the patient enters a state of collapse. After operations on the female genital organs and after reposition of incarcerated external hernias a similar pseudo-occlusion has been observed. On the basis of a number of carefully conducted experiments, Reichel has suggested that the intestinal paralysis observed after laparotomies, hernitotomies, etc., is due to a circumscribed infection of the intestine. He demonstrated that there is a peritoneal infection without any traces of inflammatory changes in the serous covering of the intestine. The paralysis is regarded by him as a poisoning of the musculature or its inherent nervous apparatus by the metabolic products of the bacteria. Hemmeter reports two interesting cases that came under his observation. One was a case of volvulus, the other was an intestinal paralysis following a blow in the abdomen by the shaft of a wagon. In these two cases, at operation, definite circumscribed areas were noticed which presented a diffuse saturation of the muscular layer with serum. At autopsy no microscopic evidence of these pathological processes could be demonstrated, nor was any evidence of a peritonitis seen. Cultures taken from the peritoneum showed the presence of the bacillus coli communis.

Third. Intestinal paralysis following embolus in the mesenteric artery.

Fourth. Motor insufficiency of the intestine due to pronounced pathological lesions; as seen in cases of peritonitis. One of the most frequent causes of intestinal paralysis is peritonitis, either general or a circumscribed inflammation of the serous covering of the bowel. The paralysis is attributed to a continuance of the inflammation into the muscular layer or if this has not actually taken place, the muscularis is at least permeated by a serous transudation, as pointed out by Hemmeter.

Fifth. Intestinal paralysis due to extreme distention by enormous accumulation of gases. According to Kade meteorism is a result of two conditions which mutually supplement each other. The first and most active and important of these is disturbances of the circulation in the intestinal wall, and consequent venous stagnation. The second is stagnation and putrefaction of the intestinal contents. Disturbance in the circulation is the more important detrimental condition, because it prevents the absorption of the gases. Meteorism does not develop until the absorption is less than the formation of the intestinal gases. When that state is reached the distention increases rapidly in intensity, as a vicious circle is established the distention naturally injuring the circulation and the impeded circulation paralyzing the musculature, which in turn permits still greater distention.

Sixth. Pseudo-ileus in consequence of paralysis occurring in the course of neurosis and diseases of the central nervous system. Speaking of this form of ileus, Murphy states that it is not uncommon to see patients with fracture of the spine in the upper dorsal region or other injury to the spine in this region with an enormously distended abdomen, with the absence of peristalsis and with inability to secure bowel movements by ordinary means.

Intestinal paralysis may be brought about in two ways under the influence of the nerves. 1st, by paralysis of the motor fibres or ganglia, causing a cessation of muscular contraction. 2nd, by reflex

excitation of the inhibitory fibres of the intestine which are found in the splanchnic nerves. Goltz, experimenting on frogs, has demonstrated that the heart of a frog will become arrested in diastole when the abdomen is repeatedly struck with a small rod, but if the vagi are cut through, the striking is no longer followed by this result. This experiment makes it plausible that violent centripetal irritation which originates from the nerves of the peritoneum or intestine itself may cause depression of the heart's action, bringing on symptoms of collapse simultaneously with excitation of the inhibitory nerves for intestinal paralysis.

Multanousky demonstrated that an interruption of the free movements of the intestinal contents for six hours suffices to permit the transmigration of bacteria through the intestinal wall, and that it is not necessary for the intestinal mucosa to be in any way necrosed to permit of this passage. On the basis of his experiments we may assume that infection of the abdominal cavity occurs very often and very early in cases of impermeability of the intestine. Nesbitt in some experimental work conducted upon dogs in the pharmacological laboratory of the Johns Hopkins University found in complete occlusion of the small intestine at the lower end, the occurrence of cholin and neurin along with other bases, provided the food ingested contained any considerable quantity of lecithin. It is not improbable, he thinks, that still other poisonous substances are formed by bacterial action from other constituents of the food in cases of intestinal obstruction. While cholin is relatively harmless in its action, neurin must be classed with the exceedingly active poisons. It has been conclusively shown by Nesbitt, and other observers quoted by him, that neurin may be formed from cholin by bacterial action. In its physiological effect, neurin is very like muscarin, especially to be noted here is its paralytic action on the heart. It is reasonable to suppose that this same bacterial reaction will occur to a more or less extent in intestinal paralysis. Following in the line of these experiments, we are able to understand the rapid course and fatal termination of these cases of intestinal paralysis.

I was called to see Mr. W., aged 52 years, who had been struck by a street car. He was suffering from a fracture of the third, fourth and fifth ribs, with a general soreness over the left side, and from a laceration of the right buttock which necessitated the insertion of several stitches. The pelvic bones were normal. His general condition was good, his pulse being slightly above normal, but of good volume. Respiration, 20 to 24. He was given strychnine, 1-60 gr. ever six hours. He was unable to pass urine and a catheterized specimen was lightly colored with blood. This blood persisted three days and then cleared up. His bowels had moved on the morning of the accident. The following morning he was given three laxative pills, which produced no result. His pulse through the day ranged between 120 and 130 and his respiration gradually increased ranging from 30 to 40 per minute. He was given three grains of calomel and on the following morning a glass of Hunyadi water; this had had no effect up to noon and he was given a high enema of soapsuds with glycerine, epsom salts and asofetida. This enema returned only slightly colored. That evening he was given another enema the length of the rectal tube (about 12 inches). This enema was similar to the preceding, but contained in addition six ounces of old New Orleans molasses. This returned, but accomplished nothing. His temperature rose to 101°, his pulse ranging around 120, and his respiration ranging around 30. During this time he complained of very little pain and had no vomiting. The abdomen was only slightly distended. He had passed no gas up to this time and no borborygmi could be heard when listening with the stethoscope. On the following day he was given two drops of croton oil in olive oil; this produced no result, but it was noted that he expelled gas while on the pan. On the following day he was given two doses of salicylate of eserin, 1-50 gr. hypodermically, four hours apart. Later a high enema was given him with a fair result. It is to be noted that there was no vomiting at any time, excepting a few moment before the patient died. The patient complained of very little pain. Distention of the abdomen did not become marked until the fourth day. The patient died on the fifth day.

Post mortem report: Three ribs broken on left side, lungs normal, heart shows deposits on aortic valves, intestines everywhere permeable, the colon was greatly distended with gas, the small intestines slightly distended. Psoas muscle on the left side markedly hyperemic and infiltrated with blood. Liver and spleen normal. Interstitial nephritis with small hemorrhage areas in the left kidney.

THE TREATMENT OF CROUPOUS PNEUMONIA.*

By DR. WM. WATT KERR, San Francisco.

This discussion of the treatment of croupous pneumonia will be facilitated by the preliminary statement that its object is to offer the suggestion that possibly our results would be better if we did not attach quite so much importance to the condition of the lung, but bestowed more attention upon an attempt to alleviate the constitutional effects of a pneumococcic toxemia. Although, theoretically, we recognize pneumonia as a specific infectious fever in which the primary morbid anatomical changes are liable to be most prominent in the lungs, but by no means confined to these organs, nevertheless the treatment is only too frequently directed simply toward an attempt to arrest or mitigate the consequences of the pulmonary consolidation, as if the sole role of the pneumococcus were to produce changes in the organs of respiration, and all other untoward effects in the history of the disease were consequent upon the latter. Clinical experience teaches us that in pneumonia death is most frequently due to cardiac failure or profound toxemia and very rarely to asphyxia; and recent investigations in the metabolism of the disease tend to show that even the disturbance of the respiratory quotient can not be entirely attributed to occlusion of the air cells or impaired function of alveolar epithelium as it is very largely due to the direct influence of the infection upon the tissues.

I have not been able to find a comparison of changes in metabolism due to pneumococcic infection with pneumonia, and pneumococcic infection without pneumonia. We know that it is not at all uncommon to find pneumococcic infection of various tissues while the lungs remain healthy, and the pro-

* Read before the San Francisco County Medical Society.

portion of such cases would in all probability be found to be very much greater than present statistics indicate were it possible to conduct the bacteriological examination of many of the obscure infections with the same frequency and facility as they can be undertaken in pneumonia; such a comparison as suggested above is perfectly possible and would be of material benefit in helping to distinguish the toxic effects due to the pneumococcus from those consequent upon obstructed respiration.

We do not wish to be understood as ignoring the dangers consequent upon pulmonary consolidation, for while it is perfectly true that the residual air space and the increased respiratory movements compensate this to some extent, nevertheless it is equally evident that in the majority of cases the limit of compensatory capability must be very soon reached.

Treatment, therefore, must take cognizance of two varieties of toxins; those furnished by the infection and those resulting from impaired external respiration.

The interpretation of the cardiac symptoms found in a case of pneumonia is one of the most frequent sources of error in treatment, as the growing myocardial weakness, and the increase in the area of heart dulness are only too often attributed to abnormal resistance in the pulmonary circulation consequent upon consolidation. There are two clinical features which must always make us doubt the wisdom of accepting such a mechanical basis for the change. (1) There is no fixed relation between the cardiac changes and the extent of pulmonary consolidation, sometimes there is an extensive area involved without any apparent change in the heart, while in others the pulmonary exudation is very slight, but the heart weak and dilated. (2) Within one or two hours after the crisis, indeed while the temperature is falling, the pulse improves, the cyanosis and full jugulars disappear, yet the physical signs of consolidation do not change until some time after this, and consequently there must be as much obstruction as ever to the flow through the pulmonary capillaries. This conclusively shows that the period of cardiac embarrassment coincides with that of active toxemia. But, in addition to this, we have the morbid anatomical fact, which is reiterated by nearly every pathologist but forgotten or disregarded by a very large number of clinicians, that even in the stage of hepatization the pulmonary capillaries remain pervious to the blood stream. Such considerations must influence us in the selection of remedies which exert an influence on the cardio-vascular system.

The reader is generally bewildered by the advice offered on this subject in many of the text books as the substance of the matter generally is to give the patient cardiac depressants, such as aconite, antimony, or veratrum viride if the pulse be strong and cardiac stimulants such as digitalis, strychnin, or caffein, if the pulse be weak. Frequently students have asked for an explanation of this apparent determination to be dissatisfied with the pulse whether it be weak or strong, and I have answered that my own experience has never brought me in contact with a case of pneumonia which warranted the use of a cardiac depressant, neither was stimulation invariably demanded. It is true that frequently there are plethoric cases where the patient suffers from the over-full turgid condition of the blood vessels, but these are best relieved by abstraction of blood from the circulation, so that the strain upon both heart and vessels is relieved quickly and efficiently without incurring the risk of depressing an organ that is in continual danger of being paralyzed by the toxins of the disease. Similar objections may be offered to the use of the same remedies with the object of what has been described as "bleeding a man into his own veins," because one of the impending dangers in this disease is an accumulation in the venous system on account of the weakened heart being unable to carry the blood back into the arteries. If the case requires bleeding let it be done externally.

The administration of digitalis in pneumonia is a subject that has given rise to much controversy. Theoretically it may be given (1) because an increased driving power of the heart may diminish pulmonary congestion. (2) The more complete systole of the left ventricle is followed by a greater suction power during diastole and therefore will tend to draw the blood forward from the lungs. (3) The more complete contraction of the cardiac muscle fibres will improve the coronary circulation and thus maintain a more perfect nutrition of the myocardium. This last effect is the most important of the three. Practically the results of digitalis do not equal our expectations, and if anyone hopes for the same glowing results from its use in pneumonia that he so frequently obtains in mitral incompetence he is doomed to disappointment. Probably an explanation of the discrepancy is found in the observation of Sir Lauder Brunton and Cash that this drug is inert in the presence of temperature much over 103° F, and consequently my habit is to instruct the nurse not to give this remedy unless the temperature is below 103.5° F.

My object in giving digitalis is to render more complete the cardiac systole and thus diminish the risk of the formation of intraventricular clots, while at the same time the more perfect contraction of the muscle fibres will maintain a more complete renewal of the blood supply to the myocardium, and thereby assist in preserving its nutrition. The dose generally given for such purposes is about twenty minims of the tincture every three or four hours.

Comparatively few clinicians have obtained satisfactory results from the method advised by Petresco, which consists in administering enormous doses such as from one to four drachms of the powdered leaves. The absence of toxic symptoms from such dosage may be due to lack of absorption, or, as suggested by Brunton and Cash, to much of the drug being rendered inert by the high temperature.

Petresco himself, however, is inclined to the opinion that there is some antagonism between the drug and the pneumotoxin, and in this he is sustained by the more recent investigations of Borini

who inoculated rabbits with virulent pneumococci, then injected digitalis and observed that those thus treated lived longer than others in which aleuron was used; both substances produced leukocytosis but that resulting from digitalis was the more persistent of the two.

The saline method is one of the most recent attempts to place the treatment of pneumonia upon a physiological basis. It consists in the administration of eight ounces of normal salt solution as an enema every four hours, or ten grains of sodium chloride may be given by the mouth every three or four hours from the beginning of the disease. Its administration is based upon the belief that increased antidotal action of the blood against bacterial infection goes hand in hand with increased alkalinity; that in pneumonia there is diminished alkalinity of the blood and consequently impaired removal of carbonic acid from the tissues, so that the latter are in a state of semi-asphyxiation and do not readily respond to the stimulation for the production of antibodies. The antidotal influence of the alkali is not supposed to be due to any direct action upon bacteria, but because of its power to liberate cell nucleins or enzymes which as compliments or alexins are inimical to micro-organisms. Considerable success is claimed for this line of treatment, and certainly it should aid in the elimination of toxins, whether those be the result of the pneumococcus or of deficient pulmonary respiration.

Some advocates of this method suggest that the sodium chloride should be made into lemonade by the addition of citric acid on the ground that it will produce decalcification of the blood and thus diminish the tendency to coagulation; but this last suggestion has raised some conflict with the line of treatment suggested by Sir Lauder Brunton for the purpose of maintaining the h art's action when failure is imminent. He advises calcium chloride, grains five to ten, to be given every four hours. This suggestion was based upon the observation made in the physiological laboratory many years ago by Dr. Ringer that when the frog's heart is perfused with a solution of sodium chloride in distilled water the heart soon loses its power of contraction but that this does not take place if calcium salts be added to the solution. Dr. Brunton has used this treatment with success in several cases of pneumonia, and believes that any risk from increased coagulability of the blood is small in comparison to that of heart failure. The destruction of the County Hospital has curtailed my opportunities for testing this method during the present Winter, but the results in private practice are sufficiently good to encourage me in continuing this treatment. There cannot be any question about the calcium salt being a good heart stimulant; it is also true that in small doses it increases the coagulability of the blood, although it is claimed that the opposite condition results if the dose be large or is continued for any length of time, and the question has been raised whether this should stand in the way of its being used as a cardiac stimulant in pneumonia.

The chief objection has been raised by those who fear cardiac clot, but the almost universal testimony of morbid anatomists is that *ante-mortem* intra-cardiac clotting is very rare in pneumonia, and therefore it is very doubtful whether any real danger exists from this condition of hyperinosis. The clinician's experience for centuries has caused him to dread those cases in which the sputum is thin and watery, and modern methods of investigation have shown, that in those cases where the patient is overwhelmed by the disease an increase in fibrin rarely takes place. Pfeiffer says that his observations teach him that in all inflammatory diseases in which there is an increase of fibrin there is also a leukocytosis, a coincidence which suggests the truth of Hayem's idea that the density of the fibrin may be taken as an indication of the patient's resisting powers since it appears to be better marked in the blood of the vigorous than of the feeble. I do not wish to be understood as arguing that hyperinosis artificially produced is of equal, or any, prognostic value compared with that originating in the blood in response to the stimulus of an infection, as that would be inclined to put me in the same category with the physician who suggested the internal administration of chromic acid for the cure of cerebral softening, but I only recite such facts as the rarity of ante-mortem intra-cardiac clotting and the good omen which for years clinicians have attached to this condition of hyperinosis that I may mitigate the dread of possible evils arising from the use of calcium chloride.

The treatment of pneumonia by means of large doses of quinine has again been brought before the profession by Galbraith within the last three years. His method, if he finds a case in the early stages of congestion, is to give a dose of sixty grains of sulphate of quinine which is followed by a second dose of forty grains two hours later. The subsequent doses are regulated by the variations in temperature. About three hours after the quinine the patient is given fifteen minims of the tincture of chloride of iron every two to six hours according to the condition of the pulse, and any subsequent rise in temperature indicates another large dose of quinine, about thirty or forty grains, and the administration of the iron steadily every three hours. This treatment has met with marked success in the hands of Dr. Galbraith and his associates, although there is a tendency in some quarters to set it aside because it is based simply upon clinical experience and has not emanated from the clinical laboratory. This position is unfortunate and constitutes a barrier to the progress of medicine. It assumes that the findings of the laboratory and our immediate interpretations of them are absolute and beyond question. It practically claims that our knowledge regarding the action of quinine and the role played by the various toxins is complete, whereas we know that such knowledge is revised and discarded from time to time. It would seem to me that the discrepancy between laboratory findings and the manifestations of disease at the bedside should be an incentive to further chemical research rather than an excuse for consigning our patient to perdition simply because

the clinical manifestations of his disease and his responsiveness or irresponsiveness to treatment do not correspond with our preconceived ideas.

Serum therapy in the treatment of pneumonia has been a failure. An attempt has been made to explain this by calling attention to the fact that in many cases of pneumonia there is a variety of micro-organisms present, but on the other hand it is equally true that these play a very secondary role in the majority of pneumonic patients; such clinical features as the self-limiting character of the disease must mean either that the pneumococcus is responsible for the essential pathological changes in every case of lobar pneumonia, or that we are entirely wrong in our ideas as to the pneumococcus being the cause of the disease. Furthermore it is now an established fact that cultures of the pneumococcus can be obtained from the blood of over seventy per cent of patients suffering from pneumonia and consequently we should be able to differentiate between pneumonias due to the pneumococcus and those produced by other micro-organisms. The truth is that we have not yet been able to obtain an efficient serum. Other substances such as nuclein have been injected in the hope that by producing a leukocytosis they would increase the bactericidal power of the blood; but while their administration was undoubtedly followed by an increase in the number of white blood corpuscles there was no corresponding improvement in the condition of the patient, indicating that any agent to be successful must also be capable of sensitizing or producing the opsonic factor in the serum.

The fresh air treatment of pneumonia, whether it be conducted in a well ventilated room or in the open air, is evidently a step in the right direction. Investigations by Wood upon the viability of the pneumococcus have done much to put this treatment on a permanent basis, because he has shown that sunlight will destroy the pneumococcus in from one to four hours; furthermore, open air secures not only a better oxygen supply but insures the removal of respiratory impurities, and in this way has an immense advantage over the use of oxygen in a poorly ventilated room. Within the last few years the utility of oxygen in the treatment of pneumonia has been called into question and constitutes one of the chief subjects of debate between the physiologist and the clinician at the present time.

There cannot be any doubt that oxygen has done good service in many cases, and there are hundreds of physicians and patients who are able to testify to the relief following its proper administration. Nevertheless, hyper-oxygenated foul air must never be taken as a substitute for pure air. It must not be supposed that the oxygenated air reaches the alveolar cells in anything like the proportion in which it enters the mouth; even the air in the alveoli of the normal lung is much less rich in oxygen than that in the bronchi and upper air passages. The air cells never empty themselves and consequently the residual air in the alveoli is necessarily a mixture of old and new air. The shallower the respiratory movements the more imperfect will be the emptying of the alveoli, and, therefore, in such a disease as pneumonia, when the respirations are rapid and shallow, it will require an atmosphere richer than usual in oxygen to dilute the residual air to its normal proportions. We know from physiologists that as the pressure of oxygen in the atmosphere falls, less and less is taken up by the blood until a point is reached when none is absorbed, and it would therefore seem that hyperoxygenated air might become an absolute necessity in some cases where the oxygen pressure in the alveolar air has become very much reduced. In addition to this it is quite possible that morbid molecular changes in the alveolar epithelium makes a more richly oxygenated atmosphere possible or essential in order that absorption of the necessary amount of oxygen may take place.

From such considerations I am still of the opinion that the administration of oxygen has a place in the treatment of diseases of the lungs, but on the other hand do most heartily deprecate the custom of those who seek to atone for the evils of poor ventilation by keeping a stream of oxygen playing continually below their patient's nose.

There are many other topics, such as the treatment of delayed resolution by means of the X Ray, that merit the attention of this Society, but enough has been said to open the discussion upon this all-important subject.

THE QUESTION OF OPERATIVE INTERFERENCE IN ACUTE APPENDICITIS.*

By T. H. BLODGETT, M. D., Tulare.

We have two classes of physicians—advocates of waiting and watching and, second, advocates of operation at once, or at the end of thirty-six or forty-eight hours. The former rely on the fact that the majority of persons with appendicitis recover without operation, or with medical treatment, or in other words they represent that the dangerous form in which sloughing and perforation of the appendix with suppurative peritonitis is rare; only 14 per cent.

Now the advocates of waiting and watching further maintain that the indiscriminate removal of appendices is similar to that of many other useless operations.

Ochsner advises that the operation be deferred in cases which are very grave when first seen, whether early or late in the disease. This advice only refers to cases which, experience has shown, do so badly after immediate operation. The delay is recommended until the general condition has improved, localization has occurred, and an operation can be performed with comparatively little risk. In these cases, and also in all cases of appendicitis, he strongly advocates absolute cessation of administration of any food or fluid by the mouth, and especially condemns cathartics because peristaltic movements of the intestines spreads the infection. The mouth may be moistened and washed out, but all food and fluid

* Read before the San Joaquin Valley Medical Society.

(Continued on Page 27.)

PACIFIC ASSOCIATION OF RAILWAY SURGEONS' OFFICIAL MINUTES.

The Pacific Association of Railway Surgeons first effected a permanent organization in Santa Barbara, California, on April 21, 1903. The State Medical Society was holding its convention at the time and as many of its members were railway surgeons they deemed it an opportune time to form an association of railway surgeons. The object of the association was to bring together the various railway doctors throughout the Pacific Coast in convention so that important matters pertaining to railway surgery, medico-legal and sanitary matters might be discussed. Furthermore, the object of such an association in addition to the mutual benefit derived by its members should be to co-operate with regular state and county societies and also affiliate with like associations in the East in furtherance of the progress of medicine and surgery.

I might say that at the present time the Association has met with great success and has in a way partly fulfilled its object.

We have now members from every state on the Pacific Coast and many valuable papers have been read and much clinical work demonstrated.

We have been handicapped in the past and the valuable work going on has not become known as we have not had an official journal. Meetings are held annually in San Francisco and the California State Journal of Medicine will, in the future, publish the proceedings.

G. R. CARSON, Secretary.

The sixth annual meeting of the Pacific Association of Railway Surgeons was held in San Francisco, August 28th and 29th; meeting called to order by the President, Dr. J. R. Colburn, at 2:15 p. m.

The President announced that on account of the death of the Secretary, Dr. J. P. Dunn, since the last meeting, a Secretary should be elected pro tem.

Dr. Philip King Brown was named by Dr. Morton, seconded by Dr. Keys. Dr. Brown was duly elected Secretary pro tem.

The President then delivered an opening address.

In accordance with the President's suggestion, motion was made by Dr. Brown and duly seconded, that a committee of three be appointed by the Chair to draw up resolutions upon the death of the Secretary, Dr. J. P. Dunn. Drs. Huntington, Carl Kurtz and Philip King Brown were named as such committee, with request that report be made at the following session.

The minutes of the previous meeting were read by Dr. Brown. On motion duly made and seconded the minutes as read were accepted and ordered placed on file.

Scientific Program.

1. Dr. A. Miles Taylor, "Fracture of the Femur and Innominate Bone."

Dr. Taylor being absent his paper was read by Dr. Southard.

2. Dr. A. W. Morton, "Palmer Infections."

Dr. Morton announced that his paper was unprepared.

The Committee of Arrangements announced that the dinner for that evening would take place in the Red Room of the St. Francis at 7 o'clock, promptly.

Motion was made by Dr. McCleave, seconded by Dr. Morton, that as Dr. Huntington's paper, next to follow, was upon practically the same subject as the paper just read, the discussion be postponed and both papers discussed at once.

3. Dr. T. W. Huntington, "Exhibition of crayon drawings illustrating the Operative Treatment of Fractures of the Thigh."

The President: Before calling for discussions upon these papers, I wish to announce that Dr. Hitchcock of Los Angeles, who is not a member, is present, and I desire a motion made, inviting him to enter into discussion of papers.

Motion duly made, seconded and carried.

Discussion: Dr. Huntington, Dr. McCleave, Dr. Kurtz, Dr. Coffey and Dr. Hildreth.

4. Dr G. R. Carson, "Treatment of Pneumonia."

Discussion: Dr Evans, Dr Hildreth, Dr. Brown and Dr. Carson.

5. Dr. T. W. Huntington, "Remarks upon the Causes of Late Operative Wound Infections as Relate to Method of Closure."

Discussion: Dr. Hitchcock, Dr. Evans, Dr. Morton and Dr. Huntington.

5. Dr R. A. Peers, "Tuberculosis."

Discussion: Dr. Keys and Dr. Peers.

6. Dr. J. C. Booth, "Periodical Paralysis."

Meeting adjourned.

August 29, 1908.

Meeting called to order by the President.

8. Dr. C. L. Bigelow, "Hip Injury." Exhibition of patient.

Recess called for examination of patient.

Discussion: Dr. Kurtz, Dr. Coffey and Dr. Bigelow.

9. Dr. A. J. Hosmer, "Bier's Hyperemic Treatment." Absent.

10. Dr. S. D. Swope, "Major Results from Minor Injuries." Absent.

11. Dr. A. M. Henderson, "Report of Case of Chronic Duodenal Ulcer." Absent.

12. Dr. W. I. Terry, "Direct Transfusion of Blood."

Discussion: Dr. Adams, Dr. Morton, Dr. Booth, Dr. Brown and Dr. Terry.

13. Drs. Brown and Coffey, "Gastric Ulcer."

Discussion: Dr. Kurtz, Dr. Coffey, Dr. Huntington, Dr. Terry, Dr Brown and Dr. Coffey.

14. Dr. Rexwald Brown, "Traumatic Rupture of the Urethra."

Discussion: Dr. Huntington and Dr. Brown.

15. Dr. C. J. Teass, "Treatment of Burns."

Discussion: Dr. Huntington, Dr. Morton, Dr. Bigelow and Dr. Teass.

16. Dr. C. E. Thompson, "Waxed Silk as a Suture."

Discussion: Dr. Teass and Dr. Thompson.

17. Dr. R. W. Miller, "Inflammation of the Accessory Sinuses of the Nasal Chambers." Absent.

Reports of Officers and Committees.

Report of committee to draft resolution upon death of Dr. Dunn was then read:

Resolved, That, whereas in the untimely death of Dr. Jas. P. Dunn, one of the founders of this Association and its Secretary since its organization, a surgeon of ability, held in highest regard by the members of the Pacific Association of Railway Surgeons, by the medical profession generally, and by his fellow men, this Association has suffered a serious loss.

Resolved, further, That this resolution be spread upon the minutes and a copy be sent to his relatives.

(Signed) T. W. HUNTINGTON, M. D.,
(Signed) CARL KURTZ, M. D.,
(Signed) PHILIP KING BROWN, M. D.,
Committee.

Motion was duly made and seconded that this resolution be accepted and that a copy be sent to Mrs. Dunn.

The following applications for membership, being properly approved, were presented: Dr. O. D. Butler, San Francisco; Dr. C. L. Bigelow, San Francisco; Dr. C. J. Teass, Kennett, Cal.; Dr. J. H. Kuser, Novato, Cal.; Dr. A. J. Hood, Elko, Nev.; Dr. G. A. Woelffel, Willits, Cal.; Dr. Rexwald Brown,

Santa Barbara; Dr. J. M. Mills, Larkspur, Cal.; Dr. C. F. Grant, Cloverdale, Cal.; Dr. W. H. Sullivan, Hopland, Cal.; Dr. J. L. Bond, Ukiah, Cal.; Dr. E. H. Smith, San Francisco.

Motion was duly made and seconded that the Secretary cast the ballot of the Association for the election of same.

Motion was made by Dr. Huntington, requesting that the Committee on Publication confer with the Publishing Committee of the Journal of the State Medical Association and request the publishing of papers in a special department; also that such committee report at next annual meeting. Motion duly seconded and ordered.

The next in order is the selection of a meeting place for the seventh annual meeting in 1909.

Motion made by Dr. A. W. Morton, "That this Association meet in Seattle, for the fact that at the present meeting we have but one man from Oregon and the men of the Northwest take practically no interest in the Association, San Francisco being so far away for them to attend meeting."

Seconded by Dr. J. C. Booth, who added that Seattle was more of a railroad center than San Francisco and that members of the Northwest could not come to San Francisco, owing to the distance.

Dr. W. B. Coffey offered the following motion as a substitute to that of Dr. Morton: "That this Association meet in San Francisco, it being more centrally located for all members and of far more advantage in a professional way." Also that it was the intention at the time this Association was organized to hold the meetings in San Francisco, on account of the hospital opportunities, but since the fire in 1906 San Francisco has been greatly handicapped in that respect, hence the meeting was held last year in Los Angeles.

Dr. Carson also added that the meetings being held in San Francisco gave the members an opportunity to attend the Lane lectures as well.

Dr. Morton stated that the Lane lectures were "all off," and had been for some time.

Dr. Coffey's motion was seconded by Dr. Terry and placed to a vote of the Association.

San Francisco was chosen by open vote as the meeting place for 1909, the date of which to be determined later.

Motion was made by Dr. Rogers that invitations be sent to all railroad surgeons on the coast who are not now members of this Association to become such, believing that there are many that would be glad to join if accorded an invitation.

Seconded by Dr. Teass and so ordered.

The President: Next is the election of officers for the ensuing year.

President—Dr. T. C. McCleave, Berkeley, Cal. Nominated by Dr. Huntington, seconded by Dr. Brown.

Dr. Terry moved that nominations be closed and the Secretary cast the ballot of the Association. So ordered.

First Vice-President—Dr. H. D. Lawhead, Woodland, Cal. Nominated by Dr. Brown, seconded by Dr. Teass.

Dr. Huntington moved that nominations be closed and the Secretary cast the ballot of the Association. So ordered.

Second Vice-President—Dr. C. Kurtz, Los Angeles, Cal. Nominated by Dr. Carson, seconded by Dr. Huntington.

Dr. Morton moved that nominations be closed and the Secretary cast the ballot of the Association. So ordered.

Secretary—Dr. G. R. Carson, San Francisco. Nominated by Dr. Brown, seconded by Dr. Terry.

Dr. Huntington moved that nominations be closed and the Secretary cast the ballot of the Association. So ordered.

Treasurer—Dr. F. L. Adams, Oakland, Cal. (incumbent). Nominated by Dr. Brown, seconded by Dr. Terry.

Dr. Morton moved that nominations be closed and the Secretary cast the ballot of the Association. So ordered.

Executive Board—Drs. C. J. Teass, Kennett, Cal.; Dr. A. W. Morton. Unanimously elected.

Complete Executive Board—Dr. E. A. Bryant, Los Angeles; Dr. A. W. Morton, San Francisco; Dr. C. J. Teass, Kennett.

A vote of thanks was tendered the retiring President, Dr. J. R. Colburn. Meeting adjourned.

PRESIDENT'S ADDRESS, SIXTH ANNUAL MEETING OF THE PACIFIC ASSOCIATION OF RAILWAY SURGEONS.

By J. R. COLBURN, M. D., Los Angeles.

I wish to express my appreciation of the honor which you have conferred upon me in electing me to preside over your deliberations.

Since our last meeting this association has suffered an irreparable loss in the death of its very efficient Secretary, Dr. James P. Dunn. I would suggest that a committee be appointed to draft suitable resolutions upon the death of Dr. Dunn.

I congratulate you upon the large attendance on this, the sixth annual meeting of the Pacific Association of Railway Surgeons. It is exceedingly gratifying to me, and must be a source of great satisfaction to the men who are responsible for the birth of this association, to see it grow into a strong and vigorous body. I am sure that it will continue to grow in interest and importance until it shall measure up to its full standard of usefulness and fill perfectly its particular place in organized medicine.

I have not prepared a formal address upon a medical subject to deliver to you, gentlemen, but have thought to give you briefly my views along the line of the Railway Hospital Association, its aims and purposes.

From the layman's, or traveling public's point of view, it is an organization to provide salaried positions for favored medical men, whose chief aim is to "get there first" in case of accidents, and whose specific purpose it is to minimize the extent and importance of all injuries, thereby paving the way for an easy settlement by the claim agent, who is supposed to follow closely in their wake. In short the railway medical official is regarded as the pliant tool of the corporation employing him, and is expected to earn his salary by fraud and misrepresentation in the settlement of claims for damages.

It rests with this association and like organizations, first, to determine to what extent, if at all, the railway medical officer is responsible for this wide-spread and fixed idea in the minds of the laity; and second, to correct, as far as possible, this very low estimate of the aims and purposes of railway medical organizations. To the end that this may be accomplished we must begin by making an honest confession that there is, or has been, some basis for the public's estimate of our

work. We must acknowledge that in our examination of the injured, and in the expression of an opinion we have too often had in mind the thought of a possible claim for damages. Chiefs of departments must get the idea out of the minds of the average railroad doctor that the medical department is an adjunct to the claims department. No such thing was ever contemplated. Our relations with that department are only incidental and should not, in any way, influence our actions and opinions. The claim agent of to-day is not the hard-hearted monster of the early days, who sought, by intimidation and fraud to have those injured through fault of his employers, sign away, for a trifle, whatever rights they may have had. He is a gentleman seeking the truth and endeavoring to deal honestly and fairly with the injured, and when he asks for an opinion he wants and expects an honest, clean-cut statement of facts.

In our corporation work we must not lose sight of the high ideals which have ever characterized our profession. Let us not forget that it is first of all a humanitarian calling. Let us deal fairly with the injured, be he passenger, tresspasser or employe; give him that careful, painstaking care which is his right, regardless of all other considerations. In this way, and in this way only, may we hope to command the good opinion, not only of those committed to our care but of the corporation to which we are responsible, and have that sense of satisfaction which comes from having done the right as we see it.

We have not yet attained to the ideal in railway medical organization. The scope of its work should be broadened. We are too much concerned with caring for the sick and injured and give too little attention to that broader view embraced in preventive medicine. We are dealing with a large class of citizens, who look to us for instructions as to how to live. The average railroad employe considers himself apart from the general public, and what is said and done by health authorities does not appeal to him. While municipalities, through their health officers and commonwealths, through their boards of health, are seeking to educate the public in matters of sanitation and hygiene, we are content to set the broken bones and give a pill to those committed to our care.

The old saw that "a little knowledge is a dangerous thing" has lost its weight, and we all recognize the fact that a little knowledge of the right kind, particularly along the line of preventive medicine, is not only health-preserving but life-saving.

A recent editorial in THE CALIFORNIA STATE JOURNAL OF MEDICINE says: "It is noteworthy that of four orations, including the president's address, delivered at the last meeting of the American Medical Association, three had more or less to do with the education of the public in matters pertaining to public health and the work of the physician in securing sanitary reforms." And the editor urges that we drop the foolish robe of secrecy with which our profession has clothed itself and be frank and open with the lay public in the discussion of our work and our problems.

Dr. Thayer, in his oration on medicine, speaking of the education of the public, says, "It is the vital duty, not only of schools and associations, but of each member of the medical profession, to do his part in this great work."

What part are we, as the representatives of the great railways on this coast, to take in spreading the new gospel? How can this work best be done for that part of the public for which we are responsible, is an important question and should be considered by this association. Certainly no other organization of medical men has greater opportunities.

Our influence is not local but wide-spread. Through the railroads which we represent we are clothed with authority to put in motion forces which will not only effect better living on the part of the employes, but influence for good the community in which they reside.

The medical department is a necessary part of all well-organized railroads, and upon the staff there should be a medical man thoroughly skilled in the science of hygiene and sanitation. It would be well within the province of such a man to advise with the general manager as to hours of labor of employes, to inspect eating houses provided for employes, their sanitation and the character of the food served. At the end of divisions, where it is necessary to provide sleeping quarters, to see that they are properly constructed with proper ventilation and sanitation, with conveniences for bathing, reading rooms provided with good literature, games, etc. At central points meetings could be arranged with the employes and matters of common interest discussed with them; courses of instruction in "first aid to the injured" might well be included in the subjects to be considered. In fact, everything pertaining to the health and comfort, and, therefore, the efficiency of employes, should be under the direct supervision of the medical department, and that department held responsible for all preventable accidents and diseases.

I offer these few suggestions as indicating what may be done by this association in aiding this great work of educating the public and bringing about great sanitary reforms.

With a medical department thoroughly organized and working along the lines indicated, it will never be a question with the employe as to whether he contributes twenty-five cents or one dollar per month towards it maintenance.

TREATMENT OF TRAUMATIC RUPTURE OF THE URETHRA.*

By REXWALD BROWN, M. D., Santa Barbara.

(1) Following severe traumatic rupture of the urethra posterior to the peno-scrotal junction, unless immediate treatment be instituted, a grave condition

* Read before the Pacific Association of Railway Surgeons, San Francisco, August 29, 1908.

presents, appalling even to the medical attendant. Tissues adjacent to and even far removed, relatively speaking, from the severed urethral ends, become edematous and blackened, filled with extravasating blood and urine.

Death confronts the patient if exit is not found at once for the retained and decomposing urine. The physician realizes this all too well and in his haste to find passage way for the locked up waters he inserts into the urethra the rubber or metal catheter and attempts to force it into the bladder.

Nor perhaps is the physician to be blamed for undertaking this seemingly logical maneuver. There is a lack of clear detail concerning the management of this serious injury to be found in text-books devoted to genito-urinary surgery, and in nearly all that I have had access to the wording of the paragraphs on the treatment is such that catheterization is given prominent attention—in some even indicative attention. This is decidedly wrong, and such inferential teaching has undoubtedly in the past been responsible for deaths.

This rule should be followed without reserve—whenever there is good reason to suspect, or there is known positively to be, a rupture of the urethra a catheter or sound under no circumstances should be introduced into the urethra either as a diagnostic or as a therapeutic measure. There is a reason for this. Nor is it that false passages may be produced through the edematous and infiltrated tissue, always possible in this condition, and a serious accident in itself, but the bar should be placed because the passage of a catheter subjects the injured tissues to the insult of infection. And infection in this devitalized area can in a few short hours easily turn the patient's changes from a practically certain recovery, under proper treatment, to that border-line where death can close the picture.

Why does cellulitis here so speedily sink the scales? Because the infection is under constantly increasing tension—the extravasating urine and blood and rapidly forming pus find no runways to the surface from the confines of the slowly yielding layers of fascia and skin, tissue destruction and septic thrombus formation in the venous plexuses is very rapid, and toxic absorption increases proportionately with the tension. Toxemia, pyemia, septicemia, may therefore be the physician's contribution to a patient in the passing of a catheter when traumatic rupture of the urethra is present. But it will be said that the passing of a sterile catheter under the most aseptic precautions can not possibly be responsible for so disastrous a train of consequences. Yet it can—the trauma inflicted by the passage of a catheter along the urethra increases the virulence of or makes virulent the micro-organisms which have their habitat in the urethra—among these are diptheriæ bacilli, strepto-bacilli, and even streptococci. They are carried along to the area of laceration—what inviting pastures lie before them in the bruised, bleeding and urinous tissues!

Minor grades of urethral tear, manifesting only slight bleeding from the meatus, but little pain and difficulty in micturition, should be treated by watchful expectancy. Nature will repair the damage which is limited to lacerations not completely through the muscularis.

When the surgeon sees a patient shortly after a history of severe perineal traumatism, and there is great pain experienced, extreme difficulty in forcing a few drops of urine through meatus or utter inability to do so, hypogastric distress and symptoms of hemorrhage, immediate simple urethrotomy on a grooved staff should be performed. The two ends of the torn urethra should be approximated over a catheter by catgut sutures and the catheter fastened to be retained for a few days. The perineal wound should then be closed around a drainage tube to remain forty-eight or sixty hours.

When several hours have elapsed after the infliction of the injury, and there is great retention, extensive infiltration and extravasation of urine and blood, with patient appearing anxious, his condition bordering on shock, and perhaps death not a great way distant if relief is not obtained through the securing of free outlet from the bladder, which is the clear and urgent demand of the situation, do not further jeopardize life by attempting catheter passing, but at once deeply incise the perineum. The pent-up waters and blood will gush forth, and two results will be at once attained—the patient will be able to pass his urine, his life thereby being saved, and with the tension off the tissues destructive processes will be limited. Clotted blood can be easily turned out of the wound, and any fresh hemorrhage arrested. Tube drainage should be placed. After several days, when the parts have almost reached normal again, the wound may be reopened, the ends of the severed urethra found, and approximated as above over a catheter. This should be removed in five or six days. After healing is complete following all urethral ruptures, systematic sounding to prevent stricture should be instituted.

Following is the report of a present case:

On June 20, '08, J. L., a powerfully built man of fifty years, quartermaster on the steamship Curacoa of the Pacific Coast Steamship Co., shortly after the ship passed out of the Golden Gate bound for Mexico, was about to descend from the quarter to the saloon deck. He slipped on some brass plating at the head of the ladder, and in some unexplained manner was thrown across one side rail of the ladder striking on his perineum. Above him was an iron hand rail parallel with the side ladder rail, and curving to meet the ladder rail at the foot of the ladder. J. L. slid down the ladder rail and jammed up with terrific force on his perineum at the angle of junction of side and hand rail. He stated the pain was agonizing. He was able to walk away to his quarters. Soon he found he was unable to pass urine, and in a few hours noted his scrotum beginning to swell. The ship continued on her course, reaching Santa Barbara channel the next afternoon, June 21, some twenty-three hours after the accident. She put into port here, and J. L. was carried ashore. I saw him soon afterward at the hospital. He was suffering intensely and was very anxious and restless—pulse was 94 and temperature 99 degrees. Examination revealed a blackened, tense and bulg-

ing perineum, enormously distended and blackened scrotum and penis, swelling and discoloration in abdominal wall, reaching to umbilicus, and slight discoloration in buttocks. Diagnosis was made of rupture of the urethra anterior to the deep perineal fascia, with extravasation into the usual areas. Under ether, deep perineal section was done at once and a great quantity of urine and clotted blood spurted from incision. More clots were cleaned out and tube drainage placed in wound. An incision was also made into either side of scrotum, through which there was much discharge. Drainage was free for two or three days, and tissues rapidly assumed normal dimensions, though discoloration lasted a couple of weeks. Patient was able to pass his urine through perineum as necessity required. Six days later, on June 27, patient was again anesthetized and perineal wound was enlarged. A catheter was introduced through meatus and was guided into bladder, the proximal end of urethra being readily found. The urethra was almost completely severed just beneath symphysis, a narrow strip of superior wall only being intact. The ends were retracted about ¾ of an inch. They were approximated by catgut mattress sutures over the catheter which extended just into bladder. Perineum was closed leaving drainage through lower angle. Catheter was removed in six days after which patient voided his urine in the natural way, a little at times seeping through the perineal wound. He passed from observation in another week, having on day he left hospital taken a 30 French sound with ease. He was enjoined to see a physician regularly for some months to have sounds passed.

Dixon in *Surgery, Gynecology and Obstretics,* January, 1907, emphatically recommends immediate supra-pubic cystotomy with retrograde catheterization in all severe cases of traumatic rupture of the urethra. He claims this is the proper course to pursue because it will be, through perineal section, almost invariably impossible to find the proximal end of the torn urethra in the bloody edematous tissue —that this end will be retracted and inverted, so curled upon itself as to fill and block the lumen of the canal—that this inversion, together with blood clots between the severed ends, will interfere with the passage of urine from the bladder. Retention is therefore to be relieved, and the proximal end of the urethra found only through supra-pubic opening.

It seems to me this rather severe measure can be necessary but very rarely, and then not as first treatment. If extensive urinary and hemorrhagic infiltration be present, the prime indication is to save life and limit destructive processes. These ends are secured by simple perineal section, with perhaps the shelling out of clots. With the tension off the tissues and drainage free, the flow of urine from the bladder will have more than sufficient force to turn out again into the inverted proximal urethra.

Several days later will be found not too long a time following the injury to search for and repair the urethra, the distal end of which is always found by catheterization through the penis. The proximal end should be readily found in tissues which are practically normal again by following the perineal sinus to the bottom. If it should be found impossible now to locate the desired end, then only is retrograde catheterization an indicated procedure.

In conclusion, I wish to reiterate that catheterization as a diagnostic or as a therapeutic measure in traumatic rupture of the urethra is to be condemned.

Discussion.

Dr. Huntington: I approve of practically every point made in this paper. First I want to allude again to the matter of tension, a thing in my mind for many years. I do not think we can possibly overrate its importance, nor over estimate the consequences ensuing upon tension. With regard to the drainage of extravasated urine, it has never been my plan to attempt to repair a urethra as a first effort at relief. I think it a better plan to do a perineal section and establish free drainage, letting the patient rest a few days. For those who have not ever attempted this undertaking I will say that the joining of the severed urethra is not so difficult as it might seem. The urethra lies very adjacent to the surface. Putting the patient in a proper position enables one to reach the seat of the injury and the end can be picked up. I insert a catheter during the operative procedure first through the penal portion, then through the bladder. This gives a direct line between the proximate and the distal ends of the urethra and they can be approximated. You will be surprised to see the elasticity in the distal portion of the urethra and how it will lend itself to repair.

Dr. Brown, closing: I will only say a word further. If it is found difficult to find the proximal end, the patient being under ether, allow him to wake up and ask him to pass a little urine. You will then find the proximal end of the urethra by watching the dropping of the urine.

(Continued from Page 22.)

must be given by the bowels. Gastric lavage is recommended for nausea and vomiting. In all cases seen before there is evidence of spread of the disease beyond the appendix, an immediate operation by a capable surgeon is advised to prevent complications as well as to save life.

I think most physicians and surgeons of California are in favor of operation at once, or at the end of thirty-six or forty-eight hours.

The advocates of an early operation claim that by operating early and thus making sure that infection has not extended beyond the appendix, the surgical death rate would be much below the medical one, which we have seen to be put by one of the best authorities, at 14 per cent. The surgeons of this class hold that the death rate would not exceed four or five per cent when cases of gangrene and perforation and suppurative peritonitis are operated on, and goes so far as to say that a surgical death rate of two per cent would be all.

Let us examine this claim that the medical death rate will be much lowered by an early surgical interference. It will be seen to stand or fall very largely upon the meaning of the word early. The question at once arises how many cases are really seen within the first twenty-four or thirty-six hours. Here the patient very often goes on working for days after he has warning by pain, and even sometimes with a lump in his right iliac fossa.

A patient from carelessness or a desire to make the best of his case from dread of operation may misrepresent his symptoms as just beginning. In reality this man has had for a day or two pains or

other evidence that a catarrhal condition has been established, and thus the appendix epithelium has had time to become shed and form an infection before a medical man is asked to see the patient.

EYE, EAR, NOSE AND THROAT SOCIETY.

October 15, 1908.

Dr. Cross presenting a case: I wish to present a case to you to-night in which I have been very much interested because of the unusualness of it. I have been very anxious to obtain photographs of the condition present in the mouth. I have been invited here this evening by Drs. Sewall and Martin because of the interest which the members of this Society might have in the case. This case is, I think, one of tuberculosis of the mucous membrane of the mouth. I have been unable to find much about tuberculosis of the tonsils or mucous membranes of the mouth and as I had only seen one case which looked like this, I came to the conclusion that this was a tubercular affair. I took some of the secretions off of the ulcerations and tubercle bacilli were found. I sent a specimen to the Board of Health in one of their test tubes and they also reported tubercle bacilli. So far as I have been able to make out, this man has no other focus of tuberculosis, he is strong and well and looks to be in good health, his occupation is that of a barber. He was raised on a farm and is a native of Vermont and he has a very good physique. He has a little mitral insufficiency and an enlargement of about one-half inch. He did not know when he came to me the nature of his trouble and I have never told him. His age is about 35. In looking up this subject I have been able to find but very little about it, but in American Medicine of September Dr. G. C. Sharp reports a case of tuberculosis of the mucous membranes of the mouth and gives an illustration of tuberculosis of the tongue. He mentions in his article the extreme rarity of the disease and how few cases he was able to find when looking up the subject. This case was interesting to me from the point of examination. From the history of these cases I find that they usually die within six months. Sharp quotes two cases which died and mentions that there is very little to do for them besides the ordinary anti-tubercular treatment. Why we do not have more of these cases I do not know. There is very little induration in this case, at first appearance you would not be alarmed at the condition. The point is that these cases always get to the general practitioner before going to the specialist and the rarity of them makes them a condition which really should be called specially to the attention of the general practitioner.

SAN FRANCISCO COUNTY MEETING OF SEPTEMBER 8, 1908.

Paper, "Acute Diverticulitis of the Sigmoid." Dr. J. H. Barbat.

Dr. MacMonagle: I have not a great deal to say that is of importance on this subject. I do not think, however, that such a subject should go by without our saying something about it. This is a real condition and a condition which holds forth some things perhaps not so satisfactory in results as diseases of the appendix, but quite as important when it is in active progress. My own experience with the trouble is not very great. I can recall some cases of supposed cures of cancer of the sigmoid, the subsequent course of which has been so very favorable and continued as a cure for so long that I am now of the opinion that there must have been an error in the diagnosis and we had to deal with diverticulitis and peridiverticulitis. I had intended reporting these cases as cures of cancer, but this condition having now come forward I am quite convinced that they should not be reported as such. Macroscopically they appeared to be cancer, and in fact one, I believe, was pronounced cancer by microscopy. I believe that this condition does not occur as frequently in women as in men. Three of the cases upon which I operated were in men. One was in a doctor and he has congratulated me time and again for curing him of cancer of the sigmoid. The specimens I kept until the recent fire when they were destroyed, thereby depriving me of the opportunity for more careful investigation to confirm me in the diagnosis. I can now recall cases of pain in the left side with symptoms of inflammatory conditions which I believe now to have been diverticulitis of the sigmoid. I think that these cases are not all surgical, but that there are a number that can be treated medically and will get well. They do not all have the very acute and dangerous symptoms which were found in Dr. Barbat's case. It think it requires a good deal of care and discrimination to decide on an operation. When a case has advanced to a great extent and the bowel is thickened and there is pus around the outside of the bowel, a surgical operation becomes an absolute necessity. A number of cases will get on for a long time with diverticulitis. I recall to mind one case of a man who had suffered for four years before the diagnosis was made. The diagnosis being made, he was operated on and cured of this painful condition.

Dr. Raymond Russ: Dr. Barbat is to be congratulated upon his presentation of this case—of special interest to the surgeon, for it gives a clue as to the origin of those conditions of left-sided abdominal pain, resembling appendicitis, which are sometimes met with. It is to be regretted that our dissecting rooms have furnished so few statistics of abnormalities of the bowel. While other portions of the body have been carefully studied, the abdominal content has been greatly neglected. The pathologist has given us much information, but the anatomist has done little to advance our knowledge in this respect. Diverticulitis has generally been divided into the true and the false—simple herniae through the coats of the sigmoid being placed in the latter class. The presence of congenital diverticula of the sigmoid has been denied by some authors. I wish to cite an instance of what I regard as a true congenital diverticula which I discovered recently while operating on a dog. The purpose of my operation was the entire reversal of the large and small intestine, my object being to study the action of peristalsis by this method. This operation in the dog is not difficult on account of the long mesentery. I had resected the bowel a little below the duodeno-jejunal junction and had closed the oral end with a view of making a lateral anastomosis between the sigmoid and the first portion of the small intestine. In resecting the sigmoid a few centimetres above the anus and closing the distal end, my attention was directed to a projection, about 2 cm. in length, arising from the sigmoid opposite the mesentery. At first I thought it was a collection of fat, but on more careful examination I found that the walls of this anomaly had the same structure as those of the bowel and were continuous with it. The diverticula, for such it was, had a distinct opening in the bowel which was quite large and could be easily palpated. I was so much interested in the operation that I did not save the specimen, which I have since regretted.

Dr. C. E. Farnum: This subject is of much interest to me for the reason that I have recently operated upon two cases, both of whom probably had diverticulitis of the sigmoid. As both patients recovered after separation of adhesions with drainage, and without resection, there was no patholog-

ical verification of the diagnosis. Both patients declined early operation, giving me sufficient time to observe development of symptoms and study up the literature of sigmoid diverticulitis, and in both there was made before operation the diagnosis, probable diverticulitis of the sigmoid. One of these cases was especially interesting in that appendicitis with abcess formation of the appendix preceded and subsequently accompanied the development of inflammation of the sigmoid diverticulum and peridiverticular inflammation with adhesions and pus formation about the site of the diverticulitis. This patient, a male aged 41, began his illness with nausea, pain, tenderness and muscular rigidity limited to the site of the appendix, there being no tenderness elsewhere over the abdomen until the appendiceal trouble had continued for nearly a week. Early operation having been declined the patient was treated by restriction of diet to the minimum and flushing out the colon daily with high salt solution enemas. There had previously been a history of constipation and even though the colon was well flushed out there was much difficulty in obtaining satisfactory fecal evacuations at this early period, although there was not much ultra-abdominal distention, gas readily escaping per rectum. After three days dulness developed over a small area at the site of the inflamed appendix and a palpable mass believed to be pus accumulation was felt in that location. Differential blood count was made and it indicated abcess formation. Still the patient insisted on delay of operation. About six days from the time the patient's illness began general abdominal tenderness with considerable distention came on. Within another two days abdominal tenderness had become limited to two areas, one over the appendix and the parts closely adjacent, where the palpable mass of pus accumulation was observed, and the other in the left abdominal region where also the muscles were braced and there appeared beneath a mass discernible by palpation. Knowing that during previous examination the abdominal muscles were not braced in a localized area on the left side, where tenderness had recently developed, and believing that a palpable mass on this side had not been overlooked, a diverticulitis of the sigmoid with adhesions from peridiverticulate inflammation was suspected to have developed since the time the appendicitis had begun. The enemas of salt solution were suspected to have assisted in development of the diverticular inflammation and in making more probably correct the diagnosis, although they gave no discomfort at the time they were used. The patient was sent to Lane Hospital, and, assisted by Dr. McNamara, the resident physician, who was previously informed of my diagnosis of appendiceal abscess with diverticulitis of the sigmoid, an operation was performed. The appendiceal abscess was drained through incision over the appendix. The inflammation of the appendix appeared to be independent of and in no way connected with the inflammatory mass on the left side. Through another incision to the left of the median line, through the outer part of the rectus, the abdomen was again opened, adhesions between small intestine and sigmoid separated and partial intestinal obstruction thereby relieved, a small abscess opened and pus wiped up, and a fecalith found by further separation of adhesions, which soon was followed by an escape of fecal matter. The general abdominal cavity having been kept free from contamination by gauze packing, a rubber tube was fastened by catgut to the mesentery of the sigmoid and surrounded with gauze for drainage. The patient made an easy and rapid recovery. In this case the inflammatory condition on the left side did not appear to be an extension of inflammation from the appendix. Although no diverticulum was actually observed after separation of adhesions sufficiently to relieve partial bowel obstruction and liberate some purulent fluid locked up within this inflammatory mass, yet the finding of a fecalith and the subsequent escape of fecal discharge leads to the inference that an inflamed diverticulum of the sigmoid existed. A favorable result in this case and the other to which I have made reference, appears to indicate that recovery from drainage alone, without resection of the sigmoid, will occur in such cases as can be sufficiently relieved of accompanying intestinal obstruction through separation of adhesions. However, as dissecting room experience and pathological reports show that intestinal diverticula, when they exist, are usually multiple about the portion of bowel affected, it will be important to ascertain whether recurrence will be usual after treatment made by separation of adhesions and drainage. If recurrence is the rule, then intestinal resection should be done at once in such cases as are in suitable condition for resection. A few writers have given points that are useful helps for early diagnosis of probable diverticulitis of the sigmoid, as, general pain over the abdomen at first, later localized to the left side low down, coming on in spells, accompanied by tenderness and bracing of the muscles in this region, with rather sudden and subsequent formation of a mass in the left lower quadrant, a history of constipation in a person over 40 having preceded the attack. Nausea and vomiting rarely occur early, unless the pain be severe and adhesions cause quite rapid distention or obstruction of the bowels. In the case just referred to the general pain and tenderness over the lower portion of the abdomen that developed a few days after the onset of the appendicitis was then believed to be caused by extension of inflammation in the peritoneum from the appendix; but the subsequent localization of marked tenderness over the sigmoid brought to mind the statement of one writer that in diverticulitis of the sigmoid the pain is usually at first general and later becomes localized on the left side low down, while in appendicitis when the inflammation begins at the appendix the reverse occurs, the seat of pain and point of tenderness being at first in the appendix and subsequently becoming more general.

Dr. Sampson: This is an extremely interesting subject and one that must interest all. While through decades the diverticulum has been a subject of discussion it has only been about ten years since diverticulitis was brought out or began to bring about an investigation upon this important subject. Therefore it is a comparatively new subject and one who has experience in abdominal work must appreciate its very valuable consideration. I am satisfied that we have frequently overlooked troubles of the diverticulum. There is one cause that I know in regard to the etiology of diverticulitis that was not mentioned in Dr. Barbat's paper, and that is the mucoid inflammatory condition as a factor. I think we should lay great stress on that. Very frequently we may have diverticulitis a mass developed and the fecal concretion is formed in the diverticulum, that perhaps will not give us much further trouble to contend with. Nevertheless, we have the constant element of danger there, and where we have a foreign body like a concretion we are very apt to have as a consequence some severe pathological lesion. We all know too well the case of Professor White, University of Pennsylvania. There it was pronounced to be cancer. There was an inflammatory condition and thickening around the area. Lumis believed this due to infection carried through the peritoneal layer and I am more impressed with what I learned from Mayo and some recent researches, that it is essentially due to mucoid irritation which is essentially the seat and

cause for this trouble. I have myself now under observation a case of diverticulitis. It does not call for any operative procedure but necessitates very close watching. In the use of enemata we must be very careful for the danger of distending the injured bowel causing a rupture into the peritoneal cavity—must not be lost sight of.

Paper, "Myositis Ossificans Progressiva"—Dr. Alfred Newman.

Dr. Sherman: I have not had any patient afflicted as is the one present and very ably described by Dr. Newman this evening. There are two or three points which have attracted my attention. One is the coxa valga, and that the neck of the femur goes up, on the affected side, almost in line with the shaft of the femur. It seemed to me as if that showed where the neck of the femur would ordinarily be if it had no work to do; as if the ultimate normal position was the result of upward growth against the downward pressure of weight-bearing. If the weight-bearing is taken off the upward growth goes on unrestrained. Here there has been practically no weight bearing on the affected side. I have seen something which is the reverse of that. Since the time when Lorenz was here I have been putting our cases of hip joint tuberculosis into plaster of Paris spicas rather than in the older fashioned traction apparatus which he had been using before that, and we think the cases do somewhat better. But I have noticed in the radiograms of these children that they have had also a coxa valga, rather than the ordinary position of the neck of the femur, and this seeming to be due to the fact that the plaster of Paris put on so firmly made transverse pressure over the trochanter, while no downward pressure from weight-bearing was permitted, and the result of growth upward and transverse pressure made the coxa valga. This is one thing. Secondly, there is a general excurvated condition of the legs. He has a bandy leg from his pelvis down. Not only is the bone tumor chiefly to the right side but to the adductor side of the right side. Dr. Newman showed me prints of his plates and the epiphyseal lines are still intact and growth is still taking place in tibia and femur. But because of the drag on the tumor and its interference with growth on the adductor side of the femur, while the growth on the abductor or outer side of the femur is less restricted there results a curvation of the whole femur from the pelvis down. At the ankle this rule seems to be broken because we have a valgus ankle and a varus knee, the tumor extends down below the ankle into the foot. I do not know how to explain this variation unless there is premature synotosis at the lower end of the tibia.

Dr. Newman: With regard to valgus instead of varus, it seems that the tibia and fibula also have epiphyseal lines and so the valgus may be due to simple pressure of the body and not to premature ossification. What I want to call attention to is the fact that all the joints are free, they are simply cemented together by the bone on the outside. This condition serves to differentiate the disease from anything rheumatic.

POLYCLINIC GATHERING.

Case presented by Dr. Barrett.

I wish to present to you a patient whom we have treated with bismuth paste. We have treated two or three ulcers with the bismuth paste with no success. We have had twelve cases of sinuses, leading to bone or glands. We treated this man in the clinic for three months, the patient refusing to have the glands operated upon. He had been treated with peruform, balsam of Peru, and carbolic to stimulate the granulation. The sinus had been curetted and packed. After all this treatment with no result, we injected the sinus five times. One of the conclusions mentioned in the paper written by Dr. Emil G. Beck of Chicago is that this paste will cure sinuses. It did in this instance, and there has been no trouble since.

In acute abscess cases we evacuate through small incisions and immediately inject the paste. We had two of this type. There was no drainage and the wound was closed by pressure of a small pad retained by bandages. We had another case of an old abscess pocket and sinus leading from the middle of the sterno-mastoid under the muscle of the suprasternal notch. This case was sent to the City and County Hospital, and while there we injected the bismuth paste once, and in three or four days the pocket completely healed and the sinus closed. The next case was that of an old gumma, broken down, with the occipital bone necrosed over a considerable area; it seemed about the size of a half-dollar. We injected this case, after one week of packing, with no seeming improvement, and after three injections it healed. The wound has remained closed. The next case was that of a large sub-gluteal abscess which contained almost one quart of pus. We evacuated this through a small opening under infiltration anesthesia. For seven months he had been treated with a diagnosis of rheumatism, during which time a big tumefaction over the gluteal region was forming about the size of a small melon. He had suffered an immense amount of pain, which the salicylates he had been taking did not relieve. Under infiltration, anesthesia with separation of the fibres of the glutei pus was evacuated. We have a radiograph of this case.

The bismuth paste consists of one ounce of bismuth to two ounces of vaseline, mixed well and injected with a blunt pointed urethral syringe. There has been a cure in all of the cases; that is, the sinuses have healed absolutely and perfectly. We had a case recently operated upon some months ago by Dr. Morton for enlarged inguinal glands, tubercular in character. The wound, left open for drainage, had not healed and the granulation tissue was not healthy. We freshened the edges of the skin, sutured them and injected the bismuth paste at once into the newly-formed sinuses and both sides healed completely. In the last three or four days, however, the left side has broken down again because there were two glands deeply seated and adherent to the peritoneum which broke down and caused trouble. Another case was that of an old sinus leading to a sequestrum in the tibia following a fracture of the inner malleolus. We reached the conclusion, after injecting the paste once with no result, that the sequestrum must first be removed, otherwise there would be no healing of the cavity. Beck states this as one of his conclusions. This was done and then the paste was injected, which was followed by the closure of the sinus.

We have also injected this paste into a sinus which followed orchidectomy in which the sinus led to the stump of the cord. This case required a second injection, but it has remained closed to date. We have had twelve cases, the number of injections not being more than five in any one case. These have been cured without drainage, without packing and without pain.

Dr. Levison (discussing): I have not had any experience with this paste, but I am profoundly impressed with what Dr. Barrett has told us with regard to its use. This paste seems to be able to accomplish more than we are able to accomplish by other methods. As Dr. Barrett has said, he has succeeded in closing up a number of sinuses which have remained refractory to other forms of treatment. This in itself is a very important factor in favor of the paste, because these sinuses give us a great deal of concern and annoyance.

POLYCLINIC GATHERING.

Case presented by Dr. Levison.

Patient was a man of 35 years of age who had been suffering from Raynaud's disease, which is characterized by the development of symmetrical gangrene of the extremities. Patient was presented through the courtesy of Dr. Rosenstirn who had him in charge. The history dates back 24 years when the disease first appeared in the instep of his left foot where the patient noticed a swelling. The muscles soon became involved in a chronic inflammatory process. He was treated by many physicians and with many remedies. After some two weeks the other foot became involved in a similar manner. He remained in the hospital for about six months, after which he had no pain for four years. About this time he observed that when he would walk he would tire easily and he would experience severe pain in his legs (intermittent claudication). His feet were painful and the toes were pale most of the time. He finally came to San Francisco when the trouble seemed to settle in the big toes, for which he went to a chiropodist. This individual evacuated some pus through an incision. He was also treated for erysipelas. Then his toe nail was removed and two incisions were made in the instep. At the City and County Hospital the great toe was removed; after five days the rest of the toes of this foot commenced to slough; shortly after, the leg was amputated. Five months later the leg was amputated a second time. The other leg had a similar history and has been amputated at six different places.

He finally recovered so that he could wheel himself around in an invalid chair. Several years ago, the trouble attacked the hand which commenced to swell. The pain ceased for a year when it recurred four years ago in the thumb which began to slough. Following this another finger became involved. A new nail developed on the second finger. Two other fingers became involved and were amputated. He then had the radial and the ulnar nerves stretched, which procedure seemed to improve the condition somewhat, but since this time the condition has progressed steadily. The microscopical examination of the vessels showed a complete obliteration of their lumen. Pathological diagnosis: endarteritis obliterans. The Bier treatment was applied and for a while it seemed to afford some relief but had to be discontinued subsequently on account of pain.

Second case presented by Dr. Levison.

The patient has come to the Polyclinic with an injury at the elbow joint. The motion was exceedingly limited, flexion of the arm being quite impossible. The X-Ray revealed a fracture of the head of the radius but a correct interpretation of the picture was not possible prior to operation. After the operation when the picture was studied, it became quite clear. It was felt that the prognosis was bad as far as restoration of function was concerned, so that an operation was decided upon. An incision of the forearm was made between the supinator longus and the biceps tendon as it goes down to become attached to the head of the radius. First the musculocutaneous nerve was exposed and deeper down the radial nerve with its ramifications was found without difficulty. This nerve had to be retracted to the outer side and we came upon the bony structures without loss of time. Two pieces of the head of the radius were removed but there was no improvement in the flexion; and it was only after great difficulty that the large piece of the head of the radius forming the third part was found impacted in the elbow joint. After this fragment had been removed, flexion could be completely carried out. The arm was put up in a right angle and after ten days the bandage was removed and the patient was permitted to use his arm as he saw fit. It is now three weeks since the operation and flexion is quite normal. In making these movements, Kocher advises that after the sutures have been removed, the patients be allowed to exercise the arm in a passive way. He never manipulates the arm claiming that great damage is done in that way. My own experience bears this out. Ankylosis does not develop if the treatment is followed in this manner.

Cases presented by Dr. Ryfkogel.

First case: This specimen is of some interest in connection with the case which Dr. Levison has shown. The patient, in a drunken condition, came into my service at the City and County Hospital, with a backward dislocation of the elbow and a fracture of the coranoid process. It was relatively easy to make the diagnosis,—on deep pressure crepitus could be felt. There was evidently no fracture of the head of the radius.

Case 2: I would like to show three pictures taken of a curious dislocation. The patient, while riding horseback, was thrown and the horse fell on him. There was a complete dislocation of both ends of the first metatarsal with fracture of the second and third metatarsals. There was also a Potts fracture. Before the anesthetic we could not budge it but after the anesthetic it almost fell into place. We put on the usual dressing for Potts fracture. After five weeks he left our care and went to work.

Case 3: This is a case of a child with six metatarsals and seven toes. We have removed the extra toes and metatarsal and the foot is apparently the same as the other foot.

Case 4: This patient came to me with the diagnosis of sarcoma of the thumb. A piece removed. Microscopical examination showed it to be gumma. Under iodide it disappeared. Neither the periosteum nor the bone was involved. This is unusual in syphilitic dactylitis. The tumor was toward the proximal end of the first phalanx.

Report of cases by Dr. U. B. Lennon from Dr. L. Newmark's Clinic.

We wish to show an X-Ray picture of cervical ribs. You will notice that the ribs are about 5 cm. in length. The plate was taken apropos of the following history:

Mrs. H., 28 years of age came to the clinic complaining of pain and weakness in her right arm. The pain is unremitting and extends from the neck along the inner aspect of the arm, to the hand. The weakness involves the forearm and hand. The first symptom, pain in the ball of the thumb, occurred ten years ago. Within three years there was an atrophy of the thenar eminence, the interosseous spaces somewhat hollowed and the hypothenar eminence flattened. For a time, a year or two, there was improvement of all the muscles except those of the thumb. Within the last few years there has been a gradual wasting of these muscles once more and the forearm has become smaller, a flattening being noticed particularly over its anterior and inner aspect. The supposition that all this might be due to the pressure of a cervical rib on the plexus seems substantiated by the plate. We will not go into the minutae of the case at the present time. We might say, however, that believing cervical ribs to be stigmata of degeneration we sought others and found a congenital cataract. We might remark that in spite of the pressure of a rib on the left side there are no symptoms.

We now wish to demonstrate an Erbs paralysis.

Mr. S., after a night with convivial friends, awoke the next morning with a palsied arm and a contusion of the right side of the neck. We saw him two weeks ago, one week after the onset of the trouble. As I ask the patient to perform the appropriate movements, you will note a loss of function in the deltoid, biceps, brachialis antieus, supinator longus and infraspinatus. Those muscles which can be ordinarly made to act by stimulation

of the plexus over Erbs point. The lesion is in either the fifth and sixth cervical roots or in the trunk formed by them. The trauma which produced the contusion was undoubtedly the cause of the nerve lesion.

The third patient has a lesion of his right ulnar nerve and of his left musculo-spiral. The former was first noticed five weeks ago. The right hand grew weak, the grasp feeble, abduction of the little finger was impossible, and there was a feeling of numbness over the ulnar side of the hand and in the little fingers. At present the condition is somewhat improved. The patient had been on a long spree which terminated at the onset of the musculo-spiral paralysis three weeks ago. This was precipitated in a characteristic manner. The patient fell asleep in a chair, with his arm resting on the sharp back and upon awakening found the condition you now see. There is a wrist drop, the loss of the power of extending the first phalanges of the fingers and thumb and the patient cannot supinate the arm. The manner of causation and the symptoms are easily indicative of a musculo-spiral paralysis.

Case presented by Dr. Levison.

In connection with ulnar paralysis reported by Dr. Lennon, I desire to mention the history of a patient, who while hanging globes on a chandelier, fell from the ladder and cut the inner posterior side of the upper third of the forearm. I saw her the day following the accident when she presented all the manifestations of a paralysis of the ulnar nerve. The wound was open and infected. The ulnar nerve which was found severed, was sutured with fine silk, but on account of the infection of the wound, it was felt that the nerve would not unite. The patient was unable to flex either the ring or the small fingers, which function is performed by the outer head of the flexor profundus digatorum. Neither could she extend the terminal phalanges of these same fingers, (paralysis of the two outer lumbricales). She could not spread her fingers (paralysis of the interossei). The thumb could not be pressed forcibly against the hand on account of a paralysis of the deep head of the abductor pollicis. There was also an atrophy of the muscles between the thumb and index fingers as well as an atrophy of the hypothenar muscles. All of this disturbance was due to a paralysis of the ulnar nerve. As there was no improvement in the paralysis, I felt that there had been a failure on the part of the nerve to unite: so that three months after the operation an incision was made and the nerve again exposed. It was found to be united and without any particular thickening, but it was buried in adhesions. The question presented itself as to how these adhesions could be prevented from reforming. The attempt was made to surround the nerve with silver foil but this adhered to everything but the nerve. Recalling the fact that Abbe had suggested the insertion of gutta percha tissue to prevent the nerve from again becoming attached to the Gasserian ganglion, after its section, the nerve was surrounded with a piece of this tissue in the hope that the adhesions would be kept from adhering to the nerve again. The wound healed without difficulty and the tissue has remained undisturbed. It is now six months since this tissue was buried and it has caused no disturbance. Under the influence of electricity the atrophy is subsiding and the function of the muscles is being gradually restored.

Dr. John R. Clark presenting a few specimens.

I have brought a few specimens from the morgue which may be of interest to you. These are specimens of hearts with one exception and that is a case of kidney where a large calculus was found in the pelvis. This is rather interesting because there were no symptoms. The man from whom this kidney was taken had been an active laboring man, a window cleaner. He was cleaning windows at the Scobie Hospital when he fell from the top floor fracturing his skull, and died as a result of this injury. In the course of the autopsy I removed this kidney and found it rather small, atrophic and hard. Upon opening it I found this calculus. The other kidney had been performing all the function for this man and was about four times as large. The ureter showed no special change.

With regard to the heart specimens, as you know, we get the largest hearts in the cases of regurgitation of the aorta. Where there is aortic insufficiency we get a very large hypertrophied heart with dilatation. I have here a very large heart and you can see the dilatation of the aorta amounting practically to an aneurysm, and a very atheromatous condition with lime plates over it.

Another heart shows dilatation and a small aneurysm with marked dilatation of the aorta. This shows what there is left of the aortic valves.

The next heart was a case where the vegetations are very marked on the aortic valve.

Another case is that of an aneurysmal sac which is fairly large where the aneurysm has ruptured into the pericardium. The pericardial cavity was distended with blood almost to the point of rupture. If the blood had been fluid there might have been 24 ounces in the pericardial cavity.

The next specimen I removed yesterday and it shows a sacculated aorta and development of lime plates to an extensive degree. The cause of death was weakness produced by pneumonia in very early stages. The lower left lobe was in a stage of beginning consolidation, the beginning pneumonia was just enough to turn the balance the wrong way and the man dropped dead in the street. The brain had quite a normal appearance.

Dr. Zobel: The cases which I report to-night are of special interest on account of their rarity in the United States. They are cases of venereal diseases of the rectum. These cases come to the proctalogist. The general practitioner very seldom sees them, even men like Tuttle and Gant have only seen a few cases of the kind. The cases to which I refer are two cases which we have had within a very short time of each other, of acute gonorrhea of the rectum in the male. These cases were the result of sodomistic practice, the patients after urging having owned up to how the disease was acquired. In the female, cases of this kind are more common because of the secretions coming from the infected vagina. Both these cases were in young men of the "genus hobo" class, and they were 18 and 19 years old respectively. The thing that I want to call attention to particularly is that they came complaining of piles. These cases had all the typical symptoms of gonorrhea of the rectum; a very miserable condition, indeed. In a way the symptoms resemble those of a gonorrhea of the urethra, having the discharge of pus, generally bloodstained, with great infiltration and redness of the mucous membrane. Owing to a great relaxation of the sphincters, notwithstanding the presence of ulcerations, you do not have to dilate the sphincter in order to look into the rectum. The patient can be made to bear down, the sphincter relaxes and you can look easily into the rectum. Dr. Victor and Dr. Martin Simon made slides from these cases and they reported the presence of gonococcus. One of the cases passed away from our clinic; the other case went on to improvement. The neurasthenic symptoms which you have often in a case of chronic gonorrhea of the urethra you have also in gonorrhea of the rectum. Our patient at one time even brought us a bottle containing "large shreds of mucus" which he said had been passing from his rectum. It was pulp of orange, undigested.

The next case is a very rare one also. It is a case of multiple perianal chancroids. This man had a

chancroid on his penis and from touching it with his hands and then touching his rectum he contracted chancroids. It produced marked ulcerations about the anus but under treatment the man got well and became indeed very happy.

Another case of much interest was referred to me from Dr. Newmark's clinic by Dr. Lennon. This was a man with marked neurasthenic symptoms who had for twenty-five years been troubled with pinworms. We introduced a long proctoscope and at the valve of O'Bieme found a mass of feces swarming with the oxyluris vermicularis. I want to say one thing more with regard to the rarity of multiple chancroids of the anus. Tuttle in his work quotes some statistics of Sick of the General Hospital in Hamburg, who reported that in 11,000 cases of venereal disease in women there were only 225 cases of anal chancroids and in 9,500 cases in male, only one. I spoke to one gentleman who is in charge of one of the largest clinics for genito-urinary diseases in our city for the past fifteen years and he stated that he had never seen gonorrhea of the rectum or multiple chancroids of the anus in all his experience.

Dr. John R. Clark: I will mention an interesting case that I found at autopsy the other day of a child a little less than a year old. There was an acute miliary tuberculosis, and meningitis, the primary cause of death. The child's intestinal tract in general was tuberculous. The interesting thing in this child was a complete transposition of the abdominal organs, the stomach being on the right, liver on the left, and spleen and colon exactly transposed. All of the organs were normally placed with reference to each other and appeared to be normal in themselves except for the tuberculosis. These cases are very rare and it is the first one I have ever encountered at an autopsy. The heart was normally situated.

DR. A. H. VOORHIES.

The death of Dr. A. H. Voorhies, who passed away in this city May 5, 1908, removes a notable figure. His personality was most attractive to those who had the privilege to be admitted to his confidence. His dignity of character and stately courtesy recalled the less strenuous ante-bellum days.

It was difficult to realize that Dr. Voorhies had been an actor in so many stirring events for he seldom spoke of his past or of his family connections. It was only under protest that his family could induce him to refer to those events in which he personally was a prominent figure. Some of the incidents here related were not known to his family, but it chanced to be the writer's good fortune one morning to find Dr. Voorhies in a reminiscent mood when several interesting experiences of his life were recalled.

Dr. Voorhies was descended from a distinguished ancestor, Coerte Albert Van Voorhies, whose son Steven came to this country in 1660 from Hees, Holland, and made his home in Flatlands, L. I. The family coat-of-arms indicates great antiquity. The crest is a "Tower of Gold" and the motto "Virtus Castellum Meum."

Dr. Voorhies' family was represented by officers in the Colonial and Revolutionary wars, and his father was colonel, commanding a brigade in the war between the states.

Dr. Voorhies graduated at the University of Pennsylvania and was a surgeon in one of the hospitals in Philadelphia when the war began, but resigned to enter a Tennessee regiment as surgeon. He rose rapidly to be surgeon of Loring's division and later of Polk's, and was with the latter when he was killed, after which Dr. Voorhies was promoted to the staff of General Joseph Johnson, and was present at all the battles about Richmond, Atlanta, Nashville and Franklin.

Dr. Voorhies was in charge of the medical department at the siege of Fort Henry and during the bombardment went on calmly with his work of succoring the injured. A writer in a recent magazine article says that "the only living thing that the Federalists noticed upon entering the captured fort was a young surgeon named Voorhies, who was busily engaged, completing an amputation of the leg of one of the wounded soldiers."

After the downfall of Forts Henry and Buckner, Dr. Voorhies was released upon parole and spent this time at Paducah, where General Grant was then staying. General Grant and Dr. Voorhies, although fighting upon opposite sides, established very friendly relations and the latter still retained, up to the time of his death, the memory of that friendship, and expressed the highest regard for the general's character. Illustrating the finer side of the character of the great soldier, Dr. Voorhies told of a visit of General Grant to the former's room, upon which occasion he was accompanied by a colonel of the union army. The doctor stepped forward to acknowledge the introduction and, in the position of host, greeted the guest with extended hand, upon which the visitor turned his back, refusing to "accept the hand of a rebel." General Grant was incensed at the action of his fellow officer and said to him with great dignity, "Sir, I brought you here to meet a gentleman and a captured officer. There is the door," holding open the door for his discomfited companion.

At this time Dr. Voorhies became well acquainted with General Sherman, and, notwithstanding the losses and suffering which his family and that of his future wife suffered from Sherman's operations in the South, he found much in him to admire. The parolled prisoners having been ordered to St. Louis, Dr. Voorhies was accompanied to the boat by General Sherman, who bid him farewell. The prisoner was given into the charge of a young lieutenant who had been only a short time in the service. Soon after their departure the young officer was taken violently ill. The captain of the boat, a Southern sympathizer, handing Dr. Voorhies a pistol, offered to land him at the next wood yard, where his flight would be assisted by the captain's friends. It is hardly necessary to say that Dr. Voorhies refused to break his parole nor would be consent to desert his patient, his former custodian, for whose safety he felt morally responsible. Upon arriving at St. Louis the young officer proceeded to headquarters, whilst Dr. Voorhies walked leisurely up the street to a point where he agreed to meet his guard. The officer reported in due form that he had come to deliver a prisoner to the St. Louis official. The commandant expressed his surprise in rather vigorous terms at the irregularity of the mode of the proceedings and sent the young officer posthaste to get his prisoner. After a short time the parolled prisoners were allowed a large measure of freedom, and Dr. Voorhies spent his time pleasantly as the guest of a prominent family that had been notified of his arrival by his Paducah friends. Later he was sent to Fort Warren, near Boston, and subsequently to City Point, where he was exchanged for a union officer of like rank. The doctor resumed service with the Confederacy and participated in many stirring scenes. At the battle of New Hope Church, General Polk finding that all of his aides had been dispatched to distant parts of the field, and desiring that another division be brought into action, requested Dr. Voorhies to be the bearer of the message. The bullets were singing merrily about him as he arrived near the church, but he remarked that he felt no sensation of fear until he turned his horse around to ride back to his headquarters. Upon ap-

proaching the general his attention was called by that officer to the splinters adhering to the rough material of his overcoat, the bullets passing through the flimsy walls of the church having scattered particles of wood in all directions.

Dr. Voorhies was one of the vanguard of American students who went to Paris to pursue the study of ophthalmology. Mrs. Voorhies and he were received by the Emperor Napoleon and Empress Eugenie, going to the Tuilleries by special invitation, for Napoleon was unusually kind to ex-Confederate officers and their families, knowing well that the fate of Maximillian and the Empire of Mexico depended upon the success of the Confederacy. The military careers of both Dr. Voorhies and his father Col. Voorhies, as well as that of the former's father-in-law, Hon. David J. Bailey, who signed the ordinance of secession, and of his grandfather-in-law, Hon. Seaton Grantland, who gave at one time one hundred thousand dollars to the Confederate cause, were all known to the Emperor. Dr. Voorhies met his future wife in a very romantic manner during Sherman's march through Georgia.

Dr. Voorhies is survived by his widow, one son and four daughters.

DR. FRANK LEMUEL ADAMS.

Was there ever a kindlier, bigger-hearted, good-natured soul than Frank Adams? Who that has attended the meetings of the State Society for the last few years, will soon forget his kindly, welcoming smile, his whole-souled friendliness that wrapped him about as with a garment of sincerity. With him, nothing was too much to do for a friend—and who was not his friend? If he had an enemy in the world, that one had never the face to let the fact be known. The story of his good deeds and his open-hearted charity will never be told, for he alone could have told it—and he never did; his right hand never knew what his left hand gave away or to whom it was extended in help. The sunshine of the gods was in his heart and the cleanliness of his life and of his mind was as that of a little child. As some of us trooped wearisomely over to Oakland in the dreadful days of April, 1906, we turned first to Frank Adams; and everything that he had was ours—without the asking. It is a big and a rare man who can give all that he has and make himself trouble and inconvenience in the giving, and still do it in a manner that makes you feel you are doing him a favor. The good Lord alone knows why he makes so few men like Frank Adams.

Dr. Adams was born in Troy, New York, in 1858; he died very suddenly, of heart disease, at his home in Oakland on the night of November 20, 1908. He graduated from the University of California in 1881, and in 1883 was graduated from Cooper Medical College. He held many positions in medical societies, and was President of the State Society, 1904-1905, presiding at the meeting held at Riverside in April, 1905.

SUPPORT THE MEDICAL LAW.

The Southern delegation to the legislature met in caucus in Los Angeles early in December and listened to the views of the citizens of the South in regard to proposed legislation. At one of the sessions Drs. Walter Lindley, Jno. King, Granville MacGowan, Fitch Mattison and others, representing all the medical societies of the South, appeared and explained to the delegation the reasons why the law should remain unchanged.

JAMES CARROLL.

On November 21, at St. John's College, Annapolis, Maryland, a tablet commemorating the life and services of James Carroll was unveiled. The inscription fittingly and briefly conveys the information of Dr. Carroll's services to this country and to humanity in aiding in the discovery of the mode of transmission of yellow fever. The tablet was erected by the regents of the University of Maryland and closes with the so-true quotation, "Greater love hath no man than this, that a man lay down his life for his friends."

SMALLPOX AND THE STATE BOARD OF HEALTH.

The State Board of Health has become alarmed at the increase of smallpox in some sections, and at the inertia of certain local prosecutors in not assuring the enforcement of the compulsory vaccination law. We understand that the Board is to take up these cases of lack of enforcement of the law very vigorously. It is certainly to be hoped that school boards can be made to see that the law is enforced or the schools closed.

BOARD OF EXAMINERS.

At the recent session of the board in Los Angeles, the members, instead of hiring watchers, did their own watching. It is reported that something over thirty cribs, compends, etc., were taken away from the candidates. The figures for the returns of the examination are not yet in, but we understand that something over fifty per cent failed to pass. Presumably there will be another bunch of discontented ones who will threaten to sue the board for their licenses.

CONCERNING THE REGISTRATION OF BIRTHS.

Sir: Your attention is directed to the following extracts from the Political Code, Statutes of California:

Section 3077—Physicians, midwives, nurses and other persons assisting at a birth shall return a certificate of such birth properly filled out, to the local Registrar WITHIN FIVE (5) DAYS THEREAFTER.

Section 3082—Any officer or person who fails, neglects or refuses to perform any of the duties imposed upon him under the law for the registration of births, or by instructions and directions of the State Registrar, shall be deemed guilty of a misdemeanor.

This is to inform you that on and after November 15, 1908, this department will not accept for registration any certificate not filed within the time limit prescribed by law.

We have been advised by the City Attorney that it would be illegal to do so, and in the event that physicians and midwives fail to perform their duty as set forth in said law, it will be incumbent upon this department to take steps to enforce same by causing the arrest and prosecution of all offenders.

BOARD OF HEALTH,
R. G. BRODRICK, M. D.,
Health Officer and Registrar.

Note—Do not hold certificates back in order to secure the baptismal name of a child. Send in your certificate and instruct parents that it is their duty to notify this office when name is given.

COUNTY SOCIETIES

MARIN COUNTY.

Resolutions passed at the last regular meeting.

Whereas, We believe that the minimum pay of the officers of the United States Public Health and Marine Hospital Service should at least be

equal to that received by the medical officers of the Army and Navy;

Therefore Be It Resolved: That the Marin County Medical Society heartily endorses their Personnel Bill which is at present awaiting enactment by the Congress of the United States and hereby requests the California members of Congress to use their best efforts to secure the passage of this bill.

And Be It Further Resolved: That this resolution be incorporated in the minutes of this meeting and copies forwarded to the California members of Congress, the California State Medical Journal and the Journal of the American Medical Association.

H. W. DUDLEY,
Pres. Marin Co. Med. Soc
J. H. KUSER,
Sec. Marin Co. Med. Soc

PLACER COUNTY.

The regular meeting of the Placer County Medical Society was held at Auburn, December 5, in the rooms of the Auburn Chamber of Commerce.

The following officers were elected for the ensuing year:

President, Dr. Martin Schnabel, Newcastle; Vice-President, Dr. E. C. Fabre-Rajotte, Lincoln; Secretary and Treasurer, Dr. G. H. Fay, East Auburn

Applications for membership were received from Dr. Carl P. Jones, Grass Valley, Dr. W. L. Fay, Forest Hill, and Dr. W. N. Finney, Lincoln, and they were all unanimously elected to become members of this Society.

The President appointed a Legislative Committee consisting of Dr. Tickell, Nevada City, Dr. Walsh, Loyalton, and Dr. Woodbridge, Roseville.

A resolution was passed endorsing the manner in which the Journal of the State Society is conducted, and a vote of confidence extended to the Secretary, Dr. Jones.

Dr. Rooney, in a short talk, stated that other incorporated towns and communities in California and elsewhere, might be benefited by the relation of what had been accomplished in Auburn, in the past few years.

This little town had acquired fame as a health resort, before Los Angeles or any other town in Southern California had been heard of outside of its own limits. Then it became infected with the malarial mosquito, and the good name of the town was lost. No one then knew the true cause of the disease, and the place was scourged with the infection, year after year, until its name was more widespread than ever, but in a discreditable sense. The cause was finally discovered, but it took several more years to get the people, or even a majority of the medical profession, awakened to the fact that the mosquito was to blame.

The medical men of the town began, and kept up, the agitation, until laymen of intelligence became interested, and the town authorities, in response to a general demand, took action in the spring of 1906. Swamps were fairly well drained and all pools and stagnant or slowly moving streams, were oiled at intervals during the season.

As a result, malarial diseases were cut down to about one-third or even less, in number. This good work has been continued every season, until, at the present time, these diseases have practically been banishd from our midst.

The Auburn physicians, by their unflagging efforts, in the interest of the people, have cut their summer incomes squarely in half—and are glad of it. Let other communities follow our example. Malarial diseases are preventable, and if we harbor them, we are deserving of a bad reputation.

The Society placed itself on record as favoring the establishment of a National Department of Health, and the Secretary was instructed to write to our U. S. Senators and Representatives urging them to support the measure.

The next meeting will be held in Colfax, May 1, 1909, when several interesting papers will be presented.

G. H. FAY, Secretary

RIVERSIDE COUNTY.

The Society has held two regular monthly meetings this fall and has met for post-graduate study every Monday night since October 1. These meetings have been successful in every way and the interest is growing. There seems to be no question as to the permanency of these meetings with the Society.

Monday evening, October 12, the monthly meeting for October, Dr. Shepard of Needles read a paper on the "Intravenous Injections of Tuberculin for Curative Purposes." Dr. Max Rothschild of San Francisco, met with us that evening and opened the discussion of Dr. Shepard's paper. Dr. W. W. Roblee read a paper on "Immunity" continuing the study course.

The Society met as guests of Dr. and Mrs. A. W. Walker and a most enjoyable luncheon was served following the meeting.

Monday evening, November 9, the Society again met for their monthly session as guests of Dr. and Mrs. C. S. Dickson. The subjects outlined in the A. M. A. program were presented by Dr. Carl Sleeper, "Mosquitoes in Malarial Fevers"; Dr. W. B. Sawyer, "Malarial Parasites"; Dr. C. Van Zwalenburg, "Clinical Forms of Malarial Fevers." Following the discussion of these topics, luncheon was served, and the meetings adjourned to December 14, at which time the annual election of officers will take place.

GEORGE E. TUCKER, Secretary.

SAN MATEO COUNTY.

The following resolutions were adopted at a regular meeting of the San Mateo County Medical Society, on November 9, 1908:

Whereas, There has been introduced into the Senate and House of Representatives of the United States a bill (S. 6102, H. R. 18794) for the relief of the medical officers of the United States Public Health and Marine Hospital Service, which bill has been passed by the Senate but not yet enacted by the House of Representatives; and,

Whereas, The passage of this bill would be a simple act of justice to one hundred and thirty efficient officers who are members of the American Medical Association;

Therefore Be It Resolved: That the San Mateo County Medical Society places itself on record as heartily approving this bill and urges upon the California delegation in Congress the passage of this law; and,

Be It Further Resolved: That this resolution be spread on the minutes of this meeting and copies sent to the California members of Congress, the Journal of the American Medical Association and the California State Medical Journal.

A. MILES TAYLOR, President.
F. M. SEIBERT, Secretary.

SACRAMENTO COUNTY.

The regular monthly meeting of the Sacramento Society was held November 17, 1908, at the residence of Dr. G. L. Simmons. The application of Dr. D. A. Kellogg, formerly of Placerville, but at

present practicing in Sacramento, was received. Dr. A. M. Henderson showed two cases with appendectomy scars, less than an inch long, whom he had allowed up on the third day. Dr. J. White reported a case having a dermoid cyst of both ovaries, and Dr. Jones, one of Henoch's Purpura.

Dr. Turner reported the case of a nine year old boy in which a tubercular gland had suddenly sloughed into the left bronchial tube and acting as a ball valve in the trachea had finally asphyxiated him.

A committee consisting of Drs. McLean, Parkinson, Twitchell, S. E. Simmons and Briggs, was appointed to investigate conditions at the County Hospital.

Dr. Wallace I. Terry of San Francisco, read a very interesting paper on the "Direct Transfusion of Blood," and reported four cases with the favorable results he had obtained, after which the meeting adjourned.

E. C. TURNER, Secretary.

SANTA CLARA COUNTY.

The regular Society meeting was held November 18 at the new Santa Clara County Hospital with the following present: Drs. Jordan, Simpson, Whiffen, A. S. J. Smith, Wagner, H. B. Gates, Newell, Blair, W. S. VanDalsem, Wilson, Bangs, Reynolds, Kocher, Hall, Harris, McMahon, D. A. Beattie, Holbrook, Snow, S. B. VanDalsem, Thomas, Moyer, Fraser and Park. The guests of the Society were Drs. Benepe and C. G. Wilson. The minutes of the previous meeting were read and approved. The resignation of Dr. Wm. E. Keith was read and accepted. The legislative committee was ordered to take up with our Congressman and Senators the advisability of giving their support to the formation of a National Department of Public Health.

The following resolutions introduced by Dr. Wm. Simpson were adopted:

"It is hereby resolved by the Santa Clara County Medical Society that we favor the passage of the bill at present before Congress, placing the salaries and chances of promotion of the officers of the United States Public Health and Marine Hospital Service on the same basis as those of the medical officers of the Army and Navy, and

"It is further resolved, that the members of this Society pledge themselves to use their best endeavors with the Senators and representatives in this State to the end that this bill may be enacted, and

"It is further resolved, that the Secretary be and is instructed to place this resolution on the minutes of this meeting and forward copies to each member of the California delegation in Congress, the Secretary of the American Medical Association, and the Secretary of the California State Medical Society."

Transfer cards were received from Drs. J. L. Benepe and C. G. Wilson, and they were duly elected as members. Dr. D. A. Beattie presented a paper entitled "Uterine Fibroma," and also brought specimens demonstrating his remarks. The paper was discussed by Drs. Fraser, Hall and McMahon. County physician Dr. Gates brought three patients before the Society, for clinical observation and discussion. After the meeting was over, those present were taken on a tour of inspection over the new hospital buildings and grounds. The hospital staff served a delicious supper to the members and a very pleasant social hour was spent.

K. C. PARK, Secretary.

YOLO COUNTY.

The regular annual meeting of the Yolo County Medical Society was held Tuesday evening, November 24th. Dr. Neil D. Gunn of Pacific Grove, spoke to the Society on the subject of tuberculosis, with special attention to its treatment by tuberculin. It was a most excellent lecture and was received with great enthusiasm.

The same officers were re-elected, Dr. T. W. Gallion, President, and F. L. Newton, Secretary-Treasurer, for the ensuing year.

A banquet was served at the close of the meeting, when the Society entertained Dr. N. K. Foster of Sacramento, Rev. Clarence Reed of Alameda, Miss May Dexter, County Superintendent of Schools, and the six high school teachers of Woodland, and upon the advice of the Society, Miss Dexter, Superintendent of Schools, invited Dr. Gunn to speak at the Teachers' Institute, which is now in session, on "Tuberculosis," and Dr. Foster to speak to them on "School Hygiene," on the afternoon of November 25.

F. L. NEWTON, Secretary.

"PHENALEIN" OR "PURGEN."

A correspondent kindly sends in a circular he received from the Pax Chemical Co., of Oakland, referring to a wonderful new purgative, the essential ingredient of which is our old friend phenolphthalein. This is the basic drug in "purgen," referred to in these columns some months ago and later exposed by the Journal A. M. A. Its use is by no means without danger. There must be a good many doctors who learn their materia medica from the advertising literature of "manufacturers," or the flood of these things would not be.

SOUTHERN CALIFORNIA MEDICAL SOCIETY.

The fortieth semi-annual meeting of this very flourishing society was held at Santa Ana, December 2 and 3. The attendance was large, in spite of the weather which was rainy, and the meeting was in every way a successful one under the presiding hand of Dr. Frank Garcelon, and the executive guidance of Dr. Jos. M. King, the secretary. A number of very excellent papers were read during the sessions of the two days, and the banquet on Thursday night was a distinct success. A strong committee on legislation was appointed and funds for its incidental expenses were appropriated. The society went on record in no uncertain terms as to the desirability of sustaining the present medical law. The next meeting is to be held six months hence at Long Beach, Dr. F. R. Burnham, San Diego, President.

HERZSTEIN LECTURES.

This series of lectures, under the auspices of the University of California, was given during the month of December, in the rooms of the Century Club, San Francisco. The lectures were by T. Brailsford Robertson; the subject was The Proteins.

ANTI-TUBERCULOSIS WORK.

There are at least two active centers of anti-tuberculosis work in our state, Los Angeles and San Francisco. In the latter city Dr. Evans and Dr. Sherman are having very good success in the line of public meetings and no small portion of their work is given to presenting the case to the various labor unions. In the south, Dr. Mattison and Dr. Kress have held a number of public meetings and several more are programmed. They find the use of lantern slides a very valuable adjunct to the lecture work. In San Francisco the movement has received excellent financial backing and a dispensary or out-patient clinic exclusively for tuberculotics is soon to be established.

PUBLICATIONS

Hygiene For Nurses. By Isabel McIsaac, Graduate of the Illinois Training School for Nurses; formerly Superintendent of the Illinois Training School for Nurses, etc. etc. The Macmillan Company, New York, 1908.

The character of this book precludes any extended review here. It is a small volume, which presents clearly and truthfully most of the elementary points of hygiene in such a manner as to be extremely serviceable to the class of readers for which it is intended. The reviewer, while commending the general excellence of the work, urges a little further revision of its grammatical aspects.

The Baby: Its Care and Development. For the Use of Mothers. By Le Grand Kerr, M. D., Professor of the Diseases of Children in the Brooklyn Post-Graduate Medical School; Attending Physician to the Children's Department of the Methodist Episcopal (Seney) Hospital; Visiting Physician to the Children's Wards of the Williamsburg Hospital and of the Swedish Hospital in Brooklyn, N. Y., etc. Albert T. Huntington, Brooklyn, New York, 1908.

It is only within recent years that this subject has received adequate recognition on the part of the general medical profession. Nevertheless, it is a deplorable fact that, even now, the mother is only too frequently expected to have an intuitive knowledge of the care of the infant. How often, as the result of ignorance, is the heart-broken mother left weeping over an empty cradle. This is due, in a large measure, to the lack of foresight on the part of the accoucheur. Once the lying-in period is over, he considers his responsibilities at an end, and leaves the poor woman to her own devices in rearing her child. Therefore, such a work as this will be of considerable service in pointing out many things to mothers that they should know about the infant and its development. It is the kind of practical information which will be helpful to her in furthering the best interests of her babe, and, incidentally, secure her intelligent co-operation with the physician. So clearly and intelligently presented is the matter that we urge all physicians who practice either obstetrics or pediatrics to recommend it to their patients.

Why Worry? By George Lincoln Walton, Consulting Neurologist to the Massachusetts General Hospital. J. B. Lippincott Company, 1908.

In this little book we have another proof that medical men are awakening to the need of educating the public along the lines of prophylaxis and treatment of those faulty mental states, so often encountered in apparently normal people. In the past, it has been the neglect of these subjects that has allowed so many persons to drift on and to become confirmed psychopathics. It is to be hoped that this practical little work will be recommended by physicians to the very large class of people who are certain to derive benefit from its perusal.

R. B.

Neurological and Mental Diagnosis. A Manual of Methods, by L. Pierce Clark, M. D., Senior Attending Physician, Hospital For Nervous Diseases, New York; Visiting Neurologist to the Randall's Island Hospitals and Schools, New York, etc., and A. Rose Diefendorf, M. D., Lecturer in Psychiatry in Yale University; Assistant Physician and Pathologist, Connecticut Hospital for Insane, etc. Macmillan Co., 1908.

Although the title of this book might lead one to expect a treatise on differential diagnosis, a glance at the table of contents is all that is needed to give an idea of its real scope. "This volume," the authors state, "is designed to aid the student and general practitioner to make thorough and systematic examinations in nervous and mental diseases." There is nothing in the first half of the book which is not encountered in every text-book on physical signs or general diagnosis, so that it does not really fill any demand on the part of students or medical men. Psychiatry is, however, a subject so frequently neglected in our medical schools, that practitioners are rarely competent to make an examination such as must be employed in arriving at a mental diagnosis. In part two, the methods to be used are described with great detail, and typical case histories are added, rendering this half rather interesting. On the whole, the book is neatly and very legibly printed, and the illustrations are well chosen.

R. B.

JANUARY CHANGES.

Conrad, D. A, 1935 S. B. st., Santa Barbara, Cal.

Robbins, Walter S., 1580 E. 46th st., Los Angeles, Cal.

Smith, Rensselarr, J., Milpitas, Santa Clara Co., Cal.

Crabtree, Hezediah T., from 2576 Washington st., San Francisco, to Salinas, Cal.

Reese, R. E., Bank of San Jose Bldg., San Jose, Cal

Cadwallader, R., from 1425 Haight st., to 240 Stockton st., (Schroth Bldg.) San Francisco.

Phelan, Henry Du R., from Monterey, Cal., to Fort Baker, Sausalito, Cal.

Chapman, R. B., from Delta Bldg., Los Angeles, to 1510 Mission st., So. Pasadena, Cal.

Reynolds, R. G., Jr., from Palo Alto, Cal., to Porter Bldg., San Jose, Cal.

Sawyer, Herbert C., from 1209 11th ave., San Francisco, to 115 Haight st, San Francisco.

Bakewell, Benj., 1113 State st., Santa Barbara, Cal.

Brown, Rexwald, Aiken Bldg., Santa Barbara, Cal.

Anderson, Chas., Box 47, Santa Barbara, Cal.

Mansfield, L. F., 1328 Anacapa st., Santa Barbara, Cal.

Sidebotham, Harold, 1936 Laguna st., Santa Barbara, Cal.

Stoddard, Thos. A., from San Francisco to 629½ State st., Santa Barbara, Cal.

Stoddard, Chas. Sidney, from 1215 Anacapa st., Santa Barbara, Cal., to 629½ State st., Santa Barbara, Cal.

Newman, Samuel, 938 State st., Santa Barbara, Cal.

Morrey, H. P., 808½ State st., Santa Barbara, Cal.

Knox, S. B. P., 914 Anacapa st., Santa Barbara, Cal.

Park, C. C., R. F. D. No. 1, Santa Barbara, Cal.

Barry, Wm. Taylor, from 122 W. Figuerroa st., Santa Barbara, to 931 State st., Santa Barbara, Cal.

Cunnane, W. B., 1327 D. V. st., Santa Barbara, Cal.

Todd, C. E., 1701 Bath st., Santa Barbara, Cal.

Gould, F. S., R. F. D. No. 1, Santa Barbara, Cal.

Nicholls, R. J., from 2510 Washington st., San Francisco, to 1234 Castro st., San Francisco.

Wagner, Henry Lewis, from 2339 Bush st., San Francisco, to 2303 Bush st., San Francisco.

Buckley, Vincent P., from 1615 Fillmore st., San Francisco, to 528 Kearny st., San Francisco.

Carey, H. B., from 1296A Ninth ave., San Francisco, to 1298 Ninth ave., San Francisco, Cal.

Dray, Frank R., from 2400 Pacific ave., to 2525 Fillmore st., San Francisco.

Caglieri, Guido E., 205 Montgomery ave., San Francisco.

McGettigan, C. D., from 630 Page st., San Francisco, to 240 Stockton st. (Schroth Bldg.), San Francisco.

Mansfeldt, Oscar, from 603 Hayes st., San Francisco, to 595 Hayes st., San Francisco.

Dozier, Charles A., from 632 Fillmore st., to 240 Stockton st. (Schroth Bldg.), San Francisco.

Ophuls, Wm., Lane Hospital, San Francisco.

Newmarks, Leo, from Normandie Hotel, San Francisco, to 2230 Sacramento st., San Francisco.

Toner, Joseph M., 2396 Folsom st., San Francisco.

Putnam, V. E., from 901A Haight st., San Francisco, to 903 Haight st., San Francisco.

Holladay, Frederick S., 703½ Central ave., Los Angeles.

Knowles, Samuel E., from 2417 Washington st., to Galen Bldg., Sutter and Stockton sts., San Francisco.

Knowles, C. W., from 2417 Washington st., to Galen Bldg., Sutter and Stockton sts., San Francisco.

Piper, H. E., from Livermore, Cal., to Santa Cruz, Cal.

Toland, Marcellus R., from Collins Bldg., Los Angeles, to 424 So. Broadway, Los Angeles.

Carson, Emma M., from 311 W Third st., Los Angeles, to Security Bldg., Los Angeles, Cal.

Bancroft, Irving R., from Byrne Bldg., Los Angeles, to City Health Office, Los Angeles, Cal.

Stewart, J. T., from Frost Bldg., Los Angeles, to San Fernando Bldg., Los Angeles.

Dunsmoor, Jno. M., from Frost Bldg., Los Angeles, to Stimson Bldg., Los Angeles.

Eddy, Geo. S., from Frost Bldg., Los Angeles, to San Fernando Bldg., Los Angeles.

Jackson, Craven, from Frost Bldg., Los Angeles, to San Fernando Bldg., Los Angeles, Cal.

Harrison, Wm. H., Jr., 692 Third ave., San Francisco.

Green, Jonathan, from 656 Clement st., to Delbert Blk., Van Ness ave. and O'Farrell st., San Francisco.

Cornwall, Frank, from 631 Van Ness ave., to 111 Ellis st., San Francisco.

Newman, Alfred, from 3447 Clay st., to 1316 Sutter st., San Francisco.

Thorwick, Martha G., from 460 Duboce ave., San Francisco, to 498 Duboce ave., San Francisco.

Young, Jas. A., from San Pedro, Cal., to 1278 Market st., San Francisco, Cal.

Southworth, Henry E., from Grant Bldg., Los Angeles, Cal., to Wright & Collender Bldg., Los Angeles.

Hale, Geo. V., from Burbank, Cal., to Sta. "S," Los Angeles, Cal.

Inman, Thos. G., from 984 Valencia st., to 240 Stockton st. (Schroth Bldg.).

Kugeler, H., from 2224 Baker st., to 240 Stockton st. (Schroth Bldg.), San Francisco.

Hannah, James B., from 396 Guerrero st., to 111 Ellis st. (Powell Bldg.), San Francisco.

Thomas, Benj., Porter Bldg., San Jose, Cal.

Boyer, J. Silas, from 829 J st., Sacramento, Cal., to ——?

Herrington, E. L., from Sacramento, Cal., to ——?

Hyde, Laurence D., from Sacramento, Cal. Gone abroad.

Watts, Harry A., from 918 Sixth st., Sacramento, Cal., to Odd Fellows' Bldg., Sacramento, Cal.

Watts, Pliny Rand, from 918 Sixth st., Sacramento, Cal., to Odd Fellows' Bldg., Sacramento, Cal.

Wildanger, Fred John, from Franklin, Cal., to Elk Grove, Cal.

Sexton, L. L., from Sacramento, Cal., to Queen's Hospital, Honolulu, H. T.

MacDonald, R. C., from 1803 Fillmore st., San Francisco, to Salada Beach, Cal.

Pawlicki, Ladislaus, from 2709 Sacramento st., to 1100 O'Farrell st., San Francisco.

Leib, Thos. N., from 2421 Broderick st., San Francisco, to ——?

Mead, L. D., from Byron Hot Springs, to Butler Bldg. (135 Stockton st.), San Francisco, Cal.

Lamb, W. N., from 1680 Ellis st., to 2022 Sutter st., San Francisco.

Freeman, Wm. F., from P. O. Box 147, The Needles, Cal., to P. O. Box 657, The Needles, Cal.

Weis, Arthur H., from Sixteenth and Mission sts., to 135 Stockton st., San Francisco.

Westerfeld, Otto F., from 1059 O'Farrell st., to 240 Stockton st., San Francisco.

Force, J. N., from 3232 College ave., Berkeley, Cal., to 2806 College ave.

Bailly, Thos. E., Shreve Bldg., San Francisco.

Kelly, Elmer E., from 632 Fillmore st., to 240 Stockton st. (Schroth Bldg.), San Francisco.

Case, C. L., 2249 Webster st., Oakland, Cal.

Henderson, Joseph J., from Union Square Bldg., to 240 Stockton st., San Francisco.

McLeod, Jas. H., temporarily in England, 15 Torrington Square, London.

Wadsworth, Chas. C., from 2710 California st., to 2610 California st., San Francisco, Cal.

Smith, Donald Raymond, of San Francisco, temporarily in McCloud, Siskiyou Co., Cal. (until January, 1909).

Chapman, Richard B., from Delta Bldg., Los Angeles, to 1510 Mission st., San Francisco, Cal.

Frankenheimer, Jule B., from 1941 Webster st., to 240 Stockton st. (Schroth Bldg.), San Francisco.

Bixby, E. M., from 632 Fillmore st., to 240 Stockton st. (Schroth Bldg.), San Francisco.

Moulton, Edw. S., from Wheatland, Cal., reported moved to New Haven, Conn.

Harcourt, Luke A., from Millville, Cal., to Wheatland, Cal.

Downing, Wm. E., from Suisun, Cal., to Vallejo, Cal.

Guitzwiller, Anna M., from San Francisco, to Eldridge, Cal.

Franklin, Blake, from 4598 Mission st., to 115 Plymouth ave., San Francisco.

Goldman, Samuel A., from Berkeley, Cal., to Oakland, Cal.

Rich, Geo. D., from San Francisco, to San Bernardino, Cal.

New Members.

Shaw, Frederick E., Sacramento, Cal.
Gutzwiller, Anna M., Eldridge, Cal.
Rea, Samuel L., Ukiah, Cal.
Mead, Francis H., Sefton Blk., San Diego, Cal.
Morgan, Addison, 1461 Sixth st., San Diego, Cal.
Grove, Edward, Union Bldg., San Diego, Cal.
Compton, G. W., 676 Logan ave., San Diego, Cal.
Allen, Frances M., Grant Blk., San Diego, Cal.
Foster, R. de Leclere, Granger Blk., San Diego, Cal.
Owen, Carl S., National City, Cal.

Deaths.

Burns, Jno. F., San Jose, Cal.
Adams, Frank L., Oakland, Cal.
Trafton, August, Dixon, Cal.
Parent, Chas. E., San Francisco, Cal.
Sprague, Anson, Newville, Glenn County, Cal.
Lebus, Leona, Los Angeles, Cal.

Resigned.

Keith, Wm. Ell., San Jose, Cal.

California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

PHILIP MILLS JONES, M. D., Secretary and Editor

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Secretary State Society, - - Butler Building,
State Journal, - - - San Francisco.
Official Register, - - -

Telephone Douglas 2537

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VOL. VII FEB., 1909. No. 2

EDITORIAL NOTES.

WHY NOT GOOD LAWS?

A good many wise men have said that it would pay the state richly to allow our legislators to draw an annual salary for, say, ten years, and stay at home and attend to their several businesses. But that is altogether too Utopian. A legislator is to legislate and every two years he must do something. Then why not see that some good things are done; some things for the public health and welfare? Or shall it always be that we have first consideration for the hog and the dollar, and then, if we have time, devote a little of it to children's lives and the public health? Why would it not be a good plan for the physicians of each senatorial and assembly district to take careful watch of the acts of their representatives in the legislature so far as these acts are connected with matters of public health, and let the representative know of our approval or disapproval? And not only the legislator, but his constituents should know what he has done on these important matters and how his acts are viewed by the medical profession. Public health should know no party. Let no political considerations weigh with us when it comes to considering whether a legislator has done right or wrong in matters of public health. Let each county society, when the proper time comes, go directly to the people and explain just wherein each certain representative has acted well or ill in protecting the public health. Legislators go on the principle that the public memory is short lived, and in the main they are correct. But we will not be short lived; in this office a record will be kept of the attitude of every legislator upon all questions of public health, and when peace is finally restored to us (when the legislature stops legislating), that information will be furnished to all our county societies. Also, it will be kept on file, and two years from now when many of these gentlemen will be eagerly seeking re-election, it will be very useful to be able to say to the people that their representative was such in reality and had thought for the public welfare. And there are so many things that could and should be done, the mere listing of them would consume much space. Fundamentally, however, there are certain principles that apply to all, and the greatest and most important of these is that all matters affecting public health should be far removed from political interests. Take all public health matters out of politics. Our boards of health, state and county, our asylums, our hospitals, our institutions of every sort and kind relating to health matters should be removed from politics and placed on a merit basis.

PURE MILK.

Take the pure milk question, for example, and see wherein a wise legislation could so surely and so quickly settle the whole problem and remove the filth from that emulsion of germs and dirt which is now served to us under the name of "milk." The dairy inspection law is a farce, for the dairy men themselves control it—and they are after money, and only money. But suppose the control of the entire milk supply of the state should be put, where it belongs, in the hands of the State Board of Health? Suppose we followed the plan in force in Switzerland; it is mighty simple, but most absolutely effective. The control being in the hands of the State Board of Health, and enough authority and sufficient resources allowed it, it would be easy to require that any person in the state who desired to engage in the milk business must first secure a permit so to do from the board. This permit would only be issued under certain conditions; if the barns and buildings were sanitary; if the herd had been tested and found free of tuberculous cattle, and if other details were such as to meet the approval of the board. And further, the board should have full power to suspend or revoke such permits at their pleasure and upon the violation of any of their rules. At the present time we have milk commissions in some sections which are struggling valiantly to improve the quality of milk served in their respective communities, but diversified authority negatives much of their work. In the larger places most of the milk consumed comes from without. In San Francisco nearly all the milk supplied comes from other counties—counties that are not under the control of San Francisco. But with state control it would make no difference where the milk came from, for all dairies would be subject to the same rules and regulations and the same full control.

AND THEN TUBERCULOSIS.

Here again is a rich field for wise and good legislation. Let the State Board of Health be given large powers in this matter also. Let it provide for proper classification and reporting of all cases of tuberculosis. Let it make good and proper rules for the guidance of the people, and give it authority to enforce them. Further, let us have a Tuberculosis Commission with enough funds at its disposal to do something toward the education of the people to the dreadful and needless slaughter of one-tenth of their number by this one preventable disease. And in good time let the state show as much wisdom in the financial care of its people as private institutions exhibit. Insurance companies in Germany have a number of sanatoria for the care of their insured when they get infected with tuberculosis; and it pays them. Recently, the Woodmen of America, a fraternal organization that pays death benefits, has perceived the wisdom, from a purely commercial standpoint, of the same thing; and they have established, at Colorado Springs, a sanatorium for their tuberculotic members. Then let our legislators wake up to the importance of this matter to our people, in dollars and cents, if you please, and let them provide, through the State Board of Health, for a state sanatorium for the care of those incipient cases of tuberculosis in people who might readily be cured of the disease and placed, once more, upon a wage earning and producing basis. Is it not a matter of simple common sense? If insurance companies think so—and have proved it—why should not a well administered state effect the same saving of life—and dollars? The question has come up many times before and the matter of proper control has been the stumbling block. But if the control is placed where it belongs, with the State Board of Health, and if that board is kept absolutely out of politics, the problem is solved. Is it not so? Let us not play with public health—and lives; let us have a health department of the state that will mean just that, and let it have all the authority and all the means necessary actually to care for the health of the people of our state. There is opportunity for very much good legislation here, if our legislators want to do something for the good of the people as against the good of the many large vested interests; if hogs and dollars shall not receive first consideration.

AND OUR ASYLUMS.

The aborigine showed more consideration for the demented than do we, his civilized successors. The treatment of the insane or those alleged to be insane, and particularly their commitment, is a stench in the nostrils. The whole thing is steeped in politics for the reason, forsooth, that there is some patronage connected with the asylums and some fees connected with the transporting of the demented to the place of their confinement. The asylum board, or whatever its actual title may be, is merely a patronage bureau. Our present laws, by inference and statement, place the demented person in the criminal class and regard him not as one stricken with the most unfortunate of illnesses. A "warrant" must be issued and he must be "arrested"; witnesses must be brought before the judge who know the "accused." All these preliminary steps are in the hands of the sheriff or one of his deputies. The unfortunate is first put in jail and not infrequently in the same cell with a convict. And when commitment is ordered, the victim is turned over to a deputy sheriff to take to the asylum. The deputy, totally ignorant of insanity and usually terrified, resorts to all sorts of restraint which is generally cruel in the extreme and calculated to greatly aggravate the upset mental condition. The records of our asylums show innumerable cases where the greatest brutality has been exhibited toward some victim of dementia. In one instance a perfectly harmless patient was first tied about with rope, then rolled in a mattress and this in turn carefully roped, something over a hundred feet of rope being used—to tie up a harmless sick person. All this might easily be avoided by providing, as is the case in New York, that a trained attendant should be sent from the asylum to get the patient at the place of detention (and this should not be a filthy and vermin-infested cell in a jail) and take him to the asylum. But here again we run into trouble, for sheriffs' deputies get fees for this work; and that is part of the patronage of politics; another case of "dollars before life." Is it not worth while to take enough heed for the welfare of our people to get the asylum out of politics? Why not place their supervision where it also belongs, in the State Board of Health? Surely it is a matter of health and not a question of crime, and those who supervise the health of our state should have charge of its various institutions—all of them.

ABOUT THE COMMITTEES.

Heretofore it has been customary to refer all bills relating to medicine or kindred subjects to committees of the Senate and Assembly on "Public Health and Quarantine." This year the custom has been somewhat changed, in that, while the rule holds so far as the Senate is concerned, in the Assembly a new committee has been formed entitled a "Committee on Medical and Dental Laws." The Senate Committee on "Public Health and Quarantine" is made up as follows: Louis H. Roseberry, chairman, 33rd District, Santa Barbara; James B. Holohan, 29th District, Watsonville; H. S. G. McCartney, 38th District, Los Angeles; W. F. Price, 8th District, Santa Rosa; John W. Stetson, 15th District, Oakland. In the Assembly the "Committee on Medical and Dental Laws" is composed as follows: Thomas H. Silver, Chairman, 46th District, Pleasanton; E. J. Callan, 39th District, 162 23rd Ave., San Francisco; W. R. Flint, 58th District, Hollister; Walter R. Leeds, 70th District, Los Angeles: Frank Otis, 47th District, Alameda; Harry Polsley, 5th District, Red Bluff; Charles Lightner, 45th District, 524 Montgomery street, San Francisco. Write to some or all of these gentlemen—and do it at once—telling them that the present medical

law is sufficient unto the day; to please leave it alone. We need no boards of Naturopathy, nor yet of Chiropractic, nor of any other school or sect. Anyone may apply to the present Board of Medical Examiners and, if he knows enough of the fundamental subjects to do a minimum amount of harm, he may obtain a license to practise medicine, osteopathy, naturopathy, chiropractic, or any other brand that appeals to him. New laws or new boards are asked for by those who desire lower standards, and lower standards would work an injury to the public; let these gentlemen know the facts.

ABOUT EDITORIALS.

The question is occasionally asked by some members, and at times presents itself in the form of criticism, "Why does not the JOURNAL devote its editorial space to strictly scientific editorials on medical subjects, written by the leading men in the state"? The same question presented itself to the Publication Committee some years ago and was discussed at length. The gist of the matter, without going into details, is about this: There are plenty of medical journals dealing exclusively with scientific medical questions; the scientific editorials in the *A. M. A. Journal*, for instance, are the best of their kind published. This JOURNAL was established for the purpose of stimulating organization; of helping the physicians of California in material ways; of bringing to their attention questions of vital sociological importance. We often forget that we are a very important part of a living, breathing, pulsating population of a wonderfully rich country—but a population gone amuck through ignorance; just as we forget that we, as physicians, are an essential part of this same population with distinct civic duties to perform. We have failed to grasp our birthright; we have not taken that position in the body-politic which we inherited as physicians. We have been deluded and defrauded; humbugged and swindled; imposed upon and lied to; and have existed in strife and jealousy, to our own detriment. Where is the journal, except for a few organization publications, that has ever devoted its energies and every bit of its effort to the work in the sociology of medicine? What privately owned medical (?) journal has ever come out and fought hard in the insurance fee fight? What one of them has had the courage—or the simple honesty—to come out and tell the truth about the rottenness of the nostrum business? It may be urged that some of the things for which we have argued and plead are impossibly ideal. But who knows that that is true until we have tried to do these things with the full measure of our strength? Take, for example, some of the things in this very issue of the JOURNAL. It will not be denied by any one that the full supervision of the health of the state should be in the hands of those whose business it is to study health and disease—physicians. If that is true, why should it be impossibly ideal to bring about such a condition of things that will place the full control of all health matters in the hands of our profession—where it belongs—in the hands of a strong State Board of Health? If a thing is right it is right and the mere fact that it is ideal should not deter us from working for that object. There are things quite as vital to our profession as the size and shape of a new blood plaque or the staining of a new germ.

OUR FEES.

Altruism is a good thing and it is the actuating principle of our profession; but a certain amount of altruism is due the home and the individual. In this state medical fees have always been somewhat better than in other parts of the country; but we are feeling the contract business and it is a menace. True, in many places there are men who are constantly cutting fees; but they generally get what their services are worth if they get anything. McCormack has well pointed out that there are a good many physicians in this country who are absolutely incompetent; they were turned out by the thousands before there was any state board control; in fact, it was this very thing that brought about state boards of medical examiners. In the long run, it is the patient who suffers from these cutters of fees, for the patient gets just about what he pays for. If he gets his medical attention from a lodge doctor at the rate of about ten cents a visit, he is getting just about ten cents' worth; and the doctor is getting full payment for poor services. It is up to us to let the people understand these things; it is up to us to make our county medical societies places of and for medical instruction—and to let the people know that; it is up to us to let the people know that it pays them, in good services rendered, to support their physicians so that they may receive from them the best up-to-date treatment—which is an expensive thing to learn to give. In Humboldt County the contract business has been cultivated and developed till the whole county is disorganized and demoralized; and the very men who have done it are now beginning to suffer the consequences. Ask them what they think of unlimited contract work. Maintain good fees and insist upon it that they be paid. The physician who conducts his affairs in a businesslike way, has the respect of his patients; they know that he is an orderly man and a systematic worker and in the end it pays. If some other chap wants to do the lodge and contract work, let him do it; that is about all he is probably good for, and soon or late most of his victims will come to appreciate that fact. But let the people know that good fees mean good doctors and that poor doctors mean very scant medical treatment.

INSURANCE IMPERTINENCE.

Surely, there can be nothing under heaven more absolutely and insultingly impertinent than an insurance company. It calmly says to the medical profession, "you are a cheap bunch and we will dole out to you what we please; we will pay you about what we would have to pay ordinary unskilled labor, and we, the officers, will take all the surplus income as our

presents, appalling even to the medical attendant. Tissues adjacent to and even far removed, relatively speaking, from the severed urethral ends, become edematous and blackened, filled with extravasating blood and urine.

Death confronts the patient if exit is not found at once for the retained and decomposing urine. The physician realizes this all too well and in his haste to find passage way for the locked up waters he inserts into the urethra the rubber or metal catheter and attempts to force it into the bladder.

Nor perhaps is the physician to be blamed for undertaking this seemingly logical maneuver. There is a lack of clear detail concerning the management of this serious injury to be found in text-books devoted to genito-urinary surgery, and in nearly all that I have had access to the wording of the paragraphs on the treatment is such that catheterization is given prominent attention—in some even indicative attention. This is decidedly wrong, and such inferential teaching has undoubtedly in the past been responsible for deaths.

This rule should be followed without reserve—whenever there is good reason to suspect, or there is known positively to be, a rupture of the urethra a catheter or sound under no circumstances should be introduced into the urethra either as a diagnostic or as a therapeutic measure. There is a reason for this. Nor is it that false passages may be produced through the edematous and infiltrated tissue, always possible in this condition, and a serious accident in itself, but the bar should be placed because the passage of a catheter subjects the injured tissues to the insult of infection. And infection in this devitalized area can in a few short hours easily turn the patient's changes from a practically certain recovery, under proper treatment, to that border-line where death can close the picture.

Why does cellulitis here so speedily sink the scales? Because the infection is under constantly increasing tension—the extravasating urine and blood and rapidly forming pus find no runways to the surface from the confines of the slowly yielding layers of fascia and skin, tissue destruction and septic thrombus formation in the venous plexuses is very rapid, and toxic absorption increases proportionately with the tension. Toxemia, pyemia, septicemia, may therefore be the physician's contribution to a patient in the passing of a catheter when traumatic rupture of the urethra is present. But it will be said that the passing of a sterile catheter under the most aseptic precautions can not possibly be responsible for so disastrous a train of consequences. Yet it can—the trauma inflicted by the passage of a catheter along the urethra increases the virulence of or makes virulent the micro-organisms which have their habitat in the urethra—among these are diptheriæ bacilli, strepto-bacilli, and even streptococci. They are carried along to the area of laceration—what inviting pastures lie before them in the bruised, bleeding and urinous tissues!

Minor grades of urethral tear, manifesting only slight bleeding from the meatus, but little pain and difficulty in micturition, should be treated by watchful expectancy. Nature will repair the damage which is limited to lacerations not completely through the muscularis.

When the surgeon sees a patient shortly after a history of severe perineal traumatism, and there is great pain experienced, extreme difficulty in forcing a few drops of urine through meatus or utter inability to do so, hypogastric distress and symptoms of hemorrhage, immediate simple urethrotomy on a grooved staff should be performed. The two ends of the torn urethra should be approximated over a catheter by catgut sutures and the catheter fastened to be retained for a few days. The perineal wound should then be closed around a drainage tube to remain forty-eight or sixty hours.

When several hours have elapsed after the infliction of the injury, and there is great retention, extensive infiltration and extravasation of urine and blood, with patient appearing anxious, his condition bordering on shock, and perhaps death not a great way distant if relief is not obtained through the securing of free outlet from the bladder, which is the clear and urgent demand of the situation, do not further jeopardize life by attempting catheter passing, but at once deeply incise the perineum. The pent-up waters and blood will gush forth, and two results will be at once attained—the patient will be able to pass his urine, his life thereby being saved, and with the tension off the tissues destructive processes will be limited. Clotted blood can be easily turned out of the wound, and any fresh hemorrhage arrested. Tube drainage should be placed. After several days, when the parts have almost reached normal again, the wound may be reopened, the ends of the severed urethra found, and approximated as above over a catheter. This should be removed in five or six days. After healing is complete following all urethral ruptures, systematic sounding to prevent stricture should be instituted.

Following is the report of a present case:

On June 20, '08, J. L., a powerfully built man of fifty years, quartermaster on the steamship Curacoa of the Pacific Coast Steamship Co., shortly after the ship passed out of the Golden Gate bound for Mexico, was about to descend from the quarter to the saloon deck. He slipped on some brass plating at the head of the ladder, and in some unexplained manner was thrown across one side rail of the ladder striking on his perineum. Above him was an iron hand rail parallel with the side ladder rail, and curving to meet the ladder rail at the foot of the ladder. J. L. slid down the ladder rail and jammed up with terrific force on his perineum at the angle of junction of side and hand rail. He stated the pain was agonizing. He was able to walk away to his quarters. Soon he found he was unable to pass urine, and in a few hours noted his scrotum beginning to swell. The ship continued on her course, reaching Santa Barbara channel the next afternoon, June 21, some twenty-three hours after the accident. She put into port here, and J. L. was carried ashore. I saw him soon afterward at the hospital. He was suffering intensely and was very anxious and restless—pulse was 94 and temperature 99 degrees. Examination revealed a blackened, tense and bulg-

ing perineum, enormously distended and blackened scrotum and penis, swelling and discoloration in abdominal wall, reaching to umbilicus, and slight discoloration in buttocks. Diagnosis was made of rupture of the urethra anterior to the deep perineal fascia, with extravasation into the usual areas. Under ether, deep perineal section was done at once and a great quantity of urine and clotted blood spurted from incision. More clots were cleaned out and tube drainage placed in wound. An incision was also made into either side of scrotum, through which there was much discharge. Drainage was free for two or three days, and tissues rapidly assumed normal dimensions, though discoloration lasted a couple of weeks. Patient was able to pass his urine through perineum as necessity required. Six days later, on June 27, patient was again anesthetized and perineal wound was enlarged. A catheter was introduced through meatus and was guided into bladder, the proximal end of urethra being readily found. The urethra was almost completely severed just beneath symphysis, a narrow strip of superior wall only being intact. The ends were retracted about ¾ of an inch. They were approximated by catgut mattress sutures over the catheter which extended just into bladder. Perineum was closed leaving drainage through lower angle. Catheter was removed in six days after which patient voided his urine in the natural way, a little at times seeping through the perineal wound. He passed from observation in another week, having on day he left hospital taken a 30 French sound with ease. He was enjoined to see a physician regularly for some months to have sounds passed.

Dixon in *Surgery, Gynecology and Obstretics,* January, 1907, emphatically recommends immediate supra-pubic cystotomy with retrograde catheterization in all severe cases of traumatic rupture of the urethra. He claims this is the proper course to pursue because it will be, through perineal section, almost invariably impossible to find the proximal end of the torn urethra in the bloody edematous tissue —that this end will be retracted and inverted, so curled upon itself as to fill and block the lumen of the canal—that this inversion, together with blood clots between the severed ends, will interfere with the passage of urine from the bladder. Retention is therefore to be relieved, and the proximal end of the urethra found only through supra-pubic opening.

It seems to me this rather severe measure can be necessary but very rarely, and then not as first treatment. If extensive urinary and hemorrhagic infiltration be present, the prime indication is to save life and limit destructive processes. These ends are secured by simple perineal section, with perhaps the shelling out of clots. With the tension off the tissues and drainage free, the flow of urine from the bladder will have more than sufficient force to turn out again into the inverted proximal urethra.

Several days later will be found not too long a time following the injury to search for and repair the urethra, the distal end of which is always found by catheterization through the penis. The proximal end should be readily found in tissues which are practically normal again by following the perineal sinus to the bottom. If it should be found impossible now to locate the desired end, then only is retrograde catheterization an indicated procedure.

In conclusion, I wish to reiterate that catheterization as a diagnostic or as a therapeutic measure in traumatic rupture of the urethra is to be condemned.

Discussion.

Dr. Huntington: I approve of practically every point made in this paper. First I want to allude again to the matter of tension, a thing in my mind for many years. I do not think we can possibly overrate its importance, nor over estimate the consequences ensuing upon tension. With regard to the drainage of extravasated urine, it has never been my plan to attempt to repair a urethra as a first effort at relief. I think it a better plan to do a perineal section and establish free drainage, letting the patient rest a few days. For those who have not ever attempted this undertaking I will say that the joining of the severed urethra is not so difficult as it might seem. The urethra lies very adjacent to the surface. Putting the patient in a proper position enables one to reach the seat of the injury and the end can be picked up. I insert a catheter during the operative procedure first through the penal portion, then through the bladder. This gives a direct line between the proximate and the distal ends of the urethra and they can be approximated. You will be surprised to see the elasticity in the distal portion of the urethra and how it will lend itself to repair.

Dr. Brown, closing: I will only say a word further. If it is found difficult to find the proximal end, the patient being under ether, allow him to wake up and ask him to pass a little urine. You will then find the proximal end of the urethra by watching the dropping of the urine.

(Continued from Page 22.)

must be given by the bowels. Gastric lavage is recommended for nausea and vomiting. In all cases seen before there is evidence of spread of the disease beyond the appendix, an immediate operation by a capable surgeon is advised to prevent complications as well as to save life.

I think most physicians and surgeons of California are in favor of operation at once, or at the end of thirty-six or forty-eight hours.

The advocates of an early operation claim that by operating early and thus making sure that infection has not extended beyond the appendix, the surgical death rate would be much below the medical one, which we have seen to be put by one of the best authorities, at 14 per cent. The surgeons of this class hold that the death rate would not exceed four or five per cent when cases of gangrene and perforation and suppurative peritonitis are operated on, and goes so far as to say that a surgical death rate of two per cent would be all.

Let us examine this claim that the medical death rate will be much lowered by an early surgical interference. It will be seen to stand or fall very largely upon the meaning of the word early. The question at once arises how many cases are really seen within the first twenty-four or thirty-six hours. Here the patient very often goes on working for days after he has warning by pain, and even sometimes with a lump in his right iliac fossa.

A patient from carelessness or a desire to make the best of his case from dread of operation may misrepresent his symptoms as just beginning. In reality this man has had for a day or two pains or

respects, the only way to their solution. What progress might be made if the capital convicts of the world were devoted to science and humanity instead of the scaffold!

Shall a maudlin sentimentalism stand in our way? —a sentimentalism which insists, not only that the convict shall hang, however much he may prefer experimentation, but also that such experimentation shall not be done, however many human lives might be saved thereby; a sentimentalism as depraved as it is consistent.

WHAT IS A PRACTICAL EXAMINATION IN ANATOMY?—(Second Paper).

By DAIN L. TASKER, D. O., Los Angeles.

The day following my receipt of the report of the examination held by the State Board of Medical Examiners in Los Angeles, Dec. 1st, 2nd and 3rd, 1908, I received the following letter from the Secretary:

"Dear Doctor:

"As a matter of comparison I send you the following figures of those who fell below 60 on the various subjects:

Anatomy	16	Pathology	8
Bacteriology	12	Physiology	10
Chemistry	2	Hygiene	7
Histology	13	Gynecology	2
Obstetrics	1	General Diagnosis	5"

This would seem to indicate that the examination in anatomy had been the cause of failure of a relatively large number. Of the 65 applicants who took the examination, 35 attained the general average of 75%.

A study of the grades of the 16 who fell below 60% in anatomy shows that only one of them would have received a license by attaining 60% in that subject. Evidently the fifteen others failed in more than the one subject.

The general average made by the whole number of applicants in anatomy was 65.9%. Twenty-six applicants attained better than 75%, twenty-three between 60 and 75%, while sixteen were below 60%.

In an examination of this kind it is always interesting and helpful to know what sort of questions cause the low percentages. Since an examiner is human long before being a doctor, there can be nothing but a feeling of sorrow over the result of an examination which checks the expectations of a large number. It is very fortunate that the examiner is ignorant of the personality of the producer of each paper, thus leaving his mind free to work on the subject-matter of the answers.

Since I am in favor of our medical law and believe in the ultimate value to medical science in having all applicants examined in fundamentals rather than in the theories and practices of particular cults, I am anxious to conduct my part of the examination in such a fair and impartial manner that failures will be the result of ignorance of the subject rather than the severity of the test.

Both those who favor and those who oppose the present form of medical law will be interested in anything which will throw any light on the working of the law, hence these remarks.

"Describe the venous circulation of the rectum." The answers to this question averaged 6.4%. This question was chosen because of the anastomosis of the general venous and portal circulations at this point and hence the tendency to piles as a result of portal stagnation. A large number merely mentioned the Superior, Middle and Inferior Hemorrhoidal Plexuses. Here is a sample answer: "The veins of the rectum are the superior and inferior hemorrhoidal. They form a plexus around the organ one below the sphincter and the other above. This plexus continues up the rectum and joins with the mesenteric vein and is emptied into the illiac vein."

The replies to questions 2, 8, 9 and 10 are amply explained by the illustrations. These four questions were worded as follows:

2. Give point of abdominal entrance (vertebral), course and point of division of the abdominal aorta. (Use diagram.)

8. Give relation of the aortic arch to the chest wall. (Use diagram.)

9. Give topography of the spleen. (Use diagram.)

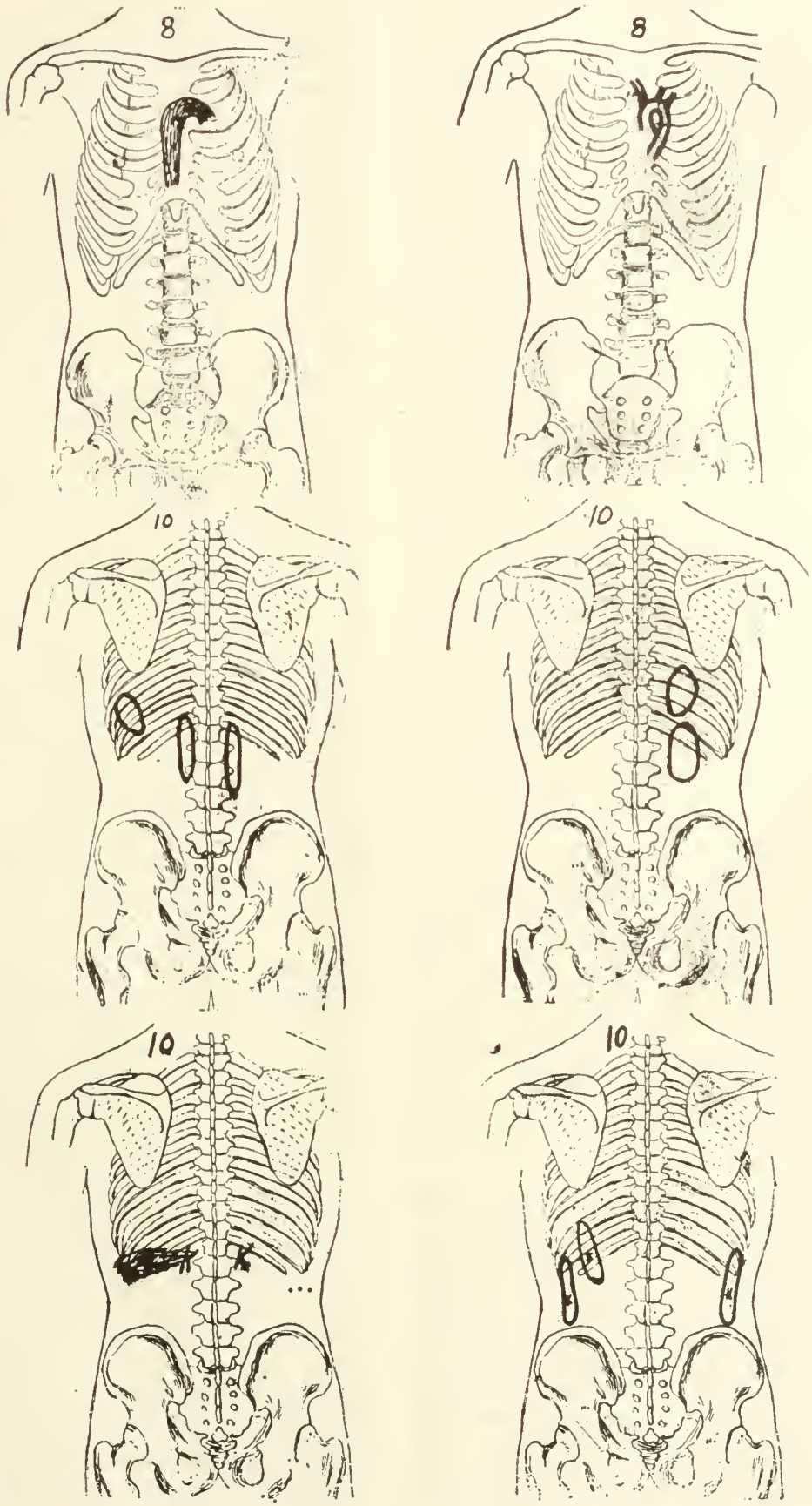
10. Give topography of the kidneys. (Use diagram.)

These diagrams furnished a double test in that it is evident that many of the applicants found it very difficult to get their bearings on the surface of the body by using bony landmarks. These questions called for knowledge of organography essential to clinical examination of the aortic arch, abdominal aorta, spleen and kidneys. Only a few of the diagrams can be presented on account of lack of space but these serve to prove that differences in diagnosis can never be avoided so long as such a vast divergence from the normal constitutes the ideal position of these structures conceived by the various diagnosticians. Physical diagnosis is supposed to be founded on the normal relation of anatomical structures. What value would you attach to an examination of yourself if you knew your physician lacked fundamental knowledge of what constitutes the normal? Shifting aortas, vagrant spleens and wandering kidneys were numerous in this examination.

I chose the articulation of a typical rib (7th) with the spinal column as the third question. The articulation was selected because it is studied in anatomy and physiology under the head of respiration. I indicated a particular rib so that the applicant would need to locate it with respect to particular vertebrae. The average made on this question was 4.7%. Judging by the replies very few of the applicants have a knowledge of costo-vertebral articulations. Here are a few of the misconceptions:

"The rib then runs outward, backward and a little upward to articulate with the transverse process of the upper vertebra."

"Articulates with the body below spinous processes."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"The tuberosity of the 7th rib articulates with the facet on the transverse process of the 8th dorsal vertebra."

"Rib articulates with the body of a vertebra and transverse process below and with the rib below at the junction of the neck and body of the rib."

"It articulates at two vertebrae and spinous processes."

"A typical rib articulates with the spinal column by its head being in apposition with the faucet of two articulating vertebras which are situated on the superior and inferior surfaces of their transverse processes. Its head is held in place by ligaments."

"7th rib articulates with the demi-facets of the two vertebrae and its tubercle articulates with the transverse process of the vertebra above."

"The head of the rib articulates with the side of the body (articular process) of the vertebra to which it is securely fastened by ligaments of white fibrous tissue. The bond of union being distributed in such a way that one rib is anchored as it were to several vertebrae."

"The head of the 7th rib articulates with the facet of the lamina of the seventh dorsal vertebra and the tubercle articulates with the facet between the seventh and eighth dorsal vertebrae."

"The 7th rib articulates with the seventh dorsal vertebra; this vertebra has an entire facet, is covered with cartilage, head of rib fits into this and is joined to the vertebra by a capsular ligament, by an anterior and a posterior ligament which fuses into the periosteum of the rib and with the anterior vertebral ligament in front and the posterior ligament behind the superior and inferior ligaments are reflections from the lateral spinal ligaments. Joint has slight area of movement."

"The seventh rib articulates with the transverse process of 6th and 8th ribs. On its upper surface it has a facet which articulates with depression in transverse process. Under surface has a like facet for similar articulation with the 8th rib. These are held together by strong fibrous bands or ligaments forming a joint with limited movement."

"The 7th rib is articulated by a ball and socket arrangement which is not so moveable as other joints but is slitely moveable and unites with the upper part of the vertebra."

"The rib (7) has four facets for articulating with the body of a vertebra and the spinous processes above and below."

The fourth question was: "Describe the plan of distribution of a typical dorsal spinal nerve." The general average was 5.3%. I judged that the general plan which did not call for naming special muscles or viscera would be an easy question, and practical, because the interpretation of pain calls for a general knowledge of nerve trunk distribution. Many of the answers to this question show that a very few of the applicants had a clear conception of the subject. There is a wealth of interesting replies but I will not weary you by quoting a long series. Two will suffice for illustration. "After the joining of the posterior and anterior roots these nerves go directly to the part of the body they are to enervate." Perhaps he knew more about it but I'm not a mind reader. "Each motor nerve is accompanied with a sensory nerve enclosed in the same sheath. The nerves pass out to the median line and from there pass down vertically sending their branches out laterally." This plan is strictly original.

Question five on "the bony landmarks of the hip and what lines determine the normal relation of the joint" brought an average of 6.8%. This question is similar to one given in the August examination. The answers show, with a few exceptions, a great lack of definiteness of knowledge of clinical or applied anatomy of the hip. A hip would have to be badly distorted to fit some of the lines proposed.

Question six asking for the nerves which "control the following muscle groups, (a) flexion of the knee, (b) extension of the knee, (c) adduction of the thigh, (d) extension of the hip, (e) flexion of the hip?" brought an average of 7.1%.

Question seven: "What viscera are behind the linea alba?" brought 8.4%. It seemed to me that every one ought to earn 10% on such a simple question as that but quite a number found it a stumbling block. Here are two answers: "The uterus in the female, the bladder and small intestines." "Stomach (portion) Transverse colon, Urinary bladder."

The averages on the other questions, diagrams, are as follows: 2 is 7.3%, 8 is 6.3%, 9 is 7.1%, 10 is 6.4%.

What has been here written brings us again to the question: "What is a Practical Examination in Anatomy?" We might precede this by another question: "Of What Use is Anatomy to the Average Practitioner?" Since such a large number fail under the test it would appear that anatomical knowledge has no active practical place in the daily experience of the medical man.

THE TREATMENT OF TUBERCULOSIS WITH INTRAVENOUS INJECTIONS OF TUBERCULIN AND ATOXYL. *

By MAX ROTHSCHILD, M. D., San Francisco.

The following paper gives a report of a number of cases of tuberculosis which have been treated with intravenous injections of Koch's Old Tuberlin and Atoxyl, with more or less rest in bed, and with a preparation of creosote and phenacetin internally. The exact method of the treatment will be explained later on. In the last four years there have been treated one hundred and eighty-three cases by this method; of these sixty-one have been incipient tuberculosis of the lungs or cases in the first stage of the disease. The rest have been cases of tuberculosis of the lungs in the second stage. Two of these patients died of miliary tuberculosis. One hundred twenty are entirely free from symptoms at the present time and practically cured. The other sixty-one patients are still under treatment and on the road to recovery.

* Read before the San Francisco County Medical Society, June, 1908.

The cases in the far advanced stage of phthisis will be dealt with at the end of this paper. The results are naturally not nearly as encouraging as in the one hundred and eighty-three cases.

The preliminary report of the first twenty-five of these cases of tuberculosis was to be read at the thirty-sixth annual meeting of the State Society of California in San Francisco, April, 1906, but the catastrophe prevented this and the report appeared in the September number, 1906, of the CALIFORNIA STATE JOURNAL OF MEDICINE.

The chief points which are of importance in the treatemnt of tuberculosis with this method are:

1. Intravenous injections of tuberculin combined with intravenous injections of atoxyl.
2. Rest in bed.
3. Fresh air.
4. Creosote and phenacetin preparation internally.
5. Diet.
6. The moral influence upon the energy and the mental condition of the patient.

It does not make much difference in my opinion what kind of tuberculin one uses. The old principle of Pasteur is still correct, namely: that any infectious matter brought into the system in such a form, dosis or virulency that it does not kill, changes the general sensitiveness of the organism; and in trying to make a subject immune, all modern methods follow this principle: To take such substances as antibodies, against which we are trying to protect the subject, this principle which von Behring has called the Isopathic principle.

In regard to active immunity, all modern methods are, more or less, modifications or improvements of the old principle of Pasteur, Toussaint and others, who brought dead bacteria, or such bacteria that were very weakened in their virulency, into the system for immunizing purposes. Thus, for instance, Kolle tried to render the German soldiers in Southwestern Africa immune to typhus, by injecting dead agar cultures into the muscles, with encouraging results. And in bubonic plague, the use of bacilli, not dead but only weakened in virulency, seems to have given even better results, according to the experiments of Strong in Manila. There is, however, one great objection to the use of these methods for practical purposes, namely: the strong local and general reaction which the vaccination causes if used subcutaneously. To overcome this local and general reaction several different methods have been essayed. The majority of authors have tried to separate the immunizing from the toxic substance. The different methods which various workers as, for instance, Conradi, Neisser, Shiga, Strong, Brieger and others tried, are well known; but none of all their preparations have gained general use or acknowledgment.

The writer in his experiments in treating tuberculosis has avoided the local reaction by injecting tuberculin intravenously. He has avoided the general reaction by using very much smaller amounts than had been used heretofore, and has increased the intervals between injections considerably. The first publication of the writer's method appeared in September, 1906, and the remarkable publication of Wright and Douglas, who also recommended most exact observation of the biologic reaction and the exact dosage of the immunizing injection, followed practically the same principles. The discovery of the opsonic theory of Wright is a wonderful progress in the treatment with immunizing substances.

Besides this principle of trying to kill microorganisms in the living being, modern research is willing to use other means to the same end, namely: the use of heterologous substances. A number of such remedies are now available. For instance, chinin in malaria and atoxyl in trypanosoma.

The use of this latter drug is to be highly advocated in the treatment of tuberculosis, and both for this and other diseases will be used, in the future, a great deal more than at present.

My attention was called to atoxyl many years back by an excellent article in the Therapeutischen Monatshefte, by Fritz Mendel of Essen. Mendel deserves great credit for advocating intravenous injections.

The writer has, for many years, used the intravenous injection of atoxyl in tuberculosis, malaria and anemias, making thousands of injections, and, with two exceptions, has never met with the serious results published by other workers. On two occasions the injections were followed by pyrexia, malaise, headache, muscular pains, nausea, cramps and diarrhea, lasting from twelve to forty-eight hours. On both occasions, the atoxyl solution was old and had a yellowish tint instead of being colorless. Since that time the writer has been very careful to use only freshly-made solutions, and he has not seen any more bad results. It is best to use a 12% to 15% solution. One gramm of this would represent 0.12 to 0.15 atoxyl. This amount of atoxyl, given intravenously, is fully sufficient to produce a marked effect and, on the other hand, it seems to be entirely safe, at least the writer has never seen the slightest indications of any trouble of the optic nerve.

Cases have been published by Bornemann, v. Kruedener, Fehr, Lesser, and especially by Prof. Robert Koch himself, in which the subcutaneous injection of atoxyl has resulted in the loss of vision. While the writer has never used more than about 1.0 to 1.5 in one month, some of the above-mentioned gentlemen have used up to 10.0 in a month, none of them less than 5.0; and the amounts which Robert Koch has used are still larger. In spite of Lassar's publication, who gives up to 0.5 per dose, the writer can not help feeling that these amounts are too large—seeing that during the last seven years he has made at least 30,000 intravenous injections of atoxyl, and in no single case have eye symptoms appeared.

There are a few people who react badly to any intravenous injection, irrespective of its quantity or nature, even salt solution producing hemolysis. These patients are not good subjects for intravenous treatment. It should always be made a rule to inject only a few drops, intravenously, the first time. The second time, if the patient has not

shown any symptoms of hemolysis, one can use the usual amount.

The combination of tuberculin solution with atoxyl has given far better results than the tuberculin alone. In cases where *very small* doses of tuberculin produce a marked reaction, it is better to follow it a few days later with an injection of atoxyl alone.

In the therapeutic use of tuberculin the fundamental rule should be "avoid reaction." In the publication of September, 1906, the writer called attention to this important fact. The publications of Wright have proved scientifically, what clinical observation had previously taught the writer. Frequent reactions, even if they are only very moderate, do more harm than good. At the same time, one can not advocate the very small amounts of tuberculin which are frequently used since Wright's publications. In the writer's opinion, the best results are achieved when the amount of tuberculin used falls just short of producing a reaction not only febrile but even malaise. Often the patient does not feel well for a day, or a part of a day, after an injection of tuberculin without having any rise of temperature. This also should be avoided, and the amount of tuberculin should be reduced at the next injection, until a point is reached where the patient feels no ill-effect whatsoever. If improvement follows, this quantity should be continued so long as improvement is maintained.

Patients who come under treatment with a temperature of over 100° at any time of the day, ought, if possible, to be kept in bed, with very light or liquid diet, until the temperature goes down, before an injection is given. The results are better and quicker if the injections are given when the patient has no fever. If, after a few weeks' rest in bed, the temperature shows no tendency to go down, injections of tuberculin, not over 100th mgr. in the beginning, should be given anyhow. It is advisable in all cases to use a fixed amount of tuberculin as a trial injection, and then to be governed by the strength of the reaction in fixing the amount of tuberculin to be subsequently used, and also the frequency of the injection. After some experience, one will quickly know how much tuberculin different patients will stand without any trouble, and, also, how often it is wise to inject. Advanced cases should receive a smaller amount and less frequent injections than incipient ones. The technic of the intravenous injections is generally known, and was fully described in the first publication.

Another point of the greatest importance in the treatment of tuberculosis of the lungs is rest in bed, and, I venture to say, that the greatest mistake in the modern treatment of tuberculosis is made in this respect. All patients with tuberculosis of the lungs should be kept in bed until all the symptoms of the disease have disappeared. This means a great deal longer than they are usually kept there. The writer is convinced that his results are so satisfactory, because he keeps his patients in bed for such a long time; this is not only in regard to patients who have fever. It is naturally a mistake to have patients with fever walk around, even if the temperature is only 1° higher than normal; but equally of patients with incipient tuberculosis who have no fever. They improve wonderfully fast in bed under the proper treatment. Sometimes six to eight weeks are sufficient, but there is no time limit. As said before, the absolute rule ought to be that all patients have to stay in bed until the chief symptoms—cough, expectoration, night sweats—have entirely disappeared. It is quite difficult to do this; usually the patients feel very well after a few weeks and they want to get out of bed. A great many patients have unfortunately not enough means, and these patients should stay in bed as long as they can possibly stay there. Those who have the means and are anxious to get up too soon, ought to be told how dangerous and treacherous their sickness is, as long as there is only the slightest sign of it left, and thus one can usually overcome their objections to staying in the sanatorium so long. In some of the writer's cases, symptoms disappeared entirely in two or three months, and the patients have been well ever since. Of course, the intravenous injections of tuberculin and atoxyl should be continued for quite a while longer, even if all symptoms have disappeared. In many cases, the patients had to stay in bed for long periods. One patient, in the third stage, was kept in bed more or less for ten months, with the satisfactory result that he got practically well. Patients with fever ought to stay in bed under any circumstances until the temperature is normal. None of the patients, for instance, who have a rise of temperature in the afternoon only, should be allowed to get up in the morning. This is the routine in different sanatoria, but it should be abolished. Of course, it is preferable to have the patients take this treatment in the fresh air and stay in bed out of doors day and night. If that is not possible, the excellent method of Dr. Dennison ought to be used.

This principle of cure by rest is pretty nearly as old as medical science itself, and it is just as important in the treatment of tuberculosis of the lungs as in the treatment of most other diseases. The publications of the good results which some authors, for instance, Murphy, Brauer, Laxer, Schell and Schmidt, have achieved with the Forlanini method in producing an artificial pneumothorax in the treatment of tuberculosis of the lungs, prove also how necessary it is to keep the diseased lung as quiet as we can possibly keep it. In some of my cases, which appeared favorable for such procedure, enforced rest of the lung has been sought by putting large strips of adhesive plaster over the diseased side, and the results have been satisfactory. It is an excellent method for relieving the pain during an attack of pleuritis.

Besides the specific treatment of tuberculosis, the internal treatment with creosote has to be discussed. We all know to-day that the expectations of Sommerbrodt, to find a specific remedy in creosote, have not been fulfilled; but, if we do get from

the use of a creosote derivative an increase in appetite, a decrease in cough and expectoration, and none of the disagreeable effects of creosote itself, on the stomach and digestion, we are satisfied.

Of the many different creosote preparations that have been used, the writer would recommend one which has given him better satisfaction than any others. It is a combination of creosote and phenacetin, in very small amounts, and it permits the taking of far larger amounts of creosote than the usual preparations. It is not necessary to say that he has used a great many different preparations during the last eight years, and, while many of them have given some satisfaction, a great many have also deranged the stomach of the patients and have so decreased their desire to eat. This combination of creosote and phenacetin has a decided influence in several respects. It increases the appetite, keeps down the temperature, and so avoids the night sweats with their weakening effect and decreases cough and expectoration. It is best given in capsules in order that the patients do not taste the creosote. As it is not irritating at all, it does not repeat, and the patients do not have the continual disagreeable creosote taste in their mouth. About a half-hour after taking, the urine becomes quite yellow in color, but otherwise it has no irritating effect on the kidneys. Pure ichthyol, in doses from sixty to three hundred drops a day, has also given good results, but many patients object to the disagreeable taste they have in their mouths for hours, after taking the medicine. The same is to be said of geosote, a combination of guajacol-carbonate and valeria.

The last point to which I should like to call your attention is the influence which the physician ought to exert upon the mental condition of the patient. Some patients, who know that they have tuberculosis, are extremely optimistic and do not seem to realize the danger in which they are. Others, who do realize their condition fully, are too much depressed and have practically given up every hope of recovery. It ought to be made a practice to enlighten every patient, who has a chance to get better, in regard to his condition. Such patients, who are too optimistic, ought to be told that they are seriously ill and that they will die, if they do not make up their mind to live fully and strictly up to the directions which the physician will give. Others, who are discouraged from the beginning, ought to be told that they will undoubtedly get well if they carry out directions properly, if they are cheerful, and help all they can. Nothing has a better effect on the mental condition of all patients than the gain in weight; and with that, we come to another point of great importance in the treatment of tuberculosis, namely, the question of diet.

I do not believe that patients who are sick for such a long time, as patients with tuberculosis usually are, ought to keep one fixed diet. It is much better to give them a varied diet and to cater to their appetite as much as their digestion will allow us to do than to write out a limited dietary for them, of which they will get tired very soon; but, with varied diet, the patients ought to take from four to eight eggs daily and from one to three quarts of milk. If they can not take the milk pure, they can get it in some changed form—Eskay's Food or rice milk, or any similar preparation. The Russell emulsion is to be recommended very highly as part of the daily diet. The overfeeding of tuberculous patients helps in various ways. A well-nourished system is naturally more resistant than a system that is underfed, and, besides that, the moral effect on a patient who has been losing in weight and who, all of a sudden starts in again to pick up and gain in weight, can not be underestimated. The patient becomes more cheerful and is more willing to carry out the orders strictly, as soon as he notices the continual improvement in weight.

Of the one hundred and eighty-three cases of tuberculosis in the first and the second stage of the disease, I would like to give you the history of a few cases—some of them as typical examples of the treatment and its results, and some because they might be of special interest. The rest of the one hundred and eighty-three cases will be published at some other time.

Mr H. W. R., Napa. Age 40 years. Married seventeen years. Mother died of tuberculosis. Patient has been a heavy cigarette smoker for years. Used thirty to forty cigarettes daily. In April, 1907, he commenced to cough and lost weight, gradually, from 156 to 132 pounds. Much expectoration. Night sweats and shortness of breath. Four days ago severe hemoptosis. Patient went to the Walker Sanatorium October, 1907. Numerous T. B. in sputum. Dullness in left lobe. Rough bronchial breathing and rales. Stayed in bed about three months, then discharged from hospital. No more cough or expectoration. Breathing in left upper lobe a little harder than normal. Otherwise no other symptoms. Weight, 165 pounds. Microscopical examination of sputum made before the patient left the hospital, by Dr. Agnes Walker, showed absence of tubercle bacilli. Dr. Moffitt was kind enough to examine the patient for control and found the same condition. Patient is in excellent health at present time.

Frank E. M., Needles, California. Referred by Dr. Shepard, Needles. Civil engineer and surveyor. Age 35 years. No hereditary element. October, 1907, an attack of pleurisy and three to four days afterwards, blood in sputum. Ten days later hemoptosis. Microscopical examination by Dr. Shepard in Needles shows tubercle bacilli present. Examination shows rough breathing in both apices and dry rales during in- and exhalation. After being in bed for about three months, no more symptoms. The little sputum which the patient expectorated in the last month of the treatment was examined by Dr. Agnes Walker and myself and was free of tubercle bacilli. Dr. Moffit kindly examined the patient for control, before he left for home, and could not detect symptoms with the exception of slightly harsh expiratory breathing at the left apex. Gain in weight, thirty pounds.

William C. Pilot, 32 years old. In October, 1907, severe cold. Cough and expectoration ever since. also night sweats. Patient came for examination January 22nd and had a very heavy hemoptosis. He was sent to the Walker Sanatorium, where he had another very heavy hemoptosis. Examination showed tuberculosis of the right apex, rales and the other usual symptoms. Numerous tubercle bacilli in

sputum. Heavy expectoration, about one-half a pint in twenty-four hours. This case is interesting, because it is the fastest recovery of all cases that have been treated. Patient was in bed seven weeks and left the hospital free from symptoms. Examined for control by Dr. Moffitt. Patient gained about forty-five pounds and seems to be in perfect health at the present time and doing again night service on one of the boats on the bay.

Mrs. W. E. Th. School teacher. Age 33 years. In good health until four months ago, when patient contracted severe cold followed by cough, expectoration and severe hoarseness, which became gradually so bad that patient lost the voice entirely. Was treated for ulceration in throat by a specialist for about three months without result. Then patient went to Dr. Pischel, who referred her to me. Tubercle bacilli in sputum. Typical reaction after tuberculin injection. The history, which is most interesting on account of the rapidity of the improvement, is best given by Dr. Pischel's report: "Mrs. Wm. E. Th. March 20th, 1908. On posterior wall of the larynx two serrated ulcers. May 14th, 1908. The place of the former ulcers marked by pale spots. Ulcers apparently healed. Dr. Kaspar Pischel."

The only treatment consisted in intravenous injections of tuberculin and atoxyl. The voice of the patient is normal. There is no more cough nor expectoration.

Mrs. J. N., Richmond, Contra Costa county. Referred by Dr. S. Boyd, San Francisco. Age 47 years. Farmer's wife. Healthy until four years ago. Eighteen months ago dyspnoe slowly appeared, with loss of weight, cough and night sweats. Lost twenty-seven pounds.

Condition: February, 1907. Extreme weakness and pallor. Right thorax absolutely dull. Vesicular breathing absent. Harsh breathing and rales at right apex. Heart dislocated three inches to the left. Marked abdominal ascites, containing a large floating tumor above symphysis pubis. Both ovaries, examined per vaginam, show tumors.

Diagnosis: Pleuritis tuberculosa, peritonitis tuberculosa, fibroma uteri, ovarian tumors. February 9, 1907, paracentesis thoracis was performed at the St. Thomas Hospital, Dr. Pressley assisting. This was repeated six times, eleven quarts of typical tuberculous serum being removed. With the expansion of the lung, large and small sized rales appeared both in ex- and inhalation. On March 12th, Dr. Boyd performed laparotomy, removing a uterine fibroma and a small tumor from the right and a large tumor from the left ovary (found by microscopical examination by Dr. Blair to be spindle-celled sarcomata). Typical general tuberculosis of the peritoneum was present and much ascitic fluid. Abdominal cavity washed with normal salt solution. Intentio prima. A week later intravenous injections of atoxyl and tuberculin were commenced, from which time on improvement was uninterrupted. The appetite became excellent, and cough, expectoration and sweats gradually disappeared. Weight increased from one hundred and eleven pounds on March 25th to one hundred and eighty pounds on December 7th, by which time all pulmonary symptoms had disappeared and the patient was discharged well and has so remained.

All the rest of the one hundred and eighty-three cases are more or less similar to the cases of which I have given the histories. In some cases it took a longer time, in some cases a shorter time to get them well, but all got well or are on the road to recovery. In none of the cases has there been a relapse, and, even in most of the cases of the third stage, there has been a decided improvement in the condition of the patient, if only for a certain length of time.

Before closing this paper, it might be advisable to say a few words about the effect of the treatment in a great many of these cases of tuberculosis in a very advanced stage which we all see so very often. The results are, of course, always doubtful in such cases, and often I have been forced to tell the relatives of the different patients, to take them home after a short period of observation. It is advisable, even in cases that make a bad impression at the first examination, to put the patient to bed for a couple of weeks for observation. It happened to me several times that I did not think the patient had a chance to get better after the first examination, but, after the patients had been in bed for a little while, they showed improvement, and then under continual and strict care and treatment, got well. I would like to give the history of one of these cases sent to me by Dr. Shepard in Needles:

Man 20 years old. Father died of tuberculosis. About fifteen months ago patient had grippe, followed by cough and expectoration and night sweats, and two attacks of hemoptosis; the first a year ago, the second March, 1907. Past weight one hundred and thirty-eight pounds. Weight at present time about one hundred and twelve pounds. Patient went to the hospital in June, 1907. His morning temperature varied between 101° and 102°; his afternoon between 103° and 104°. The apices of both lungs were badly affected. A large cavity in the left upper lobe. Interrupted breathing left lobe. Normal breathing in the right middle and lower lobes. Patient stayed in bed more or less for seven months under the usual treatment. Then he returned to Needles practically well. No fever, dyspnea, nor night sweats, scarcely any cough or expectoration. Weight one hundred and forty-five pounds. He is still under treatment with Dr. Shepard, as it was considered better to have him keep up the treatment for a while longer.

Now, if you will permit a short resume of the most essential points, the author would like to state that tuberculosis of the lungs in the first and second stage, if properly treated, is a most curable disease; but it is not sufficient to take one feature of the modern treatment and to neglect the others. Results are dependent on a proper combination of them all, nor ought there to be discouragement, if the first cases do not promptly respond in a satisfactory manner. It takes some experience, which, however, is easily obtained, to use any kind of tuberculin intravenously, but every practitioner can use it and can treat his patients successfully, if he diagnoses them early enough and if able to acquire the help of the patient. It would, indeed, be a great satisfaction if we did not see so many cases in the last stages, which come too late for treatment and which are doomed to die. The use of tuberculin and atoxyl intravenously, absolute rest in bed, combined with fresh air treatment, where it is possible, overfeeding and some good creosote preparation internally, and, with it all, the stimulation of the energy and enthusiasm of the patient; these are the important features, and, if to them the physician adds his own energy and enthusiasm, good results will undoubtedly be obtained.

Discussion.

Dr. D'Arcy Power: It seems to me that in a matter of this kind we must be guided by results. The

whole question of immunity, the whole question of bacterial vaccination, as to how far it is successful or not successful, is still to some extent an open question. I believe that Wright is in the right course. Yet there is not by any means a uniformity of opinion, either in regard to the therapeutic basis of his work or to the results that he has attained, and for that reason I believe, when we are dealing with such a method of treatment as has been brought forward by Dr. Rothschild to-night, that the subject must be judged by results, and results only. If Dr. Rothschild can show by a sufficient number of cases that intravenous injection is the right route, we must abide by the results of practice rather than be bound by theory. I hope that this matter will receive more attention from all of us, and I intend to follow it further.

Dr. Moffitt: I wish to say a word in regard to the use of tuberculin in general. Dr. Rothschild has sent a few of these patients to me to look over after he had them to all intents cured. I have been very much interested in his work, as we all must be, but I would raise my voice in caution rather than in commendation. I have in mind several patients treated with old tuberculin, who did remarkably well. I also have in mind other patients who were going quickly with acute tuberculosis, who are absolutely well to-day with no other treatment than rest and creosote. I have in mind, also, a number of patients whom I have seen during the last month, who are industriously using tuberculin without proper clinical spervision. I would emphasize what Dr. Rothschild said in his paper, that we must measure the reaction often by symptoms of the patient and by the sensations they have about their local lesions. I think a large part of Dr. Rothschild's results must be referred to his management of his cases rather than to his use of tuberculin. He instills his patients with his enthusiasm, keeps them quiet and feeds them properly and regularly. I am very enthusiastic about some of the patients I have seen, who have returned to their work after his treatment, but we must not go wild over the use of tuberculin.

Dr. Rene Bine: As to the preparation which is to be used in the injection treatment of tuberculosis, I should say that there are many clinicians in Europe who are obtaining excellent results with old tuberculin, just as with the new. In fact, it has been demonstrated that good results ought to be obtained with almost any preparation, provided that it be properly administered. Sahli favors Beraneck's, others favor Deny's, though, of course, the new tuberculin is now enjoying the greatest vogue. As regards the methods of administration, Koch having found that the power of agglutination which had been obtained by treating patients with tuberculin subcutaneously could be still further raised by intravenous injections, advocated this method as early as 1901. It was, however, very soon demonstrated that the same degree of immunization could be regularly obtained by the use of oft-repeated mild doses subcutaneously employed, and the intravenous method was promptly abandoned. The pulmonary administration of tuberculin advocated in 1904 has had practically no followers. The work of Wright has shown that mild doses are better than large ones. The reaction follows each dose, this reaction being determined by the estimation of the opsonic index, and Wright has claimed that by these determinations alone can one gauge the doses to be administered. Wright determines the index twice a week of cases which come to his laboratory. My experience has taught me that the index in most ambulatory cases of pulmonary tuberculosis fluctuates from day to day, and I therefore believe that to be of any avail, leaving aside the question of accuracy of technique of index determinations, one should have to test the patient's blood at least once daily at the start of any course of treatment. If I remember correctly, in the first report of Dr. Rothschild he speaks of injecting a dose of tuberculin sufficiently large to produce a reaction, the size of which is an indication for his further dosage. I should think that this preliminary injection would be a dangerous one, and therefore I should like to have Dr. Rothschild explain just how he graduates his dosage afterwards.

Dr. Rothschild (closing): I can not agree with Dr. Evans in claiming that the intravenous injection is harmful. In fact, I consider it the most harmless method a physician can use if he uses it properly. During the last nine or ten years I have made a great many thousand intravenous injections, and I have never seen any bad effects—for instance, thrombosis. But of course the injection has to be given correctly without damaging the intima. Dr. Evans also objects to the use of the old Koch tuberculin and thinks that different other tuberculins give better results. I can only say that I have had the best results with the old tuberculin, but I believe that most tuberculins will give good results if they are only used carefully. The question of immunity is not yet clear, and also Wright's theories are not absolutely above reproach. Wright's index is hard to use; for the general practitioner, pretty nearly impossible, and we have to be guided by the practical results, they count more than anything else, as Dr. Power stated very correctly. I agree with Dr. Moffitt who says that it is very necessary to be extremely cautious with the tuberculin. It takes a good deal of experience to use tuberculin. The fact that the tuberculin was not used correctly was the reason that its use was given up by most physicians, and only in the last few years, since we know how to use it, it has been taken up again. I claim to be the first one who recommended such small amounts of tuberculin and the strict avoidance of reactions. My first publication appeared before Sahli's publication, which Dr. Moffitt mentioned.

THE ITCH.*

By DOUGLASS W. MONTGOMERY, M. D., San Francisco.

With a fine eye out for something with vim and snap in it the Scotch took the thistle for their emblem. In like manner the itch, their national disease, is stimulating and lively and has nothing of the languor and introspective misery of the American neurasthenia. This dis-ease, this disquietude, this brisk inconvenience is supposed to be so readily recognizable and so simple to treat as hardly to require serious consideration, and as for its acquisition, that is looked upon in the nature of a joke by those who do not have it.

In regard to the diagnosis one is told to find the burrows and the itch mite, and the incident is closed. These things being found the incident, as far as the diagnosis is concerned, is closed, but frequently, as recently remarked, it is not so easy to find the burrows and the mite.[1] We must also remember it is the simple things that escape one. I know that I myself have made errors in the diagnosis of the itch, as I have had the good fortune to correct some of these at a subsequent visit. At other times I have caught myself on the verge of making a mistake by recognizing some characteristic feature of the malady, for example, a pustular eruption on an infant's feet with the little one vigorously rubbing its

*Read before the Alumni Association of the Medical Department of the University of California, April 10, 1908.

trotters together. In an instance I have in mind, a glimpse of such feet led to the discovery of a long-enduring scabies in a whole family. So by recognizing my positive slips and partial stumbles I am certain that I have made mistakes which have wholly escaped me. And I know by correcting the mistakes of my colleagues that others have erred as well as myself. So much for the reputed ease of diagnosis in scabies.

Concerning treatment, I have seen the itch elude cure with an insistency that became monotonous. Failure to cure is, however, usually due to neglect of some very simple rules, which will be referred to later.

The two chief symptoms of the itch are: Itchiness, and the burrows of the itch mite. The accessory or secondary symptoms are: Papules that are usually excoriated; vesicles filled with a transparent crystalline fluid, and which arise directly from the sound skin and have no inflammatory base, and are situated principally on the fingers and hands; pustules with large ecthymatous crusts; and scratch marks.

The itch may be complicated by urticaria, impetigo, ecthyma, vesicular eruptions, pemphigoid bullæ, eczema, lichenoid eruptions, furuncles, abscesses, lymphanagites and adenites.

The itchiness is usually well marked, and frequently sets in at night on retiring. The patient tosses on a distressful bed until the early morning, when he gets a little sleep, and so on night after night till worn out and hollow-eyed with fatigue. With people particularly sensitive to the mite the itchiness continues during the day also, and many a complaint is made of dignity deeply wounded by an uncontrollable desire to scratch. There are other people who do not suffer from pruritus at all, and this is a matter to be carefully borne in mind, as one member of a family may maintain that he has not the affection, because he is a very little or not at all troubled by it, and by refusing to take the treatment, is a constant source of reinfection for his relatives. Your ordinary self-satisfied layman is strong upon this point, as not being itchy, he clearly can not have the itch. If reminded of the well-known fact that fleas annoy some people intensely, while others not at all, he is still rarely convinced. Jacquet even mentions cases without either scratch marks or itchiness.[2] Furthermore, it must be borne in mind that, after infection, a period of six or eight weeks elapses before a sufficient number of symptoms accumulate to constitute a classic case of the itch. An individual, therefore, even while infected, may with perfect truthfulness deny the existence of all symptoms, and even when examined by a physician, may be passed on as clean.

The burrow or run is made by the female in the lower layers of the cornified epithelium of the skin. It can be seen as a rough, curved furrow, sometimes running over a papule, sometimes having a papule or pustule at one end. Frequently the burrow is black from dirt that settles in its rough surface. It is said that the feces of the animal deposited along the "run" also blacken it, but it is doubtful if they are ever present in quantity great enough to have this effect. These runs are usually best seen on the anterior surface of the wrists, or on the neighboring volar surface of the palms, or between the fingers. Burrows may also be found in the soft skin in the hollow of the foot in infants and women, though very rarely seen in this situation in men. When a burrow is distinct, it is characteristic of this disease, but may easily be simulated by irregular lines in the epidermis filled with dirt. An excellent way of deciding the question is to shave off the suspected epidermis with a scalpel, taking care to go deep enough. Then lay the slice of epithelium on a slide, add a drop of glycerine, place a cover glass over it, and examine with a low power. If the lesion is a burrow, it will be seen with the feces and eggs in it, and if luckily cut, the itch mite may be included. Either the eggs or the mite serve for a positive diagnosis beyond all sources of error.

The *acarus scabiei* or itch mite is a member of the family *arachnida* and is nearly related to the spider. The word acarus, however, means a worm of the earth, and Victor Hugo recounts that Saint Didorus, Archbishop of Cappadocia, wished this word and this word alone to be inscribed on his tomb. This was simply an effective way of indicating the arrogance of the saint's humility, and had no reference to scabies. This itch mite is the sole cause of scabies, and few if any who are exposed to infection are immune. Although none may be immune, yet persons differ widely in the irritation caused by the insect. In some, as before mentioned, the beastie causes almost no inconvenience. In others a few vesicles between the fingers, or a few scattered papules, excoriated or not, may be the only evidence of the affection. But the itch in most people constitutes a serious inconvenience, causing every nerve in the body to jump. It poisons them so that they get huge welts, vesicles and pustules. The industrious scratching causes lesions resembling eczema and lichen, and at the same time inoculates the skin with the pyogenic bacteria from the pustules. In this way impetiginous eczema, with, at times, large purulent bullæ, and even deep-seated infections such as lymphagitis and adenitis may supervene. The severity of the symptoms and the misery endured by these patients is such that in describing their afflictions they frequently disdain all niceties of emphasis and expression.

In those in whom the disease is very light and causes only a few vesicles between the fingers, filled with a clear fluid and arising from a non-inflammatory base, the burrows may be easily overlooked and the affection may be considered a transient irritation. Where pustules are found on the hands and wrists of an adult, a painstaking search should always be undertaken to find the burrows and the itch mite, as the eruption is so likely to turn out to be that of the itch. In fact, in every eczematous or itchy disease of the hands and wrists, it is well to think of the possibility of the itch mite as being its cause. This is particularly the case if there are ridge-like red marks across the front of the wrists.

The location of the eruption between the fingers, the so-called "Scotch fiddle," is well known to the laity. One time in the clinic I suddenly grasped a Scotch woman's hand, and after spreading her fingers and looking narrowly at the web, I remarked without looking up, "God bless the Duke of Argyle." As quickly as the response in the church service, she answered, "With a scratchin' post at every mile." We were instantly in accord, and the diagnosis being completely to the satisfaction of both, there was nothing to do but to lay down the lines for treatment. Frequently welts form a part of the scabitic eruption, and in infants and children this is particularly apt to be the case, and at times so predominently as to give rise to an erroneous diagnosis of urticaria (Finger).

Large, rough, brittle, itchy crusts over the elbow tips constitute another characteristic symptom, though not nearly so impressive to a man who knows his work as a few papules peeping around the anterior folds of the arm pits. The nipples in women are a favorite seat of the disease, and that the same organs in men are not particularly affected constitutes one of the eccentricities of this malady. This brings us to the consideration of a peculiar attitude of mind in this disease. The penis is nearly always affected, and as soon as you ask the patient to expose himself, he almost invariably hastens to say, "Oh! it is not that," thereby assuring you that you need not think he has a venereal disease. A patient with the itch, although he may have quite a severe eruption on the penis, and although he may have acquired his malady by consorting with the "loathly lady," yet rarely thinks of his trouble as being venereal, and seldom mentions the privates as being affected. Whereas a patient with a venereal ulcer, although it may present far less striking symptoms, is almost always deeply moved by his malady. The difference in mental attitude, often striking, I have been tempted to ascribe to instinct. At times the scabetic lesions on the penis look like ulcers and closely resemble venereal ulcers, and frequently have been taken for such. At other times the scabetic papules are well raised, rounded, circumscribed and firm, and resemble the papules of early constitutional syphilis. This mimicry is particularly apt to occur on the glans penis, where one must distinguish between scabitic papules, a papular syphilide, or the papules of psoriasis or seborrheic eczema. The problem may sometimes be solved by noticing that a burrow runs over such a papule. The difficulties of diagnosis may be increased by syphilis and scabies being actually present together. Scabies is a disease almost always caught in bed; either in bed with a person having scabies, or in a bed previously occupied by a person having scabies. Syphilis is also contracted in bed. In both diseases that promiscuous female, the prostitute, is an important bearer of infection.

As a patient stands before you even the locations of the eruption are characteristic; on the hands, at the wrists, at the axillary folds, on the belly, on the penis, with the face clear of trouble. Then, as the patient wheels round, the back down as far as the loins is seen clear of eruption, with a papular outbreak on the nates and in the folds just below them, and a rash in each popliteal space. There are also over the elbow tips dirty, heaped-up, irregular crusts quite different from the well circumscribed buttons of psoriasis. As before mentioned, the nipples in women are frequently affected. If a papular impetiginous eczema occupies the above mentioned sites, even if burrows are not found, the diagnosis of scabies may be made.

In regard to differential diagnosis a dermatitis among cement-workers, caused by the very active chemicals in cement, must be considered. During the past few years cement has grown more and more in favor as a building material, and physicians must expect to encounter an increasing number afflicted with this dermatitis. It is particularly apt to give rise to a crusted eruption between the fingers, that strikingly resembles that of scabies.[3]

Up to 1898 scabies was not frequent in San Francisco. In that year, however, the armies on their way to the Philippines passed through this city, and there was an immediate increase of both syphilis and scabies.

Having lost all the notes of my cases in the great fire, I can not give the exact figures in my own practice, but of the increase I am certain, because of having previously arranged my histories and remarking on this circumstance. Again, immediately after the fire, there were a remarkable number of scabitic infections, evidently due to the derangement of the sleeping quarters of the town, and the promiscuity of camp life. One of my patients told me that he had to go down country after the fire and dwell with a Portuguese family. Out of compliment they gave him, as underwear, part of a bride's trousseau. He got the itch and was grieved over it.[4] The prostitute, of course, spreads the disease in the line of her business, but sympathy has also its victims. One of my patients, a young girl, thought to comfort a woman friend who had influenza, by resting near her in bed. The friend had the itch as well as the grippe and imparted both to her visitor. As a profession we owe a great deal to sleeping cars as disseminators of the itch among a class of patients who can afford to pay for treatment. Country hotels are also often admirably fitted out in this respect, and since the introduction of automobiles, the victims seem to me to be more frequently of a better class. This disease is not transmitted in the ordinary course of life as by shaking hands, or to physicians in their examination of patients.

The intensity of the affliction may vary from time to time, as for instance during the course of any of the severe fevers, when the eruption, even the burrows, will totally disappear, to reappear again, however, on the recovery of the patient.[5] But, through whatever fluctuations the symptoms of scabies may pass, the disease never spontaneously dies out.

To my mind, the treatment of scabies as given in the text-books is too rigorous. The parasiticides themselves are irritating, and when applied to the

raw lesions on the skin produce a variety of discomforts. When, in addition, these parasiticides are combined with such ingredients as soft soap and carbonate of potash, with a trifle of chalk added to the ointment to make it gritty, the patient feels that the adjective "unctuous" is not applicable to the composition in question. He may, however, be able to bear the smarting with stoicism on the general surface, but when it comes in contact with the tender skin of the genitals it is quite a different matter. In fact, many of these prescriptions look more like a cure for lassitude than for the itch. Frequently a doctor requires a distinct jolt to rip him out of a conventional way of prescribing. Some years ago a patient was sent me by Dr. Kaspar Pischel. I gave him a classic prescription of tar, soft soap, sulphur, prepared chalk and lard. After applying this ointment he called in a less strenuous physician, who got a much larger fee and more praise. I have no doubt I cured his itch, but I did not gain his affection and esteem, and Dr. Pischel, for long after, never met me without upbraiding me. I learned the lesson. Shortly afterwards I was called in consultation by another physician who had copied the identical prescription from a treatise on diseases of the skin. I was able to advise him out of the fullness of my experience, but did not get my fee for that, either.

The principal parasiticides used for killing the sarcoptes are sulphur, betanapthol, balsam Peru, creolin and styrax. Epicarin and petroleum may also be used. A simple sulphur ointment, if intelligently applied, and for a long enough time, kills the parasite, and usually with little inconvenience to the patient. As remarked by Malcolm Morris, even the simple sulphur ointment of the British Pharmacopœia (¼) is too strong, and a half a dram or a dram of sulphur to an ounce of lard is quite strong enough. The patient should first take a hot bath with plenty of soap, and then be directed to rub the ointment particularly into the favorite locations of the parasite for nine successive nights. During the whole course it is better to wear a full suit of woolen underwear, so that the ointment by getting into the underwear may be returned to the skin and rubbed in with every movement of the body. The patient should therefore be directed to wear the same undershirt and drawers during the whole nine days and nights of treatment, only taking off the garments to rub in the ointment. In such a treatment it is particularly necessary to rub the ointment well into the hands and wrists, as these do not receive the benefit of the constant application of the salve by the clothing. In women it must also be remembered that the drawers, being open at the back, do not come well into contact with the gluteal folds, which should therefore receive the same special attention as the hands. Although the ointment is only rubbed into the points of election previously spoken of, yet these points are so widely distributed that the underwear spreads it over the entire clothed body and limbs. Furthermore, it makes a better impression on the patient, and one is more apt to get one's orders carried out if these certain points are explicitly designated for attention.

Once a patient entertained me with an account of a treatment advised by a chiropodist. Pork rind was to be dipped into sulphur powder and rubbed into the skin. He was neither to bathe nor to change his underclothing during the entire course, and on the expiration of the time of treatment, two weeks, he was to take a warm bath containing washing soda. The treatment is not a bad one, as pork fat and sulphur make a kind of sulphur ointment. Like all folklore medicine, however, it had to contain an unusual or wonder element, which in this instance was furnished by especially designating the rind of pork.

Is is very rarely necessary to have the parasiticide applied above a line running paralled with the lower jaw, as the presence of the itch mite is practically unknown on the face and head in children and adults, and only rarely occurs in these situations in infants. In children and adults there may be, very rarely, some coincident pyogenic infection of the face.

I have seen repeated failures to cure because of the treatment being confined to one or two localities where the eruption was most marked. Peculiarities in the course of the disease lend themselves to the commission of such an error. The affection may rage for some time, and then for some unknown reason die down and only present a few insignificant symptoms, or the eruption may be severe in one or two localities and mild elsewhere. The patient almost always pays copious attention to the severely attacked locality, and frequently causes there an intense local medicinal dermatitis. He may kill out, each night, the itch mites in this particular region, but maurauding bands come cheerfully in from neighboring colonies, and undo the work so painfully carried out. In all cases, therefore, a general treatment for the itch must be instituted, and at the same time any severe local inflammations may be controlled, for example, by starch poultices, to which is added about five per cent of boracic acid powder. At times we have to treat a patient for scabies who is suffering from a broken limb, and find the beasties quite at home under the restraining splint. Such a combination gives us an insight into the frame of mind of an ancient armored knight affected with the itch. No wonder they fought! Fighting would be a diversion. In a case of scabies developing under a splint, Sherwell's plan of using sulphur as a dusting powder would be invaluable. Sherwell advises the use of sulphur as a dusting powder, to the exclusion of ointment, in the general treatment of scabies. I have never used it so, but have often advised it as an adjunct. For instance, in a household where many members are affected with the itch, it is often advisable to order sulphur dusted into all the beds, lest some lightly touched but recalcitrant individual should escape cure and reinfect his comrades.

Sherwell's method as given by Pusey runs as follows: "Bathe in the evening, using an alkaline or sand soap over the tougher parts. Then rub the body lightly with washed sulphur; half a dram is

sufficient for one person, and hard friction is not necessary. About half a dram of washed sulphur should also be scattered between the sheets of the bed, and the clothing and the bed linen should be changed every two or three days. The amount of sulphur necessary does not produce any irritation, and the cure is effected in about a week." [6]

Sulphur, however, used in this way may irritate the eyelids as the following example in this kind will show. One of my patients, with a weakness for frequenting strange beds, was advised by me, after vainly admonishing him in regard to his course of life, to dust himself with sulphur, on occasion, as a prophylactic measure. The substance acted so irritatingly on his eyelids as to compel its disuse.

It may here be remarked that if mankind would only heed the advice of Thomas à Kempis, it would not alone escape the itch, but many other complications as well. Our English translation of the admirable passage here referred to is somewhat hazy, but directly stated it runs as follows: "Avoid evil women, and as for the good ones commend them to God." As Anatole France remarks, it is wonderful that a simple monk, far removed from the intrigues of courts and the intricate life of cities should evolve a rule, so simple, so inclusive, and if adhered to, so effective, as to confound all that has ever been said on the subject of the simple life by the erudite, the rich, the powerful, and the noble; nevertheless, while repeating the good monk's admonition, as occasion arises, it would, in the meantime, be well for physicians to bear in mind ways of treating the disease in question. And so we will proceed.

Balsam Peru is an excellent remedy for the itch, and it is often used in the same ointment with sulphur as for example,

R.

Sulphuris precipitati		
Balsami Peruviani	a a	dram. iii
Lanolini		
Vaselini	a a	oz. iss

M.

In cases where, as in infants or in severe local dermatitis, great care must be taken not to injure the skin, it is often desirable to use Balsam Peru alone, as in the following:

R.

Balsami Peruviani		1 to 2 oz.
Lanolini		
Vaselini	a a	1 oz.

M.

Julien highly recommends the method which he saw used in Italian clinics, of painting patients with balsam of Peru without any preliminary baths or other preparation. It is best applied at night, and followed in the morning or later by a bath. It usually causes no irritation whatever, and is effective. It should not be forgotten, however, that in rare instances balsam of Peru produces violent dermatitis. [7]

Matzenauer give the following directions in regard to the application of balsam Peru or styrax: A hot bath with plenty of soap should first be ordered, and after the skin is perfectly dry the balsam Peru is to be well rubbed in with a piece of flannel. As it easily spreads, a very small amount, 8 or 10 grams according to Mosler and Piper, is enough for each rubbing. The application should be made twice a day for two succeeding days. The patient should neither bathe or change his underclothing for four or five more days, after which a bath is taken. The undergarments may be thrown away as they are rendered unwashable by the balsam.

In the same manner styrax may be applied, prescribed according to the following formula:

R.

Styracis liquid	25.00
Spts. vini. rect.	10.00
Ol. oliv.	05.00

M.

Or the styrax may be combined with balsam Peru.

R.

Styracis liquid		80.00
Balsam. Peru.		20.00
Spts. vini. rect.		
Glycerini	a a	16.00

Although sulphur, balsam Peru, and styrax are excellent remedies for scabies, yet there are other fine agents, such as creolin and betanapthol. An ointment composed of:

R.

Betanapthol		10.00
Lanolini		
Vaselini	a a	75.00

M.

may be used in the same way as a sulphur ointment. Betanapthol has been known, by absorption, to irritate the kidneys, so that one would hesitate to prescribe it when the patient is suffering from Bright's disease, and in any case due care should be taken in using the remedy.

Through Dr. Werther of Dresden, I first became acquainted with the use of creolin, who uses it in the following combination:

R.

Creolin		10.00
Saponis viridis		30.00
Adipis benzoati	ad	100.00

M.

S.—Rub in morning and evening.

I have used it, leaving out the soft soap, and have found it a most satisfactory remedy.

In my personal experience, as I have previously indicated, I have found the ointments as usually recommended for the itch too severe, and have preferred to treat my patients a longer time and less drastically, both to my contentment and to theirs. Another modification I have found most comforting is to change the parasiticide during the treatment; to use a sulphur, balsam Peru ointment for three days, a betanapthol ointment for further three days, and a creolin ointment for the remainder

of the time. In this way, if a person be delicately sensitive to sulphur and gets a commencing sulphur dermatitis, this will subside under betanapthol, and before the betanapthol has time to irritate severely, it, in its turn, is discontinued and creolin is used.

In many instances a dermatitis caused by sulphur can be controlled by a judicious use of talc powder or of Lassar's paste. A good formula for Lassar's paste is:

R.

Acid. salicyl.		gr. xx
Amlyi.		
Zinci. ox.	a a	oz. ss
Glycerini		oz. i

M.

S.—Apply twice a day.

At times a puritus, or an urticaria, or an eczema may persist long after the scabies is cured. These obstinately annoying eruptions may frequently be controlled by Boeck's paste, to which is added ten per cent of liquid carbonis detergens. The formula reads as follows:

R.

Liquoris carbonis detergentis		30.00
Amyli.		
Talc.	c c	40.00
Glycerini		20.00
Gummi Arabici		1.00
Liquoris plumbi subactatis		4.00
Aquæ		200.00

M.

S.—Use as a lotion two or three times a day.

The patient's underclothing should all be boiled; this is disinfection enough. I have never found it necessary to disinfect the outer garments, with the exception of gloves. As for the gloves that is an important matter, and orders should be given to search out industriously all the gloves in the house, burn those that are old, and dust sulphur powder into the still useful ones. Gloves, in a disease that shows such a predilection for the hands, should be admirable carriers of infection, although I have never personally found them to be so. Julius Heller thinks it would be wise for the public health authorities to disinfect gratis the dwellings of the poor that are infested with any of the animal parasites, such as pediculi and acari.[8] Several other remedies besides sulphur, betanapthol, balsam Peru and creolin have been advised for scabies. Epicarin is apt to be quite irritating to the skin. Petroleum is so nasty and may cause such severe irritation of the skin that it is only used in the very poorest practice in poor countries.

Ichthyol has been used in baths, but such a quantity has to be employed as to make treatment unnecessarily expensive; furthermore, the method has no special advantage, except that it does not irritate the skin.[9] I have never used ichthyol as an antiscabitic. Franz Nagelschmidt recommends theophinol, a sulphur derivative, to be used in baths and as a salve.[10] Michel Steiner speaks favorably of tardermasan in the treatment of scabies.[11] Walter Schneider uses anthesol as a substitute for tar to control the itching in scabies.[12]

As I have never employed theophinol, tardermasan or anthesol, I can not speak either for or against their use.

The principal object of this paper is to ameliorate the condition of those having the itch by modifying the rigors of treatment. Those dear scabby ones deserve consideration, at our hands, for notwithstanding their torments, they are a good-natured lot. Many diseases tend to sourness, and to the nursing of wrath against the world and especiall against the physician who endeavors to help them. This is rarely the case with those having the itch. We ought, therefore, to take especial pleasure in lightening their burdens. I often think of the kindly Hypocratic maxim: "We must never do our patients any harm," and in the case of scabies, it might be enlarged to say with Rudyard Kipling, "and not afflict them with any of the unnecessary hells."

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(2) Annales de Therap. dermatol. et syph. Vol. 6, No. 88, Ref. in M. f. Prak. Derm., 1 Okt., 1906.
(3) Le Dermatose des Cimentiers per Rene Martial. Revue Pratique des Maladies Cutanees. Juillet, 1908.
(4) Oliver S. Ormsby has drawn attention to the increase of scabies in the United States. Journal of the Am. Med. Assoc., XLVI., 1906, No. 21. J. Nevins Hyde of Chicago has also written on this subject.
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(8) Oesterr. Krankenpfleg. Z't'g., 1907, No. 6. Abstract in the M. f. prakt. Dermat. Okt., 1907, p. 375.
(9) Ch. du Bois. Abstract in M. f. prakt. Derm., 15 Juni, 1907, S. 634.
(10) M. f. prakt. Dermat., 1 Feb., 1906, S. 145.
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ON TRUE INTESTINAL DYSPEPSIA.*

By N. W. JONES, M. D., Portland, Ore.

By true intestinal dyspepsia is meant those conditions of the intestinal tract characterized by disturbance of the intestinal function. It may be purely functional, though rarely so, and it may be associated with anatomical changes in the mucous membrane, which is very frequent. The relation of organic to functional disease is close. Either one may be primary. Those in which the functional disease precedes, and the organic disease, most frequently a chronic catarrh, follows as a secondary manifestation, belong to this group of true intestinal dyspepsia. Primary organic intestinal disease with secondary functional disturbance, which is common, is not so classified. Yet with certain forms, especially chronic catarrh, the interrelationship may be so close as to deny differentiation. In these cases it is justifiable to speak of them as true intestinal dyspepsias.

From the nature of the foodstuffs concerned in intestinal digestion it is logical to speak of two large types of intestinal disturbances: 1, those disturbances which concern all classes of foodstuffs (dyspepsia

*Read at the Thirty-Fourth Annual Meeting of the Oregon State Medical Association, Portland, Ore., July 1-3, 1908.

intestinalis universalis), and 2, those disturbances which concern one or more, but not all, of the food classes (dyspepsia intestinalis partialis), following Einhorn's nomenclature. This latter group may be divided according to the type of food or combination of types of foods concerned into (a) disturbed digestion of proteids; (b), carbohydrates; (c), fats; and (d), various combinations of any two of these foods. Two more groups may for different reasons be added with propriety, namely, 3, disturbances of the intestinal flora, with especial reference to the saccharo-butyric putrefaction described by Herter; and, 4, certain subjective disturbances which are associated with neither ascertainable functional nor organic changes and which may be looked upon as true nervous intestinal dyspepsia. The two latter forms I will not discuss at this time.

Soon after the beginning of the use of the stomach tube in the diagnosis and therapeutics of stomach diseases by Kussmaul (1869) and its adoption by Leube, Ewald, Riegel, Boas and all others, efforts have been made to test the function of the intestinal tract in somewhat similar ways. But the difficulties were much greater, and the factors entering into intestinal digestion (motility, secretion, resorption, bacterial decomposition) were much more hidden, so that years went by without material progress being made in this direction. Within the last four of five years only, through the work of Adolph Schmidt, Strasburger, Straus and Pawlow for the most part, has intestinal digestion been studied by other than empirical methods. To the former clinician do we owe the elaboration of a method of intestinal testing, which permits, through the use of an intestinal test diet and the examination of the stools obtained from it, the comparison of the abnormal with the normal bowel function. The stool obtained from this diet in the healthy individual is, within practical limits, of stationary composition. Therefore certain deviations from the normal as regards the digestion of individual foods, pathologic products, etc., may be determined. The underlying principle of the diet is that it contains all primary foodstuffs in proportionate amounts and of sufficient calory content, and that nothing be eaten which can not be recognized in the stool. The details of the diet as I have transposed it from the German dietary for my own use I have given in a former paper and need not repeat. Some objections have been raised against this method by physicians. It is true that it requires from two to four days living on the diet before the stools should be examined, and both patient and physician may dislike to spend that amount of time. For this reason and the lack of knowledge of stool analysis it has not been generally adopted in practice. For this reason, also, Einhorn of New York introduced in 1906 his bead test in the hopes of simplifying Schmidt's method and still obtaining the same information. But on the other hand I have not found this to be a disadvantage. Patients who suffer real distress enter into the spirit of the investigation and almost without exception carry out the details with willingness and care. In some instances it is of aid in a general diagnostic way also, for with true stomach or intestinal disturbance the patient is apt to experience increased distress, whereas this is seldom seen in the purely neurasthenic or the simple undernourished state, conditions in which the diet is oftentimes indicated.

The above mentioned test beads of Einhorn have likewise not been adopted in general practice to any extent, partly for the same reasons. This method consists of the use of six food substances; catgut, fishbone, meat, potato, mutton fat and thymus gland, the latter because of the abundance of nuclei in it, fastened to small beads and arranged in a chain along a short silk thread. Several chains are swallowed, usually after a meal, and the beaded threads again recovered in the stool, and the remains, if any, of the attached foods examined as to the degree of digestion undergone by each. The method has the advantage of being of simple execution, and what seems to be of more actual value, it is a sharper indicator of intestinal motility. But in the main I have preferred the use of the Schmidt diet and still continue to employ it as a routine.

Simple functional intestinal dyspepsia concerns most frequently the digestion of starch. The patient usually complains of indefinite neuralgic pains throughout the body, more or less distress through the bowels, loss of appetite, easy fatiguability and other symptoms commonly grouped as neurasthenic. The stool, however, is frequently of a foamy character, yellow in color, acid in reaction, with a strong odor of butyric acid, and gives a strong reaction for fermentation with the Strasburger method. Microscopically starch cells staining blue with iodin are seen in more or less abundance. Mucus does not occur in the early or mild cases. Later it may be found and the products of intestinal inflammation: serum, mucus, desquamated epithelium, which easily undergo putrefaction, may be sufficient to give the stool a slightly alkaline reaction, with a positive putrefaction test. A purely functional isolated disturbance of fat digestion, according to Salomon, does exist. It is nevertheless rare, and one must be satisfied of the absence of pancreatic and gall bladder disturbances before it can be justifiably assumed to be present. Disturbance of proteid digestion alone is less frequent than that of starch. According to Einhorn it is very rare. My own experience does not teach me that it is very rare, if one is justified to diagnose this condition from the presence in the stool of an abnormal amount of microscopic, undigested, striated muscle fibre alone, without the occurrence of starch, fat, connective tissue and nuclei, and a stool of alkaline reaction that gives a positive reaction for putrefaction. This type of dyspepsia is prone to produce a secondary catarrh, the products of which, undergoing decomposition, will intensify the alkaline reaction and putrefaction test. Indeed, it is quite impossible to say that this type of case is not always a primary chronic intestinal catarrh, for the products of inflammation may be digested and absorbed, and consequently no evidence of it appear in the stool.

Schmidt, in a recent paper before the Twenty-fifth Congress for Internal Medicine, held this year in Vienna, emphasized this point. Combined disturbances for different foods are fairly frequently met with as Einhorn's published reports demonstrate. But, on the other hand, the above criticism applies with greater force to the cases of this group. They may all be primary intestinal catarrhs with secondary functional disturbances.

The following selected cases will illustrate some of these types of intestinal disturbances:

Case I. E. G., aged forty years, has complained for nearly three years of excessive bloating, both in the morning before eating and also during the day after eating. The feeling of distention, the almost constant passing of flatus, slight colic with relief after the passing of flatus, and general lassitude and inability to concentrate his mind upon his work are distressing symptoms. His appetite has been good and his normal weight maintained. His bowels are moderately loose, though never diarrheal. He is excessively nervous. Physical examination is normal except for a palpable slightly tender colon. An Ewald test breakfast removed in fifty minutes shows normal ferment relations. The stool from the test diet shows a large formed, yellow, gaseous, butyric acid smelling stool of slight acid reaction. Some undigested starch stains blue with iodin and some connective tissue and microscopic poorly striated muscle fibre is present. The two latter are not beyond normal limits. A fair reaction for fermentation is obtained. The bile salts are oxydized and there is a little finely divided mucus. Fat is normal and the nuclei are gone.

For the patient was prescribed an unirritating diet free from most starches, hot compresses, which necessitated some rest on the back during the day, warm baths, and a temporary course of bismuth salicylate. Relief was almost immediate and has remained permanent for a year and a half with the exception of a few days, at one time, after drinking beer. This may be considered an example of intestinal dyspepsia with faulty starch digestion associated with a mildly spastic colon.

Case 2. Mrs. A. A., aged forty-two years, began gradually to complain of edema of both legs, flatulence in early morning and after eating, periodic constipation and diarrhea, irregular pains through the back and legs, foul breath and coated tongue and a general sense of dullness and langour. Periods of severe illness alternate with others when patient feels better, although never is she free from distress. She has no knowledge of distinct foods disagreeing with her except acids, which will precipitate diarrhea. She uses both cathartics and enemas somewhat. Seven years ago patient underwent an operation for tubal pregnancy without change in the edema of the legs. Physical examination reveals a well nourished, healthy looking woman. All details of examination are normal except a palpable, slightly tender colon, edema of both legs and somewhat exaggerated deep reflexes. An Ewald breakfast removed in fifty minutes shows: F. HCL.=12.5, T. A.=25.5, rennitzymogen 1—160+, pepsin normal. Twenty-four hours urine shows: alkaline reaction, 1,028 sp. gr., 23 ounce, total amount, total solids, 708 grs., albumen, sugar and indican absent, and sediment of vaginal epithelium and triple phosphate crystals. No casts. The stool analysis after the use of the test diet shows: semi-formed, alkaline, foul smelling stool containing fair amounts of striated muscle fibre and some connective tissue. Starch and fat are well digested. The bile salts are oxydized. There is a well marked reaction for putrefaction, and a very little fine mucus. Patient received a carbohydrate diet with the tentative admission of milk and eggs, bismuth salicylate, agar-agar, hot compresses and rest at periods during the day on the back. The use of hydrochloric acid for two days brought on an acute diarrhea and was stopped. Relief was very marked. The soreness through the abdomen and the neuralgic pains disappeared, the bowels became regular and the edema of the legs quite left. This I take it may be an example of proteid intestinal dyspepsia.

The following two cases, very briefly outlined, are likewise instances of disturbed proteid digestion:

Case 3. Mrs. C., aged thirty-three years, has suffered for some years with bloating, belching and pyrosis after eating. There is a tendency towards alternating looseness and sluggishness of the bowels, with occasional soreness through the abdomen. Meats, milk and eggs distinctly give distress in the form of attacks of "acute indigestion." Patient has suffered from an intractable acne of the nose for a year and a half, which seems to be dependent upon the bowel condition. Physical examination is normal aside from the acne. The woman appears well and strong. An Ewald breakfast shows a normal stomach state. Stool analysis from the test diet shows a soft formed alkaline, foul smelling stool containing striated muscle fibre, some slight mucus and a well marked reaction for putrefaction. Numerous crystals of the triple phosphates are present and the bile salts are oxydized. Fat and starch are well digested. Similar treatment was instituted as in the former case with the addition of tincture of nux vomica. Improvement of the bowel functions and relief of abdominal distress was well marked. The acne on the patient's nose remained just as distressing to her as ever.

Case 4. H. P., aged thirty-one years, began to suffer severe periodic neuralgic pains in the legs with diffuse distress through the bowels about five years ago. These attacks always being associated with constipation, the relief of which afforded the quickest relief for the pains. Physical examination is quite normal. The corneal reflexes are lost and the tendon reflexes are exaggerated. Stomach and urine analysis normal. Stool analysis from the test diet shows a formed, hard, alkaline, foul stool, containing some fine mucus and no remains of food except striated muscle fibre. A well marked reaction for putrefaction exists. The bile salts are oxydized. Treatment over several months was unavailing. Patient continued to have his attacks of pain and continued to take cathartics for relief.

Case 5. Mrs. C., aged fifty years, has complained for several years of irregular pains in hands and toes. There is some feeling of distress and bloating after eating heavier foods from which she abstains. She does not use milk or sugar. Buttermilk is well borne. Examinations throughout are normal except for slight periarticular thickening about the phalangeal joints and the condition of the stool. The latter shows a formed, yellowish, slightly acid stool, containing some striated muscle fibre, some connective tissue and some starch. A moderate amount of fine mucus is present. The bile salts are oxydized and the fermentation test is not marked. In this case we note the combination of proteid and starch indigestion with the presence of distinct mucus. A bland diet free from any heavy meats, vegetables and milk was prescribed with the addition of agar-agar and bismuth salicylate. Considerable relief of all symptoms was obtained for some time. A forced trip across the continent again brought on the distress, which is now subsiding.

Case 6. W. W., aged forty-seven years, has suffered for some years with much of the same symptoms as case No. 3. He has suffered repeatedly from herpes. Once severely with herpes, which extended over the right side of the face and neck as far as the median line and on the scalp. The stool analysis

shows the presence of striated muscle fibre and a small amount of starch in an alkaline stool with a putrefaction reaction. There is a very small amount of fine mucus present. An indifferently carried out line of treatment has resulted in the regulation of the bowels and the amelioration of the symptoms to a certain extent.

The following two cases are examples of chronic intestinal catarrh associated with disturbed digestion of proteids. Whether the organic disease preceded the functional or vice-versa, it seems to me quite impossible to say. At any rate, it would appear justifiable to group them among the true intestinal dyspepsias.

Case 7. Mrs. K., aged thirty-seven years, has suffered for sixteen years with abdominal distress independent of eating, periodic diarrheas and constipation, neuralgic pains through the back into the perineum, painful swelling and stiffness of the hands and feet. The stools at times are gaseous and contain much mucus. Patient has been utterly miserable. She has undergone five operations of a reparative nature without any relief. Her general appearance has been good and her weight uniformly in the neighborhood of two hundred pounds. Physical examinations show normal findings with exception of general tenderness along the line of the colon and the condition of the stool. The urine for twenty four hours and the stomach contents are normal. Stools from the test diet contain much fine mucus, some coarse mucus coating the fecal masses, and are alkaline in reaction with strong reactions for putrefaction. Some striated muscle fibre is present, but other foods have disappeared. After much painstaking care in her diet and general measures it was found that with the absolute exclusion of all meat, milk and eggs and the use of alphozone, grs. I t. i. d., patient experienced much relief. She has lived in this way for over a year and is better than she has been for a long time. In April of this year she reports still some soreness of the flesh and swelling of the hands. The phalangeal joints have a beginning periarticular thickening. An analysis of the ordinary stool shows the presence of some mucus and a neutral reaction. All in all, the patient is improved.

Case 8. A. L., twenty-four years of age, has suffered for two years with a sense of abdominal fullness and pressure in the early morning and also before and after meals. There is a general sense of malaise and weakness, with loss of appetite. There is some constipation. Only rarely is there looseness of the bowels, which usually follows the taking of cold drinks, such as beer. There is a loss of about fifteen pounds in weight. The patient looks healthy and examination shows normal findings with the exception of the stool. The latter from the test diet contains much mucus of a fine disseminated type and some meat fiber. Other foods have disappeared. The stool is alkaline and gives reactions for putrefaction. A carefully maintained bland carbohydrate diet with the addition of salicylic acid, milk and hot compresses to the abdomen has resulted in slow but progressive improvement. In April of this year, one year after the beginning of treatment, patient reported that he had regained his weight and had felt symptomatically well all winter. Analysis of the ordinary stool showed some mucus and faint alkaline reaction. He remains quite well.

Regarding the universal type of intestinal dyspepsia, Einhorn states that he does not doubt but that it exists with the presence of gastric juice. I have not met with it, nor have I found it reported in the literature. Two cases under my observation have been associated with atrophic gastritis. The prognosis of this form as a rule is not good.

Certain important general principles may be laid down to govern the treatment of these cases. The diet should be bland, easily digested and selected, when possible, according to the information gained by the stool analysis. A faulty starch digestion demands the removal of much of the carbohydrates. Faulty proteid digestion, especially associated with catarrh, indicates the removal of all putrefiable foods. This is often difficult and the course of such a case may at times appear disappointing. Yet on the whole much benefit can be obtained. The addition of small quantities of salicylic acid to milk has been much used by Schmidt. I have, I think, obtained better results from bismuth salicylate and alphozone. Bed, rest and hot compresses to the abdomen are valuable adjuncts. Artificial digestants as pancreon and takadiastase have not afforded much relief to my patients and I have ceased using them as routine.

TREATMENT OF MALIGNANT GROWTHS BY THE HIGH FREQUENCY SPARK.*

By D. FRIEDLANDER, M. D., San Francisco.

Although the priority in the utilization of the high frequency spark, in malignant disease, must be accorded to Strebel, it was not until 1906, when Keating Hart, of Marseilles, read his paper on the subject before the Congress for Electrobiologie, that any widespread interest was manifested in this treatment.

Since then, however, various articles have been written on this subject, a few condemning it, but the great majority, including articles by Czerny, Doyen and Pozzi, highly endorsing it. That it is the best method yet brought forward for the treatment of the rodent ulcer, as to rapidity and cosmetic results, there can be no doubt. It is more rapid in action than the X-ray, has none of its dangerous qualities, and the cosmetic result is, if anything, far superior. Furthermore, the X-ray acts better on epitheliomata of the prickle-cell type than on the basal cell form, while the high frequency spark acts equally well on both types.

In comparison with surgery the cosmetic results are incomparable, regardless of the general anesthetic required for the operation; likewise it stands before the various caustics in its comparative painlessness and cosmetic results.

In deepseated epitheliomata, the results are yet subjudice, the longest result having a duration of three years, but this method has shown itself of sufficient value to justify a thorough test.

The apparatus consists of an Oudin resonator, preferably equipped with a petroleum condenser, which is attached to a 12 or 16 inch induction coil. The resonator should contain sufficient windings to produce a unipolar spark of 6-8 inches from a metal pointed electrode.

* Read before the Cooper College Science Club.

For rodent ulcer work, no anesthetic is necessary, since the spark renders the lesion anesthetic after the first few seconds. A pointed glass or metal electrode is used, with a spark length at 2-3 inches, and this spark is played on the surface of the lesion for from 40 seconds to 1 minute. In order to confine the spark to the area to be treated, I have experimented with cardboard, sheet rubber, vulcanized rubber and dentist's modeling compound, and find the last to be most satisfactory. This, on being heated in water, becomes perfectly pliable, a mold is then made of the part and allowed to harden. The under surface retains the contour of the lesion and the impression so obtained is cut out. The mold fits the part exactly, requires no assistant to hold it, and the spark will strike through the opening only.

The treatment of deeper malignant neoplasms, of which, as yet, only recurrent and inoperable carcinomata have been utilized,—is more painful and must be conducted under general anesthesia. The procedure is as follows:

The spark, of 6-8 inches length, is played on the lesion to be treated for 10-40 minutes, after which the sparked area is removed with the curette or the knife, and the spark again applied for 10-15 minutes. The parts are then approximated, if possible, leaving a gauze drain, or allowed to remain open with a sterile dressing. Any hemorrhage occuring, is quickly and easily controlled by the spark. The patient, during this treatment, becomes highly charged with electricity and any contact with a metal body will cause a burn, and for this reason a wooden operating table must be used and likewise a glass or vulcanite anesthetic mask. A unipolar, copper, pointed electrode is used in this treatment and Keating Hart combines this with a carbon dioxide spray, which plays on the surface of the area during treatment, with the idea of reducing the cauterizing effect of the spark so far as possible, as he claims the cauterizing effect is unnecessary. Placing the body in the circuit with a glass electrode, increases the action of the spark.

On the skin we find, as a result of the treatment: (1) Anemia, (2) Cutis anserina, (3) Rupture of the subcutaneous vessels, (4) Vesication, (5) Loss of epidermis, (6) Eschar.

On open surfaces we find: (1) Anemia, (2) More or less hemorrhage due to rupture of vessels by the spark, which is readily controlled by the same means, (3) Eschar.

Section of tissue following treatment on normal skin shows: (1) A round cell infiltration, (2) Hemorrhage into the tissues, (3) According to Czerny, a vacuolization of the cells of the intima of the arteries.

In malignant growths the section shows the structure of the growth disorganized, the cells are swollen and vacuolized, and the spaces between the cells and connective tissue filled with blood.

The action on the tissues is mechanical, thermal and chemical.

If we are to accept the views of Keating Hart, Czerny, F. R. Cook and Benckiser, who claim that the high frequency spark, like its allied treatment, the X-ray, has a predilection for embryonal rapidly growing cells, then we can, to a certain extent, account for the favorable action of the spark. One thing is certain, the connective tissue of the stained, treated specimen still stains distinctly and clearly, while the cancer cells become a disorganized mass. Furthermore the spark mechanically destroys a certain amount of tissue, also causes coagulation of the albumen, and it is an intense stimulant to the connective tissue, as shown by the rapid granulation following the treatment, and further, it is followed by an intense lymphorrhea, which probably washes out a large proportion of the disorganized tissue.

The results of this treatment in the rodent ulcer cases is superior to any other method I have yet seen. The average duration of the treatment is 40 seconds to 1 minute, one to five treatments are necessary, the pain is not sufficient to necessitate the use of an anesthetic, and we obtain results within two to eight weeks. Particularly in those cases with a hard border, or surrounded by epithelial perles, cases that are ordinarily most resistant to the X-ray, are the results brilliant. In a series of 13 cases I have treated, the results are as follows:

1 healed, 15 months.
1 healed, 12 months.
4 healed, 8 to 11 months.
2 healed, 5 to 7 months.
1 healed, 3 months.
4 still under treatment, all showing positive improvement.

Of these 2 had been under treatment with X-ray for 12 and 15 months, respectively, and showed no improvement. One was a recurrence on the site of a former lesion.

In a series of 22 cases of malignant growths, Keating Hart reports the following results:

Six rodent ulcers healed: the remaining 16 cases were deep seated lesions divided as follows: 6 breast, 2 deep skin epitheliomata, 4 of the tongue and mucous membrane, 1 larynx, 1 lymphosarcoma of the throat. Of the above, 3 died during treatment and 7 were improved and 6 healed.

Pozzi reports: 2 epitheliomata of the face, 1 carcinoma of the tongue, 1 epithelioma of the rectum healed for 8 months. Also, 1 epithelioma of the gums, 1 epithelioma of the labium majus, 3 carcinomata of the mammæ healed for 8, 10, 15 months.

Czerny reports results in an epithelioma the size of a dime, with leukoplakia on the mucous surface of the cheek, an epithelioma of the face and 3 rodent ulcers on the nose. The remaining cases of his series were inoperable or inoperable recurrences and while he has had no permanent results, he finds relief of pain and hemorrhage and cleansing of the ulcerated surfaces.

Whether or not the high frequency spark is a curative agent or merely a palliative one, remains to be seen,—time and experience alone can determine that, but any agent that will cause the ces-

sation of the discharge and hemorrhage of an inoperable or recurrent carcinoma, together with relief of pain and healing of the ulcerated surfaces, is certainly an acquisition to our therapeutic armamentarium and worthy of a thorough trial.

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SUICIDE AND ALCOHOL.*

By A. W. HOISHOLT, M. D., Stockton

Self-destruction is an act which was not infrequently resorted to by the ancients, some of whom looked upon it as a virtue just as the Japanese of our day consider harakiri a perfectly justifiable act under certain circumstances. With the advance of the Christian religion there was a decided diminution in the frequency of suicide, and it is claimed that from the 5th to the 12th century it almost wholly disappeared, due probably to the teachings by the church of the life hereafter of the suicide and the rigid rules of the church concerning the disposal of his body in unconsecrated ground. As the church began to lose its influence upon the masses at the time of the Reformation there was a revival of suicide until it has become an act of very frequent occurrence.

During the last century suicide has appeared to be on the increase wherever carefully gathered statistics have been obtainable. This has been the case in almost every state in the union, and that although attempt at suicide is punishable in many of them. At the same time one is not able to say that this rapid increase is to any great extent caused by industrial, political or religious disturbances. The material comforts have been increased more and more, laws have been passed favoring the workingman, and more philanthropic work is being done to-day than formerly. Religious questions of dissention are losing their influence upon the minds of to-day as compared with conditions in existence a century ago, and still it has been ascertained that the increase of suicides has been more rapid in Europe and America than the geometrical augmentation of the population and the general mortality. In Russia the population increased from 1800 to 1886 about 8%, but suicides increased 76%. On the other hand brainwork has reached a greater intensity than ever before. The seeking after wealth and satisfaction of sensual appetites are being spurred on. A man with a $100.00 monthly income is trying to rival in enjoyments of life the man with a $200.00 monthly salary and so on. At the same time moral precepts are losing their control and disappointment and misery are therefore the more felt. Education, a boon to humanity from an aesthetic point of view, is being steadily more thoroughly disseminated, inducing people to abandon the old advice of "cobbler, stick to your last" for the modern expansion ideas, inducing them to leave manual industries and agriculture, sending them away from their old associations to new surroundings, where the weaklings become dissatisfied, overburdened and predisposed to mental disease and suicide.

It is especially during the last quarter of a century that statisticians have shown an alarming increase of self-destruction. The suicide-ratio has, however, varied in different countries. In 1877 Saxony, which country was at that time first on the list, showed an average of 39.1 suicides per 100,000 inhabitants, while in 1836-1840 there were only 15.8. In 1880 there were reported to be three times as many suicides in San Francisco as in New York and 4½ times as many as in Philadelphia. In 1890 the ratio in San Francisco was 23.7, in 1900 it was 49.9 and in 1904 it was 72.6 per 100,000 inhabitants.

The question as to the mental health of a suicide has been frequently discussed pro and con. Some writers have even doubted that suicide is ever committed by a person of sound mind. Esquirol and Bourdin looked upon almost every attempt at suicide as a proof of a dangerous mental disturbance and as a sufficient reason for care in an insane asylum. This is the law to-day in Bavaria, where the authorities send every case of attempted suicide to a hospital for insane. Griesinger, the father of psychiatry, considered mental disease the chief but not the exclusive cause of suicide. A number of years ago Kraepelin said that he had found pronounced mental symptoms present in only 30% of the cases of attempted suicide that had come under his observation clinically, while Heller of Kiel, Holstein, found marked pathological changes affecting responsibility in about 43% of 300 autopsies on suicides of all classes, it being required by law in

* Read at the meeting of the San Joaquin Valley Health Officers' Association held at Fresno, October 13, 1908.

that province of Germany, that the body of every suicide must be subjected to a post-mortem examination at the pathological-anatomical institute at Kiel. In a recently published treatise on suicide Prof. Gaupp, late of Munich, reports that he found as a result of most careful investigation that only one case out of 124 cases of suicide was mentally well, as absolutely so as one was able to ascertain; 44 were insane—mostly manio-depressive insanity, dementia praecox or imbecility—the rest, not pronouncedly insane, were principally chronic alcoholists and psychopathic individuals. Gaupp's report deals with too small a number to justify definite conclusions, but his ratio of 44 pronouncedly insane persons among 124 cases is but a slight increase over what the majority of writers had formerly reported, namely: that insanity is found present in about 1-3 of the male and 1-4 of the female suicides. It might further go to show that if there has been a great increase in the number of suicides, this increase must be due to influences other than insanity, it being furthermore questionable, according to some recent writers, whether "the sum total of insanity in the community, both in and out of hospitals, is progressively increasing." In Scotland, the only country where statistics even approaching completeness are available, for instance, there has been no increase of insanity during the last three years—and a similar report comes from England and Wales.*

Alcohol plays a considerable role among the contributing causes of suicide—sometimes it is used by a person who does not drink to excess, as a bracer for the execution of the suicidal act, but more frequently it causes the inebriate to lose his energy and will-power so that he finds no other way to deliver himself from the chaos for which he is himself to blame than by taking his own life. Many writers consider alcohol the chief cause of suicide, and the majority think it is at least second or third in importance. A long continued excess in liquor leads to increased misery, domestic quarrels, dislike for work, diminished capability for work, abnormal irritability of mood with disposition to melancholy depression, to ideas of jealousy and persecution—finally mental and moral qualities as well as the physical health suffer.

Ponomarew and Hubner found 114 alcoholics among 298 suicides in St. Petersburg, 112 cases of insanity and 21 cases of incurable disease. Among the colored people in the Southern States suicide as well as insanity has increased every year with the increased consumption of liquor among them. In departments in France where the most alcoholic drinks are used there has been a correspondingly high record of suicide, insanity and crime. In 36 departments there were in 1897, 2540 cases of alcoholic insanity, while in 1907 the number was 3988, an increase of 57%.

With the view of ascertaining the prevalence of suicidal attempts among the manifestations of mental derangement leading to commitment of alcoholists on the one hand and all other forms of insanity on the other, I have carefully compiled the records of 734 patients, whom I have had under personal observation in my department of the State Hospital at Stockton during the five years beginning with July 1st, 1903, and ending with June 30th, 1908. The results of this investigation are shown in the following table:

	Patients received	Number of alcoholic suicides	No. of alcoholists	Att. Suicides among all other forms of insanity	No. of patients suffering from insanity other than alcoholism
July 1, '03-June 30, '04	121	5	17	11	104
July 1, '04-June 30, '05	154	4	22	9	132
July 1, '05-June 30, '06	141	12	33	10	108
July 1, '06-June 30, '07	154	6	36	11	118
July 1, '07-June 30, '08	164	7	30	25	134
Total No. for 5 yrs.	734	34	138	66	596

34 att. suicides among 138 alcoholists.....24.63%
66 att. suicides among 596 of all other forms of insanity 11.07%

According to this table it would appear that there has been a marked increase in the number of alcoholists received in proportion to the total number of commitments during the four of the five years and that the number of the alcoholic suicidal attempts prior to admission has varied but slightly during the five years with the exception of the year ending June 30th, '06, when the number of unsuccessful alcoholic suicides was twice the usual average. Of these 12 unsuccessful suicides 8 of them occurred during the 2½ months immediately following the earthquake. During the five years 34 unsuccessful suicidal attempts have occurred prior to admission among 138 sufferers from some form of alcoholic insanity or in 24.63% of the cases while only 66 out of 596 patients presenting symptoms of other forms of psychosis have attempted suicide prior to their arrival in the institution, i. e. in 11.07% of the cases. In other words unsuccessful suicidal attempts are more than twice as frequent in alcoholic insanity as in all other forms of insanity combined, and one out of every four sufferers from alcoholic insanity makes attempts at self-destruction. The table also appears to show that about 100 suicidal attempts occur among 734 patients admitted, or in other words that one patient out of about every seven makes an unsuccessful attempt at suicide prior to admission to the asylum.

With regard to the number of cases of alcoholic insanity among the total admissions to the Stockton institution my figures show that there were 138 among the 734 cases, which is 18.8%, about 3% higher than my estimate two years ago.

The alcoholist is driven to commit suicide under different circumstances depending upon a varied state of affects:

1. He may be led to take his own life when the alcoholism has assumed a melancholy form—when he is in an extreme state of mental depression.

2. He may be subject to vivid hallucinations

* "Some Origins in Psychiatry" by Clarence B. Farrar, Am. Jour. of Insanity, January, 1908, p. 526.

which are pronouncedly persecutory in nature: a mob outside the room clamoring for his blood, when he hears calls of "hang him," "shoot him," etc.—or he sees devils or other horrid spectacles which fill him with terror, to escape all of which he prefers death.

3. The individual who because of misfortune in life was depressed when he began to drink to excess, may be so overwhelmed with an absurd exaggeration of his troubles or difficulties during the intoxication that the sudden suicidal impulse is carried into effect because of the absence of calm deliberation;—and 4. After he has recovered from the mental effects of one of his debauches, a despair of ever being able to control himself seizes the alcoholic, when he realizes the social and financial ruin which stares him in the face. The despair is associated with an enfeeblement of the will-power and frequently with a marked irritability, which accounts for the trivial motives of some of these suicides. One alcoholist kills himself because he has a slight dispute with his wife, another because his friend will not lend him a few cents or dollars to spend in some saloon, a third because the barkeeper refuses to give him another drink, etc. In leading to this enfeeblement of will-power alcoholism may also bring out symptoms of nervous weakness or hysteria when disposition to this disturbance is present in the individual. This is especially illustrated by the efforts at display and the sham attempts at suicide frequently met with among alcoholists. They lack the courage to undertake the self-destruction in a way to insure success. The cut they make in the throat or on the wrists is often not much more than a scratch and the attempt at drowning is either made in shallow water, or they no sooner reach the water than they shout for help with all the vigor at their command. Sullivan's statistics illustrate this feeble-hearted character of the suicidal attempts of alcoholists. He found 77.5% of alcoholists among a certain number who failed to commit suicide, but only 12% of alcoholists among those who succeeded.

The problem of reducing the frequency of suicide among alcoholists resolves itself into efforts in the direction of doing away with the excessive use of liquor and reclamation of those who have succumbed to its influence. From the standpoint of general prophylaxis, all efforts at alleviating misery and poverty and improving the physique during childhood and youth will tend to accomplish this. A more careful instruction of the child in moral ethics, which is much neglected in many quarters; the work done by Young Men's Christian Associations, especially their work of popularizing the practice of physical culture among adults as well as children, tending to bring the physical health to the highest possible standard, would lead to abstinence from alcoholic excesses and in a general way tend to the lowering of the suicide rate. The correction of a certain other deleterious influence would likewise have a prophylactic effect. That is a change of policy on the part of the daily press with regard to the publication in detail of news of a certain class. Just as man puts more food into his stomach than is necessary to sustain life, so does the press feed the public with a superabundance of mental pabulum (?) in the form of news in detail. On a great many the administration of some forms of this mental food, such as reports of crimes, domestic unhappiness and suicides, has a very injurious effect. It tends to produce nervousness and at times may result in imitations or auto-suggestive acts; especially is this the case with regard to reports of suicides when read by the nervous and degenerated or by the alcoholic weakling. On the subject of this influence of suggestion I am reminded of the experience of Sir Charles Bell, the noted surgeon to the Middlesex Hospital in London (1764-1824), who while he was being shaved told his barber about having just sewed up the wound of a man who had made an unsuccessful attempt at suicide, and Bell gave the anatomical reasons for his failure. After a little the barber excused himself, went into an adjoining room where he was afterwards found with his throat cut in an anatomically correct manner. The antidote to the poisonous influence of the press in this direction is "silence." A much curtailed report of suicides and crimes would therefore be a charitable as well as a prophylactic act on the part of the newspapers. Now as to the possibility of the prevention of the evil itself.

Esquirol said that suicide was a disease. To a certain extent this is true, and as self-destruction and disturbances of the peace by alcoholics, whose next move may be a suicidal attempt, are overt acts which come under the eye of the authorities, the question presents itself: What interest do the authorities in our State take in the treatment of the alcoholics? They let the alcoholist—in the absence of symptoms of alcoholic insanity—suffer the penalty for his crimes. In the case of a disturbance of the peace or an extreme state of intoxication he is sent to jail—thrown in numbers of six to a dozen or more into a dark cell where there is just room enough to lie on the floor in more or less filthy surroundings for thirty to ninety or more days. After this he is again turned loose on himself—and the community, soon lapsing into the life he led prior to his arrest, under which circumstances an improvement is out of the question, the steady drinking rendering him unstable and robbing him of all energy. Aside from the fact that the above treatment of the alcoholist is only custodial and that in a cruel form, it often leads to grave mistakes, when cases of serious brain-troubles are marched into jails under the guise of alcoholic intoxication—all of which could be prevented by adequate medical attention and proper provision for the caretaking of doubtful cases. Such mistakes and inhumane treatment have occurred from time to time in our jails. The sessions of police courts give almost daily accounts of offenders, arrested for the third, fourth, sixth time or more. In the Stockton as well as in other institutions numerous instances are met with where alcoholists have been recommitted several times and in some cases unsuccessful attempts at suicide have even repeated themselves in the same individual with each

recurring attack of delirium tremens or other form of alcoholism. An instance of a patient committed to the asylum seven times—each recommitment because of a new outbreak of delirium tremens or subacute alcholism has occurred at the Stockton hospital—entailing an expense to the State, alone for the legal proceedings, of at least $300.00. Would a sojourn at a home for inebriates where an attempt at reclamation could have been more successfully carried out, not have been a better investment?

The only chance the alcoholist has of getting rid of the bane of his existence is to be so cared for that he has not only no opportunity to get liquor for a protracted period but that he is given surroundings which stimulate him to exercise his powers of resistance when facing the temptation to drink. These surroundings are not obtainable at hospitals for the insane, to which most of these cases are sent in this State. Not only do the cases not receive the proper surroundings but, as they are frequently sent away again in a month or even in less time, their detention in insane asylums can have no more curative effect than their confinement in jails. If the State is to do its duty to these unfortunates humanely and correctly it will have to make a reform in the mode of disposal of the chronic drunkard, which is not possible until it has established a State Home or Sanitarium for inebriates.

PRIMARY PNEUMOCOCCUS PERITONITIS.

WITH REPORT OF A CASE.

By LEWIS SAYRE MACE, M. D., San Francisco.

The rather unusual occurrence of the invasion of the peritoneum by the pneumococcus has received more or less attention since the publication by Bozzolo,[1] in 1885, of a report of a case in which a pneumococcus infection of the peritoneum was a complication.

Within a few years Cornil, Savestre and others reported isolated cases, and in 1890 Nelaton performed the first operation for the relief of this condition, but without success.

In 1903 Von Brunn [2] collected fifty-seven cases of pneumococcus peritonitis in children and fifteen in adults.

In 1906 Annand and Bowen,[3] of London, in a complete and scholarly paper reviewed the subject up to that time and reported a series of fifteen cases seen by them personally, only four of these, however, being primary infections.

Pneumococcus peritonitis is divided into the primary and secondary forms, and each of these is again divided upon a pathological basis into local and diffuse types. The secondary form is merely a blood- or lymph-borne infection from a more or less distant focus. Pneumonia of the lungs is the most common source, the next being infection of the middle ear, and less frequently infection of the appendix or of the uterus and its adnexa. This secondary form offers but few problems of diagnosis. The development of a peritonitis in an individual already suffering from a pneumococcus infection indicates at once the nature of the trouble.

Very different, however, is the occurrence of a pneumococcus peritonitis as a primary infection in a person apparently well and strong, especially if it be a diffuse inflammation from the start. A sudden agonizing pain in the abdomen, accompanied by rapid and feeble pulse, marked cyanosis, fever, prostration and rapidly developing signs of a general peritonitis and a profound toxemia, resembles nothing so much as a perforated gastric ulcer, and for this or some similar accident it is usually mistaken. Of forty cases recorded by Annand and Bowen but five recovered—a mortality of 88 per cent. It is hard to understand why this disease should be credited in the few text-books that notice it at all with having a good prognosis. It must be that the diffuse form has been confused with the milder local type of inflammation. Here the onset is slower and treatment more efficacious, the figures being just reversed—over 81 per cent of the local infections recover.

As to the portal of entry of the infection in primary peritonitis it is evident that we have to deal usually, if not always, with infection directly through the mucous membrane of the intestines.

Calmett,[4] in France, and Shroder and Cotton [5] and others in America, have shown that it is a very frequent occurrence for the tubercle bacillus and pneumococcus to pass through the walls of the intestine without either losing their virulence or causing a lesion at the site of migration. Flexner has shown that the pneumococcus is frequently present in the intestine, especially during conditions of subacidity and it is interesting to note that in many reported cases of primary pneumococcus peritonitis the attack has been preceded by gastric symptoms and in not a few by the signs of acute enteritis.

Case. The patient was a male, forty-two years old, a teamster by occupation, of excellent family history and personal habits. In infancy he was said to have had an abscess of the lung when six months old. Never consulted a doctor until a year ago, when he was troubled with some pain before and after eating and belching of gas.

For the past three months he had had some indigestion and had lost some weight. On the day before his death at 5 p. m., while at work, he was seized with a severe pain in the abdomen and vomiting. He became worse during the night and was brought to San Francisco in the morning, when he was found to be suffering from general peritonitis and profound toxemia. On account of the preceding gastric symptoms a perforation of some portion of the gastro-intestinal tract was suspected and he was sent to the hospital for operation. At this time he was failing rapidly and died before operation, about twenty-six hours after the attack began.

Autopsy by Professor Ophuls showed that the abdomen contained a large amount of thin pus with flakes of fibrin. The abdominal viscera were carefully examined for a lesion to account for the infection, but without result. The gallbladder and appendix were normal. No perforation or abnormality of the gastric walls was found. The lungs showed edema and hemorrhage, and an old obliterating pleurisy of the left pleura. The smear and culture of the pus from the abdominal cavity showed pneumococci.

Since June, 1906, when the article of Annand and Bowen was published, I have been able to find reports of four cases of primary diffuse pneumococcus peritonitis by Ellis,[6] Garrod and Stewart,[7] and A. Cuff.[8] Of these five cases, including the one here presented, two recovered.

A case recently reported by Lyman[9] is very interesting, in that it appears to be a simultaneous infection by the pneumococcus of the lungs and peritoneum. The question at once arises if it is not probable that the peritonitis, being a diffuse inflammation, was not actually the primary infection, the invasion of the lungs being secondary to a general septicemia.

Conclusions. Primary pneumococcus peritonitis is a clinical entity which has received must less attention than its serious nature warrants. Its mortality is high. Contrary reports are probably due to confusion of the true primary infection with the secondary local types. The mode of invasion is probably always through the intestinal wall and these primary cases are therefore usually diffuse inflammations.

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THE EARLY RECOGNITION OF PULMONARY TUBERCULOSIS.*

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Were it not for the pathetic illustrations of failures to recognize tuberculosis in its curable stage that are daily brought to the attention of the phthisio-therapist, a paper with this title would scarcely be considered of practical importance beyond the confines of the undergraduate class-room. The disastrous results of these failures are given startling emphasis when the statistics of tuberculosis sanatoria are studied, and the percentage of apparent cures of first stage cases are compared with those where the disease is more advanced. Allowing for the inaccuracies in the interpretation of such figures, taking fully into consideration the bias of the tuberculosis enthusiast, the fact still remains that a large proportion of early cases of tuberculosis will get well with careful medical care, anywhere, and in any climate; while a great percentage of those not placed under proper care sufficiently early, will die, in spite of the best treatment that can be bestowed upon them. If this is true, and we must all admit that it is, then the responsibility that the medical man must bear toward the tuberculous, is very evident.

It is in all probability true that the vast majority of the human race living in populous communities, have at some period of their lives, a tuberculous infection. The truth of this statement is abundantly demonstrated in the autopsy rooms of large hospitals, and is generally admitted. With this great prevalence then, and with the knowledge of the curability of tuberculosis in its early stages, we must agree that the general practitioner should be able to recognize this disease sufficiently early, or be conversant with those symptoms and physical signs which are sufficiently suggestive to impel more intricate examination.

I shall, therefore, in this paper, avoid as much as possible, the consideration of complicated diagnostic measures, and shall refer only to those which are within the reach of every practitioner.

Modern laboratory methods have been responsible, to a very great degree, for the fact that incipient tuberculosis is so frequently overlooked. They have been responsible in a two-fold way. First, the evolution of the modern laboratory has been disastrous to clinical acumen, and medical schools are turning out men insufficiently trained in bedside clinical methods. I do not mean to inordinately belittle the aid given to diagnosis through the laboratory, but I do mean that the average clinician relies too implicitely on the report emanating from the laboratory, and altogether too little on what he sees and feels and hears, or what he should see and feel and hear. Second, we too frequently await a laboratory diagnosis of tuberculosis forgetting or ignoring the fact that it is capable of being recognized in the closed form, before the caseification and breaking down of a tubercle situated near a bronchus or bronchiolus, reveals tubercle bacilli in the sputum, indicating, too often, that the disease has advanced beyond the curable stage.

That such large numbers of the profession rely so implicitly on the microscopic diagnosis of the disease, is scarcely to be wondered at, when we search the modern American literature on the subject and realize how very scanty are the contributions devoted to early diagnosis. Again, one does not have to look back farther than 1888 to see the statement of von Ziemssen, that, "it may rank as one of the best established rules of diagnosis that * * * tuberculosis may be excluded in any case of lung affection, in which repeated skilled examination has failed to demonstrate tubercle bacilli." If this disease must be recognized earlier than it is possible to recognize it with the microscope, in order to diagnose it in the curable stage, what are the implements at our hands? What symptoms and what physical signs must present themselves in order to tell us accurately that tuberculosis exists in this so-called pre-bacillary stage?

The symptoms of early tuberculosis seldom present anything typical. It was well pointed out by Flick at the Washington Congress, that it is primarily a lymphatic process, and as such it can be diagnosed by reaction and enlargement. I shall refer to diagnostic reaction later.

Disturbances of circulation and blood formation are of great importance. These patients are fre-

* Read before the Contra Costa Medical Society November 15, 1908.

quently pale, and tachycardia on the slightest bodily or mental exertion, denoting an irritable weakness of heart and vasomotor system, is very suggestive. This condition, frequently due to tuberculin toxemia, is also responsible for many of the digestive disorders seen in the early stage, and for the gradual loss of weight so frequently noticed. Another cause of tachycardia usually overlooked, is the implication of the vagus in masses of bronchial glands.

Of blood changes, chlorosis is frequent, and the association of chlorosis with a decidedly lowered blood-pressure, has been particularly emphasized by Papillon.

The temperature curve gives us information of the highest value, when carefully interpreted. To accomplish this, the patient must be provided with a thermometer, and instructed to take the temperature every two hours throughout the day, keeping the thermometer in the mouth for five minutes, avoiding the taking of food or drink for at least one-half hour previous. The frequency with which a sub-normal morning temperature with a slight afternoon rise is noted, is significant. The influence of exercise on the temperature is also important. This is observable, to some extent, in healthy individuals, but the significant feature with the tuberculous subject, is that the return of the temperature to normal, after it has been increased by exercise, is much retarded. This is probably due to the fact that the individual has received an auto-inoculation of his own tuberculin. The truth of this theory has been practically demonstrated by Paterson and Inman, in England, who by carefully graduated exercises, have been able to control the opsonic index of patients under their care at Frimley, and are immunizing them by auto-inoculations of tuberculin. The value of the temperature record, however, as an early symptom, depends entirely on the thoroughness with which it is carried out, and the care with which the results are interpreted.

In women, a slight premenstrual pyrexia, not frequently mentioned in the literature, is a very important symptom.

A consideration of the nervous symptoms of the incipient tuberculous, could very well occupy our attention throughout the entire paper. I shall endeavor to present a few of what I consider the most important. I believe that a large number of patients, where a diagnosis of neurasthenia has been made, have a tuberculous infection, which, too, often remains unrecognized until the disease is advanced. The results of the toxemia produce a group of symptoms, particularly vaso-motor, which are apt to be interpreted as psychic. They become irritable or melancholic. Headache and sleeplessness are common. There are frequent evidences of disturbance of peripheral circulation. Sweating, especially of the axillæ, is noticed, which latter is a matter of daily observation in the examination of tuberculous subjects. Not by any means the least important nervous symptom is a peculiarity of temperament, difficult to describe, and yet which I think must impress itself upon all those who see large numbers of tuberculous subjects. The patient, often with a terrific history of decimation from this malady among the immediate members of his family, will forget, until closely questioned, the cause of death. The synonyms for tuberculosis resorted to are many; such as bronchial trouble, chronic bronchitis, stomach cough, general debility, etc., and when forced to admit that certain ones died of tuberculosis, the explanation is eagerly asserted that the disease was the "direct result of a specific exposure," that the victim had "always been healthy," etc. The significance of the symptoms often reluctantly obtained from the patient, is frequently miminized by this type. I have many times had patients at first admit having coughed but a few weeks, and only after careful questioning, been able to extract the fact that the cough had existed for a year or more. These coughs, in the mind of the patient, emanate from the stomach, the liver, and other viscera, and very frequently "catarrh" is ascribed as the causative factor. These patients do not necessarily deliberately intend to deceive. It is, in my opinion, temperamental in a certain type of tuberculous individual.

Pain is not a frequent symptom in early tuberculosis, but when present, the cause should be carefully sought. Too often a diagnosis of "muscular rheumatism" or of "intercostal neuralgia" is made, and a plaster, or even worse, some filthy sticky substance with a long trade name, is applied, when a conscientious examination would reveal a pleural adhesion, the result of a tuberculous lesion, which may have even then existed some time.

Hemoptysis, in the absence of other causes, is a very important factor in the symptomatology of tuberculosis. It may be present a long time before physical signs supervene, and the significance of this symptom should never be overlooked.

It is to the physical signs, however, that we must look for conclusive evidence of the existence of incipient tuberculosis, and here, inspection frequently gives us information of a very important nature. The patient should be placed in the sitting posture, with the body stripped to the waist, in a position in which a good light will fall upon his chest. The symmetry of the chest, the amount of depression of the clavicular fossæ, if any, should be carefully noted; the position of the apex beat of the heart, and any other visible cardiac pulsations should be observed. A deep inspiration will now frequently elicit one of the most valuable signs of early tuberculosis, viz., a lagging of the affected side, which is more easily obtainable if the palms of the examiner's hands are gently applied to both sides of the chest. Indeed, lagging of the affected side, with afternoon temperature, is one of the earliest evidences of tuberculosis that we possess. Diminution of the excursion of the affected lung, while of value, is not, in my opinion, of as great importance as lagging, for it frequently denotes a more advanced lesion.

On palpation, we have no particularly valuable

distinctive signs of early tuberculosis. Increased tactile fremitus, usually denotes a more advanced condition. Palpation gives us information, however, as to the existence of enlarged glands, and should be employed as a routine measure.

Percussion is of great value, but marked dullness is not an early sign. What should rather be looked for, is a change in the quality of the normal note, which change is felt by the finger, rather than heard, due, undoubtedly, to the fact that the elasticity of the lung tissue is injured by the pathological changes taking place in the lung. Sometimes the percussion note is of a slightly tympanitic quality, which symptom has been emphasized by teachers in the Viennese school, and is a matter of common observation by the writer. Percussion is of peculiar value, in marking out changes in the area of cardiac dulness. Especially is this so in the left lung lesions, where the contracted lung, which contraction frequently takes place very early, produces a relative increase in the heart dulness to the left, which, when compared with the position of the apex beat, is most striking.

It is probably from auscultation that the most reliable evidences of early tuberculosis are obtained. The form of stethoscope to be used must be largely a matter of individual preference, my own choice being that of a simple bell binaural instrument, uncomplicated, therefore transmitting the least number of extraneous sounds. For practicing "stroke auscultation," the Bowles form of instrument is undoubtedly the best. The uni-aural wooden stethoscope, so popular in Great Britain, certainly possesses some advantages over the binaural forms, in its freedom from all extraneous sounds. Whatever instrument the examiner elects to use, he should endeavor to perfect his technic to as great a degree as possible, and to this end he should adopt a systematic routine procedure in auscultating a chest. From top to bottom the entire lung must be examined, comparing the findings in corresponding intercostal spaces, remembering the importance of the lung margins in commencing tuberculosis. In examining the back, the body should be slightly bent forward, the arms crossed upon the chest, and the hands brought over the opposite shoulders in order to increase to the greatest extent the interscapular areas.

Probably the first change from the normal breath sound is rough breathing, which must not be confused with the harsh respiratory murmur, so often a sign of increased function. This rough breathing is inspiratory in time, and has been specially mentioned by Turban and Sahli. Various explanations have been presented as to the causation of this phenomenon, the most probable being a swelling of the finer air passages, and the presence of small airless nodules scattered throughout the air-containing tissue. Whatever the explanation, its presence is probably the earliest auscultatory sign which we possess.

Frequently accompanying roughened breathing, or at a slightly later stage, cog-wheel breathing is present, not as a rule found at the apices where we usually find the early lesion, but extending from the edge of the affected portion downwards. It is due to an interference with the entrance of air into the cells and is a sign of a catarrhal condition.

Associated with these phenomena is a weakening of the respiratory note, due to the fact that the air does not enter a portion of the affected apex or area. Thickening of the pleura, or fixation of a portion of lung by pleural adhesions, will also cause it.

Prolonged expiration is not necessarily a sign of early tuberculosis, although it has long and popularly been considered so.

Harsh vesicular breathing, mentioned above as often the sign of increased function in a lung, does occur in an early tuberculous lesion, but is more frequently a later sign. It occurs more often when contraction and the development of connective tissue have occurred and is frequently permanent in healed processes. I have a number of patients whom I believe are completely cured, and who have remained well for some years, where the only evidence of their former trouble is the harsh vesicular breathing heard over the part where the tuberculous lesion had existed.

The presence of rales is not necessary in order to establish the diagnosis of incipient tuberculosis, and when present as a very early symptom they are usually due to small atelectatic areas occurring in the neighborhood of nodules, in apices where the breathing is already weak. These rales, which are crepitant, are frequently overlooked by the examiner, and often are only elicited at the end of a deep inspiration following a cough. This plan should be adopted invariably in examining a patient for rales. I have frequently been able to find them by causing the patient to lie upon the opposite side from the one suspected, thereby compressing the well lung, and forcing the other to greater activity.

I would particularly urge deliberation in the examination of a patient for incipient tuberculosis. Do not be satisfied with one examination. Examine your patient under different conditions, as to time, rest and exercise.

Carefully chart the results of your examinations, and studiously compare them. It is only by such painstaking methods that we can expect to do our duty toward this large class of patients.

In spite of the most thorough examinations, notwithstanding the most careful interpretation of symptoms, a considerable proportion of these patients leave us in doubt as to the diagnosis. It is in this class that we have in the diagnostic use of tuberculin a most important adjunct.

Time does not permit of a résumé of the development of this method, much less of a discussion of the technic, or a consideration of those forces concerned in the intricate mechanism of immunity on which these reactions depend. With the value of inoculations of Koch's old tuberculin as a diagnostic measure firmly established, there have been introduced during the last year and a half, several modifications of the subcutaneous method. The

more important of these, the conjunctival test to which attention was first called by Wolff-Eisner in the spring of 1907, and later, in June, by Calmette, and the cutaneous test announced by von Pirquet, also in the spring of 1907, are at present engaging the earnest attention of tuberculosis specialists throughout the civilized world. The value of these tests has been pretty thoroughly established, as was evidenced by the interest which they produced at the recent Congress in Washington. Their limitations, and possible harmfulness in certain cases are still under discussion. While they must be used with care, and the results interpreted with caution, it must be conceded that the reaction is a specific one, and that we have in tuberculin a valuable aid in the diagnosis of pulmonary tuberculosis.

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The new Southern Pacific Hospital in San Francisco is rapidly nearing completion. For convenience, arrangement, construction, location and de-

sign it will rival any institution of its kind in the country. The arrangement of plans and ideas as to the systematic working of this large hospital was the work of Dr. F. K. Ainsworth, Chief Surgeon, Southern Pacific Company, and all details have been carried out according to his directions.

The Southern Pacific Company is equipping a car, which, under the direction of the State Board of Health, it proposes to operate over its lines in California for the purpose of teaching sanitation to the general public, more especially the rural public. This car will contain exhibits showing how tuberculosis, typhoid fever, diphtheria, and other common and preventable diseases are transmitted and the best means for their avoidance and eradication. Part of this exhibit has already been collected by Dr. Foster, Secretary of the State Board of Health, and more is in preparation by Prof. W. F. Snow and Prof. Doane of the Leland Stanford Jr. University, and other persons who are interested in public health matters. It is understood that the United States Public Health and Marine Hospital Service will co-operate in this valuable work and that Surgeon-General Wyman will detail one of the officers of that service as demonstrator and lecturer. It is believed that Dr. Colby Rucker, Past Assistant Surgeon, United States Public Health and Marine Hospital Service, who for the past two years has been associated with Dr. Blue as executive officer in sanitary work in San Francisco, will be detailed for this purpose. The Santa Fe Company has also offered to transport this car with demonstrator and attendants over its lines in California, so that all points will be reached.

DIRECT TRANSFUSION OF BLOOD.*

By WALLACE I. TERRY, M. D., San Francisco.

The interest in transfusion of blood has been revived within the past year or two through the improvements that have been made in the technic of vessel suture and through the production of mechanical devices for transfusion. As you know, of course, transfusion is a very old operation and was used in the middle ages even, but the mortality attending it was very high and became so bad it was interdicted by royal command in France at one time. Then it was revived in the 18th century and again in the beginning of the 19th century. But the transfusion was by means of a cannula connecting an artery and a vein, and the cannula itself evidently caused clotting of the blood so that patients died from infection, thromboses and embolisms. Then they attempted to defibrinate the blood and inject that. This was done in the middle part of the 19th century. That fell into disrepute owing to the deaths occuring and especially owing to deaths not from emboli but from hemolysis. Quite a large number of cases were reported where the blood of the patient was entirely hemolysed and the patient died. About 1895 Payr devised a little button made out of magnesium. It was both for transfusion purposes and for the suture of vessels, especially arteries, and that was attended by some success, but did not come into particular favor because of the mechanical difficulties in applying it and only a few cases were reported where it was used. Others worked along the same lines of mechanical devices. Finally the device of Crile was advanced which is practically the Payr tube with an added handle. This is to be used only for temporary purposes and not for vessel suture. Vessel suture was employed before the mechanical devices were improved, especially by Crile, in the transfusion of blood. We owe to Carrel and Guthrie a great deal of credit in perfecting vessel suture by the use of very fine needles and very fine thread and careful approximation of the coats of the vessel, but to suture an artery and vein together is time-consuming. It requires very careful technic, and the mechanical device fulfills the same purposes without the necessity for difficult work.

The indications for direct transfusion are loss of blood from any source—such losses that the body will probably not be able to make up. That includes some of the anemias, for not all anemias are helped by direct transfusion; and in some cases malignant growths—which is a new development just brought out by Crile in the past year. One caution to be observed in transfusion for malignant growths and anemias, is that the blood of the donor and donee should be examined pathologically for evidence of hemolysis. That requires a trained laboratory man, but the technic is being simplified and it will not be long before any good pathologist can make these examinations. But if the donor's blood should destroy the donee's it is a difficult problem, and vice versa. Having settled these factors, which in a way are governed by rather fixed rules, then one can decide about the need and value of the measure itself. It is always to be remembered that the same species must be employed, that the blood of the goat for instance cannot be used for the blood of man. It must be the blood of another human being. Near relatives are the best donors. With regard to the vessels to be selected, the radial artery and one of the medium or small sized veins on the forearm are about the best. The vessels are exposed under local anesthesia, a weak solution of cocain or eucain being sufficient if infiltrated. There is no necessity for general anesthesia. Having selected the vein and the artery, they should be isolated for a distance of a few cm. in order to give play. The patients should be put on tables facing each other, the arm of the one put over the arm of the other and union effected. The Crile tube is ingenious. The vein of the donee is slipped through the inside of the tube and turned over as a cuff on the outside and then is tied. In speaking about the tying there is a little point in the technic which may be worth mentioning. To tie with thread is not always easy because thread will slip. A piece of fine silver wire is better. The vein is run over the last notch on the tube and ligated. Then the end is slipped into the artery and the artery ligated over the vein. In that way you get the two intimas together.

Another point is that care should be taken with the adventitia. The adventitia causes clotting of the blood, so it should be carefully drawn down and cut short. The little tubes should be anointed with a little vaseline. Very often this is applied to the interior of the vessel. Vaseline should especially be used in the suture. It prevents leakage and does

* Verbal report before the Pacific Association of Railway Surgeons, 1908.

not cause clotting. The artery and vein should be clamped by some suitable device such as the Crile clamp which will press the coats together without injuring the vessel. If you use the ordinary clamp you are very apt to break the intima and so cause clotting. These should be covered with rubber in order to bring easy pressure on the vessels. Another thing is that the vessels should be kept moist. The artery retracts materially when free, and it not only retracts but it contracts. A vessel the size of the radial will contract to half its size. If difficulty is noted in getting the passage open it can be expanded by means of a small pair of mosquito hemostats. The vessels should be kept moist with salt solution in order to prevent contraction, especially the artery, and to prevent any clotting of the blood.

Regarding the amount of blood to be transfused, we have no exact means of estimation. Weighing the patients before and after transfusion, or allowing the donor's blood to flow into a receptacle for a definite time are methods of estimating the amount of blood transfused but are by no means exact. The condition of the patients is of more importance. We are able to judge what good has been accomplished by blood counts and blood estimations immediately before and after. Take a hemoglobin down to 20% or 30% with the red cells 1,000,000, and after a transfusion of blood, which does not seriously embarass the donor, the hemoglobin may rise to 35% or 45% and the red blood cells up to 2,000,000 or 3,000,000. If there is no hemolysis that blood will do the patient good, but in a few cases a fatal hemolysis occurs. One case has been reported by Pepper of Philadelphia where hemolysis occurred after transfusion from two individuals, both related to the patient.

The technic of the needle and thread need not be seriously gone into here. It must be learned by the operator by practice on animals or the cadaver. It is somewhat difficult to handle these needles, but it is practice that makes perfect. I have failed in one case of direct transfusion because I took too large a vein in the patient and did not have sense enough to stop and immediately select another vein. When I did realize that the vein was too large it was too late to do anything else and I stopped.

For malignant tumors, that is another phase and something yet to be worked out. For its use in certain conditions, such as extensive loss of blood and in the more chronic conditions of anemia, it seems to me well worth consideration and trial. Such cases should be worked up and the blood estimations should be made in order to have all the valuable data for future reference.

Discussion.

Dr. Adams, Oakland: I have been very much interested in this paper. At the American Medical Association meeting I listened to Crile give his report and experiments and it seemed to me he was very fair in his statements and some of the results which he obtained were astonishing. With patients apparently almost completely exsanguinated and hopeless he claimed that they were quickly restored so that operation could be performed or the patient could be practically restored to the condition of health. I thought the method particularly successful in those cases where the people were almost exsanguinated from hemorrhage and almost dead from the loss of blood. You all know of his experience on the line of sarcoma. He claims to have cured sarcoma in a dog by the use of the blood from a healthy animal. Another class of cases in which he advises this method of treatment, and it seems to be perfectly feasible, is where you have a patient requiring operation with the hemoglobin so low that experience has shown that operation would be unsuccessful. In these cases he believes and maintains that he has restored that patient to such a condition that he has been able to operate and operate with safety. I have great hope for the future of this method.

Dr. Booth: It was my privilege to hear Crile last month. Dr. Terry follows out his technic almost identically. One thing which interested me was the use of transfusion in a case of hemorrhage from typhoid. The patient was in collapse. He selected a cousin as donor and this donor had previously had typhoid, so he had no thought of transferring the fever. He used the transfusion until the donor fainted. The next day he performed a laparotomy on the patient.

Dr. Morton, San Francisco: One thing which strikes me very favorably is that much of our work is a change to what we used to do years ago. A century or two ago we were using transfusion. This has been thought a thing of the past. It has been the same with salt infusion. Here I must claim nearly as much for the infusion of salt as Dr. Crile claims for blood infusion. A year ago at the American Medical Association when he reported there, I remember especially his typhoid case, where there was hemorrhage and he labored a very few minutes and inside of one hour the patient was perfectly conscious, the blood pressure was changed and he had a reversed condition. The donor fainted and his blood pressure had gone down while the other had increased. I have never heard a paper yet read before any medical convention which created the intense interest and enthusiasm that that paper did. I think that there is a great future for this method. In comparing this with the infusion of salt solution we will see that salt solution fills up the volume of blood but we do not get the ingredients which give the nourishment to the cell, consequently if we can be able to introduce the blood direct it will relieve many conditions.

Dr. Brown, San Francisco: There is one thing Dr. Terry said which I think should be borne in mind and that is the question of anemia. If you have ever seen the Crile method pursued in cases of pernicious anemia, you would not want to repeat it. We think, dwelling on this point alone, that it is a wonderful thing which occurs, to relieve anemia through the blood substance, but it is a very serious thing where hemolysis is at the bottom of the anemia. I saw two cases upon whom direct transfusion had been done in the University of Pennsylvania Hospital. One lived about 24 hours and the other five days. They were done by one of the surgeons there under the direction of Dr. Edsol and that was at the time of the early work on the treatment of anemias in this way, and it pretty effectually settled the question that hemolysis was important, and that it was an extremely dangerous thing to do unless the blood of the giver be not an obstructant to the blood of the receiver.

Dr. Terry: I am glad that Dr. Brown spoke of the anemias. It is very important that the cases should be carefully chosen, and that hemolysis should be studied. There is another warning to be sounded and that is the danger of hypertransfusion. It will cause dilatation of the right heart and might cause death. I have seen dogs hypertransfused. The dis-

advantage of salt solution is that it carries nothing with it that is of permanent value to the individual. Put in too much salt solution and it is immediately thrown off through the kidneys, lungs and gastro-intestinal tract. Such a patient can be drowned by salt solution, so an excessive amount of it should not be given in these cases.

TREATMENT OF PNEUMONIA.*

By G. R. CARSON, M. D., San Francisco.

Where do we stand to-day in the treatment of pneumonia?

Have we advanced or are we satisfied with following the teachings handed to us in text-books and with these ideas firmly rooted in our minds do we hesitate to stray from the path thus outlined? How often we have heard the expressions, "Treat the patient rather than the disease, if it is in him to get well he will, if not he will die; if he is an alcoholic he surely will die." "Treat the case symptomatically" and other remarks. Indeed medicine has reached a sad plight if we must throw up our hands and stand by helplessly and patiently trusting to the patient's vitality.

The plan of treatment we now have is rightly called the expectant treatment. We do not know what to expect but we are always expecting something. If the patient recovers his wonderful vitality is given the credit—if he dies, it couldn't be helped.

Pneumonia is an infectious disease, whose chief recognizable lesion is in the lungs but it is no more a lung disease than typhoid fever is a bowel disease. It is a general infection and should be treated as such. After the life period of the micro-organism is terminated the lung yet remains more or less solidified by exudate as is evident from the physical signs continuing.

In both private and hospital practice this disease is more fatal than any other acute disease of adults. It is claimed the mortality is increasing rather than decreasing. However, I believe the time has approached that we must fight this disease more scientifically and forget in a way some of our old teachings.

The same forces that are at work in keeping us healthy are at work in combating disease. Why not make use of them and assist them. True the previous mode of life, habits and environment and complicating disease have much to do with the prognosis in these cases.

To begin with bear in mind that pneumonia is now generally recognized as a general infection and should be treated as such. A thorough understanding of the physiology of the skin and the nervous system is particularly essential. It has been claimed that no definite line of treatment can be outlined as all cases differ more or less. However, I believe certain fundamental principles should be recognized in all cases. I believe the most valuable remedy for pneumonia is the open air treatment, combined with hydrotherapy judiciously adapted to the indications of the case; complete rest of body and mind and good nursing, are also essential in furthering recovery; diet should be restricted to milk and farinaceous broths; stimulants are not to be used as routine. In cases of alcoholic subjects whiskey, 1 oz. to 2 oz. may be given every two or three hours, especially while resolution is going on.

Few medical agents are required,—calomel at onset may be given; if first sound of heart becomes weak or muffled strychnin may be given, 1-30 to 1-10 of a grain every three hours, which is probably superior to digitalis, the action of digitalis being doubtful where temperature exists to any extent; morphin may be used to relieve pain.

A great many treatments have been suggested in pneumonia—

The digitalis treatment.
The Calcium chlorid treatment.
The Quinin treatment,—that is large doses being given at onset.
The open air treatment.
Treatment by hydrotherapy.
Nitrate of silver treatment.
Creosote carbonate treatment.
The vaccination or serum treatment.

With all of these you are more or less familiar so I shall not go into detail.

I observed some twenty-five cases under the nitrate of silver treatment, the majority of which seem to get through the disease easily, ending by lysis instead of crisis. I doubt very much if large doses of quinin are of any great value.

The open air treatment is coming more and more into vogue every day and I believe it is a step in the right direction. Hydrotherapy is but little understood and less used by the greater mass of the general practitioners.

Dr. Baruch states, it is the most valuable remedy we have for pneumonia when applied properly. He further states that it has lessened the mortality over 50%—in fact he has not lost a case in private practice.

The cold friction bath has greatly decreased the mortality in typhoid fever and may be used in pneumonia to great advantage by protecting the organs against the general infection. We all know the effect of the bath in health—it likewise acts in disease, effecting the circulatory, respiratory and nervous systems. After the bath the patient begins to brighten up; inspires more deeply; expectoration is more profuse; cyanosis disappears; fever is controlled; cough diminishes; dyspnea improves; appetite improves; kidneys begin to act more freely; delirium is lessened; quality of pulse improves and sleep is induced. The cold friction bath must be used only in selected cases,—that is cases not complicated with heart disease when temperature is above 103°

The ideal treatment is the use of the wet compress to the chest, as described by Dr. Baruch. The technic of the procedure is important. The wet compress made of old linen cloths, rung out of cold water and applied to chest; the linen is then covered with flannel cloths which overlap about one inch, fastened with safety pins so as to closely fit

* Read before the Pacific Association of Railway Surgeons, 1908.

the chest and keep out air. These ordinarily are changed every hour; the chest should receive one or more dashes of cold water before renewal of each compress. Do not cover the compress with oil silk as it prevents aeration.

The idea is to stimulate and refresh the nervous system by repeated gentle shocks, thereby increasing the functional capacity of the organs and assisting them to resist the toxic agents circulating in the blood; to prevent and control heart failure; reduce the temperature and eliminate toxins. The heart is embarrassed by reason of incompetent peripheral circulation and toxemia. Persistent high temperature may enfeeble the heart and certainly depreciates the nerve centers and interferes with the patient's comfort. Heart failure seems to be the great dread in all pneumonias. How are we going to assist it? Drugs alone are not sufficient to assist a worn out heart — continual doping with strychnin to the heart is like kicking a dying horse when he is down. About 1-3 of the blood is in the peripheral or cutaneous circulation. Some author has spoken of it as the skin-heart which I think is an excellent term and here in the skin we have a vast network of nerve terminals. With these more or less at our command, by properly applied hydrotherapy we are enabled to greatly assist the patient toward recovery. It has been said that the medicine of the future will be largely vaccine and sera, so perhaps we may look for a further remedy here. Already some of our leading physicians have obtained some remarkable results along these lines.

Dr. Boelke reports 13 cases of severe croupous pneumonia treated by pneumonic vaccine in which he claims good results in every case. The dosage was controlled by the opsonic index, the intervals usually being from 24 to 48 hours until the patient showed marked improvement.

To summarize I wish to emphasize these points:

Regard pneumonia as a general infection.

Open air treatment is essential.

Remember that 1-3 of the blood of the body is really in the peripheral circulation, known as the "skin-heart," and that we must bring this skin-heart to the assistance of the heart.

Remember also that we have a vast network of terminal nerves in the skin.

Therefore by properly applied hydrotherapy we can more or less control the circulatory and the nervous systems, which is so essential in pneumonia.

As stated above the idea is to stimulate and refresh the nervous system by repeated gentle shocks, thereby increasing the functionalating capacity of the organs and assisting them to resist the toxic agents circulating in the blood.

The dry flaxseed poultice, and also the "mud" poultice, do not have this stimulating effect—they are heavy and act more by producing a stasis. What we want is to stimulate the circulatory system, forcing the blood on into the veins, thereby relieving the heart's action.

I trust within the next year we may be able to report some good results from the vaccine treatment.

Discussion.

Dr. Evans, Modesto: I feel that it is right and proper for me to say something on this subject for recently I have gone through and recovered from pneumonia. I am sure that I had great benefit from the use of the pneumotoxic serum. I always felt great relief after its use. It did me a great deal of good. Also the inhalation of oxygen for the dyspnea and the use of the digitalis in connection with the strychnin for the pulse, were the three principal things. The strychnia did not give relief but when the digitalis was added to it, it did give relief. The serum did me a great deal of good and I think it is in the right direction for the treatment of pneumonia. There is this to be taken into consideration, a great many cases of pneumonia get well if you do nothing for them and there is no one treatment to be used. I am certain that the use of the serum in my case has given great relief and I think it saves the lives of patients a number of times; digitalis can not be dispensed with.

Dr. Hildreth: It is too bad that this paper is not discussed more fully. Judging from the remarks embodied in the paper and the criticism in discussion, pneumonia has changed since I was familiar with it. I have been in California three years and I have had several cases that were what I call traumatic pneumonia. Acute pneumonia is very different. We also have a form of pneumonia which comes after days of sickness which I think would probably be called pneumonia from stasis, from lying in one position upon the back. I have heard of a great many cases being diagnosed pneumonia in California and I had the curiosity to travel a few miles and make a postmortem upon a case diagnosed as pneumonia, and I found it a case of bubonic plague. I would confess that my experience is confined to regions where malaria is prevalent. I think the quinin treatment is amply sufficient. I think had as high as 72 cases at a time and did not lose a case, using only the quinin treatment. Dr. Evans spoke of the use of digitalis. Digitalis is very good in some cases—in some cases it is necessary to use digitalis to stimulate the heart action and also accelerate the action of the kidneys, but after a thorough catharsis at the beginning of the disease, after a few hours giving 10 to 20 grains of quinin every 6 hours, it would require about six doses to bring about desired effect. After 72 hours of this treatment the case is convalescent. We look for a pulse of 140 with a temperature of 103° in these cases. I can see no bad results in pneumonia where the doctor in charge keeps up the heart action, and quinin treatment which acts as a specific.

Dr. P. K. Brown, San Francisco: Pneumonia is a self-limited disease. The point which Dr. Carson made is that there is great danger in doing too much for these cases. A great many cases of pneumonia are treated to death and get well if let alone. In my service at the County Hospital where we get the alcoholic and the laboring man brought in exhausted after a long ambulance ride and having had no care for two or three days, our orders are to give these people nothing in the way of drugs, and they are sure to get well. Now the point is, can we fill them with quinin and regard it as a specific, and in all probability are they not going to get well anyway? Putting 45 to 50 grains of quinin into a person cannot be condemned too severely. We have no standard by which we know what these cases would do if they were left alone. It seems to me that one lesson that hospital treatment has taught is a thing which Dr. Carson has probably mentioned, and that is the value of out of doors treatment. There is not a hospital to-day which has not reconstructed itself and built its roof into an out-of-doors ward. Even the old Belleview in New York has done this and they keep

their cases out of doors winter and summer. They do better in the open air. If you give a pneumonia case a chance, relieve the distention of his stomach (and giving a preliminary clearing up with calomel and salts will do that), and feed him lightly, your case will get well. Do not give him a two-pound hot poultice to lift up and down with every breath, and if you do give the heart the help it needs, give it when it needs it—caffein two or three grains at a time hypodermically—but do not wait until it has failed and then try to help it,—and the chances are these pneumonias will be lifted over the hill,—that is, if you do all you can before the crisis has arrived. I do not believe in treating pneumonias as they are only too often treated, and I do believe in lifting off the burden and letting them alone as much as you can.

Dr. Carson, closing discussion: Dr. Evans spoke of the use of oxygen. I have used it in a few cases but have never been able to see the good results from the use of oxygen We overcome all this when fresh air is used. That is the oxygen that is needed I was very glad to hear Dr. Brown's remarks, because I believe thoroughly that there are a great number of pneumonias that are really injured by drugs. Some doctors have the hobby of giving strychnin right from the start. It looks to me like kicking a dying horse when it is down. The benefit of fresh air in these cases was first noticed in the army, when it was found that those cases of pneumonia treated in tents always did better and got well sooner than those in the hospitals. The mortality was lessened. I have been interested in a recent report from Nevada stating that their pneumonias are somewhat different from ours here. They seem to be very sick and die within 48 hours.

COUNTY SOCIETIES

FRESNO COUNTY.

The following resolution was passed unanimously by Fresno County Medical Society, December 1, 1908:

Whereas, It is a recognized fact, that tuberculosis is one of the most destructive diseases known to the human race, and whereas, our safety and relief from this dread scourge lies more in prevention than cure, and

Whereas, It has recently been brought to the attention of the medical profession that a large percentage of many herds of the cattle in this State are infected with tuberculosis, which is a grave menace to all those using milk from infected dairies.

Now, Therefore, be it resolved that this Society urgently recommends to the legislators elected from this county, that they co-operate with the State Dairy Association at the meeting of the next legislature, and use every honorable means possible, to enact such uniform state laws as shall secure protection for the people, by enforced sanitation and inspection of all cattle, and suitable recompense for diseased and condemned stock.

And be it further resolved that a copy of this resolution be placed in the hands of every representative of this county for their careful consideration.

(Signed) GEO. H. AIKEN.

And also the following:

(Resolutions of respect, Dr. J. D. Davidson. Adopted December 8, 1908, by Fresno County Medical Society.)

It is with profound regret that the Fresno County Medical Society is called upon to record the loss of an active and valued member of our body and of the medical profession, through the untimely death while in the prime of his manhood of Dr. Joseph D. Davidson, which occurred on Monday, November 30, 1908, at his residence in this city.

Dr. Davidson was born in Columbia, Tenn., in 1862, being therefore at the time of his death 46 years of age. He was a graduate of the Vanderbilt Medical College of Nashville, obtaining his degree in 1881, since which time he has been actively engaged in the practice of medicine.

In 1886 Dr. Davidson came to California and took up his residence in Kingsburg, in this county, where he practiced for four years In 1890, at the age of 28, the doctor removed to Fresno, where he was continuously and actively engaged in his chosen profession until death During his eighteen years of residence in this city he secured a large practice and was widely and favorably known throughout the valley and State as a surgeon of exceptional ability

He had been a sufferer from organic disease of the heart for some five or six years and well knew that his days were numbered, but elected to keep in active practice as long as he was able. In October Dr. Davidson's condition grew worse and he was finally compelled to discontinue work and from that time until death relieved him he was confined to his room.

In testimony of the esteem in which Dr. Davidson was held and in acknowledgment of his many and sterling virtues and in honor of his memory, this report is spread upon the minutes of our Society.

(Signed) J. R. WALKER,
A. B. COWAN,
CHESTER ROWELL,
Committee.

LOS ANGELES COUNTY.

The discussion of the subjects announced (The State Journal and the Register and Directory) was as follows in abstract:

Dr. W. W. Beckett, president of the State Society, made some remarks commendatory of the Journal and its editor. He spoke of the County Association as the important unit of the system of organization, and suggested as a means of increasing its membership that the secretary send application blanks to all registered physicians in the county.

Dr. W. H. Dudley suggested that the Journal could be made of greater interest by a more complete report of the doings of the County Societies, both as a whole and as regards its individual members. He suggested that a reporter be appointed for this purpose from each of the County Societies.

Dr. W. T. McArthur suggested, in regard to Dr. Beckett's idea for increasing the membership, that applications be sent only to such physicians as the Council might consider as desirable members.

Dr. F. M. Pottenger suggested that the members of this Society send more of its good papers to the Journal for publication. He further suggested that the attendance at our association meetings would be increased if better programs were provided, and suggested that to this means a program committee be appointed, and that certain members be appointed to search the literature and report at the meetings upon new subjects of interest to the profession.

Dr. S. P. Black suggested, as regards the Journal, that the editorials could be improved by eliminating from them the discussion of matters of slight importance, and taking up subjects of broader scope along educational lines. He stated that in some of the best eastern journals the editorials were frequently written by the ablest writers in the profession, and not by the editor alone. He suggested, for increasing our attendance, that better programs be provided, and commended the appointment of a program committee. He further suggested the employment of a stenographer to report the proceedings of the Society. He spoke of the usefulness and necessity of the Register, and emphasized the importance of its accuracy.

Dr. George L. Cole emphasized Dr. Black's remarks concerning the editorials. He commended the editor of the Journal for his actions regarding clean advertising, but thought that the editorials harped too much upon the matter. He suggested that though much good had been accomplished in regard to proprietary medicines by these editorials, the aims of the Society could be better advanced by improving the scientific standard of its literature, and giving greater latitude to more important subjects.

Dr. A. S. Lobingier said that he did not find the Journal a source of much comfort nor benefit, and that after a cursory glance he usually consigned it to the waste paper basket. He spoke of the proprietary drug matter as having become an obsession of the editor, and that the space of its discussion could be better filled by other more important matters. He emphasized the necessity of good programs, etc., increasing our attendance.

Dr. George H. Kress spoke upon the Journal as a means for the upbuilding of the Society, and suggested that it should be utilized as a medium of intercourse between the County Societies by the introduction of matter of a more personal character. He suggested the need of improvement in its typographic form, and added that a booklet-type would be more convenient for filing. He emphasized that the profession of California did not send its best literary effort to the Journal, and approved of Dr. Black's suggestion that the editor be aided in his editorial writings by other able writers in the Society.

Dr. P. C. H. Pahl spoke commendatory of the Journal, and expressed his appreciation of the work of the editor, especially in the matter of proprietary medicines.

Dr. R. W. Miller commended the editor for his fight against nostrums, and said that the fight was not yet over, and should be continued.

The tellers announced the result of the ballot as follows:

President, Dr. Stanley P. Black; vice-president, Dr. E. W. Fleming; secretary-treasurer, Dr. W. W. Richardson; councilors at large, Dr. George L. Cole, Dr. F. C. E. Mattison, Dr. F. M. Pottenger.

NAPA COUNTY.

Dear Doctor:

It gives me much pleasure to inform you that the Napa County Medical Society held a most interesting meeting last Thursday in the State Hospital. Dr. S. McL. Doherty, the president, presided and a goodly number of members were present, also several visiting doctors. A very interesting clinic was held on Paranoia; several subjects were shown to illustrate the various stages of that derangement.

New officers were elected for the ensuing year as follows:

President, Dr. A. J. Kahn, Napa; vice-president, Dr. Frank C. Newton, St. Helena; secretary-treasurer, Dr. Arthur H. Reinstein of the Veterans' Home. Drs. O. T. Schulze, Arthur H. Reinstein, Chas. H. Bulson, G. G. Hawkins of Lake County, L. A. Geraldson, were elected members. It was decided that inasmuch as no meetings were held during the year 1908 no dues would be expected paid by the members for that year. I was instructed to request you to inform me what the dues to the State Society would be for 1909 and then send you a check. An elaborate banquet was then enjoyed at the residence and at the invitation of Dr. Doherty, after which an adjournment was taken.

ADOLPH J. KAHN, Acting Secretary.

RIVERSIDE COUNTY.

The regular meeting of the Riverside County Medical Society for December was held Monday evening, December 14th at the home of Dr. A. S. Parker. The letters received from the secretary of the Medical Society of the State, relative to appointing a legislative committee and suggestions for the Journal and Register, were read and the committee was appointed as follows: Drs. Sawyer, Baird and Roblee. The matter of Journal will be discussed at a later meeting.

The following members were elected to office for the ensuing year:

President, Dr. Thomas R. Griffith; vice-president, Dr. H. M. Robertson; secretary-treasurer, Dr. Geo. E. Tucker.

The program was a continuation of the regular study course as outlined by the A. M. A.. We are pleased to note that according to the last "Bulletin," the Riverside County Society is the only one in California doing the study work as outlined. The next meeting of the Society is to be held at the Victoria Club House, and is to be a joint physician and druggist meeting. This is held for the purpose of discussing the subject of proprietaries and such other subjects as may be of interest along this line. The Society endorsed the resolution adopted by the Southern California Medical Society, advising the reappointment of Dr. N. K. Foster to the office of Secretary of the State Board of Health and so notified the Governor.

GEO. E. TUCKER, Secretary.

SAN JOAQUIN COUNTY.

At a recent meeting of our society, the president appointed the following to act as the legislative committee: B. F. Walker, F. P. Clark and J. E. Nelson.

At the regular monthly meeting held December 26, the following officers were elected for the ensuing year:

President, Dr. J. P. Hull; first vice-president, Dr. M. Goodman; second vice-president, Dr. L. Welti; secretary-treasurer, Dr. B. F. Walker; delegates to the State Society, Drs. B. J. Powell, A. W. Hoisholt; alternates, Drs. Walker and Langdon; committee on admissions, Drs. Goodman, Welti, H. Smyth, Tully and Craviotto; committee on ethics, Drs. Hull, Hoisholt, Tower, E. A. Arthur, Harry; committee on finance, Drs. Latta, Tully, Sanderson; trustees, Drs. Thompson, Taggart, Ray.

B. F. WALKER, Secretary.

SANTA CLARA COUNTY.

The annual meeting of the Santa Clara County Medical Society was held at the St. James Hotel on December 16th. Dr. Edith E. Johnson, 375 Hawthorne avenue, Palo Alto, was elected to membership. Resignations were received from Drs. Ulrich and R. J. Smith. The annual report of the secretary and treasurer were read and placed on file. Dr. Lincoln Cothran presented a report of the committee on prosecutions. The President, Dr. Jordan, presented his annual report which was referred to a committee for acceptance.

The following officers were elected to serve the society for the coming year:

President, Wm. Simpson of San Jose; first vice-president, Dr. Brown of San Jose; second vice-president, Dr. Snow of Palo Alto; third vice-president, Dr. Thayer of Gilroy; secretary, Dr. J. J. Kocher; treasurer, Dr. H. J. B. Wright; councillors, Drs. Hall, Osborne and W. S. Van Dalsem; delegates, Drs. Snow and Hall; alternates, Drs. Asay and Fowler.

Dr. Asay was elected to honorary membership, having been engaged in the practice of medicine for fifty years. Dr. Hall spoke of the necessity of establishing a hospital for infectious diseases, a friend having placed $3000 at his disposal for such a purpose. A committee consisting of Drs. Hall, Osborne, Wright, Paul and Walter was appointed to formulate a plan to further the project and report.

J. J. KOCHER,
Secretary.

GOOD WORK IN PASADENA.

The mayor and council of Pasadena, California, have recently passed a resolution favoring a more rigid enforcement of the ordinance compelling the reporting of all infectious diseases, including tuberculosis, and have also made a generous provision whereby the fumigation of all rooms and houses vacated by any infectious or tubercular case shall at once be thoroughly disinfected by a city official at the city's expense.

Thus every one coming to Pasadena is assured of protection against entering infected rooms.

The Shakespeare Club, of five hundred ladies, are the most enthusiastic supporters of this movement. The best real estate firms are urgent to have it carried out, and they certainly are in a business position and mental attitude not to rent or sell to their clientelle any premises that is not perfectly sanitary, both as to infection and plumbing

The Medical Society of Pasadena stand back of the proposition and are giving their health officer their unanimous support.

ADDITIONAL NEW REMEDIES APPROVED.

To the list of articles accepted by the Council, which appeared in the Journal December 5, the following were added:

Soloid Mercuric Potass. Iodide (Burroughs Wellcome & Co.).

Soloid Nizin (Burroughs Wellcome & Co.).

Tabloid Coffee Mint (Burroughs Wellcome & Co.).

Bismuth & Iron Citrate (Burroughs Wellcome & Co.).

Bismuthal (National Pharmacy Co.).

Bismuth & Lithium Citrate (Burroughs Wellcome & Co.).

Colochi-Methyl Capsules (Wampole & Co.)

Syrup Ammonium Hypophosphites (R. W. Gardner).

COUNCIL MEETING.

The presence of Dr. Wesley W. Beckett, President of the State Society, in San Francisco was the reason for calling a meeting of the Council on January 4th. No matters of special importance were taken up except the probable attitude of the present legislature toward the medical law, and what the Society should do to point out to our legislators that the law should be left as it is. The meeting was well attended.

DISTINGUISHED VISITOR.

Dr. Gustave Toepfer, of Vienna and Karlsbad, paid a visit to San Francisco during December, leaving for the East a few days before Christmas. He seemed to thoroughly enjoy what he saw of California and expressed a keen desire to return.

PROPOSED CONSOLIDATION.

At the last meeting of the Regents of the University of California, Dr. W. Jarvis Barlow, Dean of the Medical School of the University of Southern California, appeared, according to press reports, and presented the request from the southern medical school, to be taken into affiliation with the University of California. It is generally understood that the matter has been under consideration by the faculties of the two medical schools for some time past and that the faculty of the Medical Department of the University of California has recommended to the Regents that the affiliation be accepted and perfected. This would seem to be rather a wise move; there are too many medical schools anyhow, and the more they can be concentrated the better.

TUBERCULOSIS SANATORIA.

The present agitation in the matter of public education on the tuberculosis matter may have something to do with it, but certain it is that a number of sanatoria for the care of tuberculotics have been and are being opened in various parts of the State. Dr. Peers, of Colfax, has started a small place and so has Dr C. A Shepard, of Needles. Dr Walker in San Francisco also has done the same thing and others will soon be opened

TUBERCULOSIS IN THE LEGISLATURE.

Several bills have been introduced in the present legislature dealing with the tuberculosis problem. Senate bill No 63 calls "for the creation of a tuberculous commission," which we trust is merely a typographical error. It provides for a careful study of the question throughout the State and appropriates $5000 for the expenses of the work. The commission is to consist of seven members to be appointed by the Governor

TUBERCULOSIS CLINIC IN SAN FRANCISCO.

The San Francisco Tuberculosis Association announces the opening of its out-patient clinic at 1734 Stockton street, near Filbert, on January 18th It will remain at this location until its own building is ready for use Trained nurses will be provided to do the home work, inspection, etc., and physicians from the several institutions in the city have been appointed to do the clinic work

PUBLICATIONS

Transactions of the Tenth Annual Meeting of the American Proctologic Society. Edited by Samuel T. Earle, M. D., and Lewis H. Adler, Jr., M. D.

The Arteries of the Gastro-Intestinal Tract With Inosculation Circle. Byron Robinson.

Gray's Anatomy, the 17th edition, has been issued by Lea & Febiger, Philadelphia. The present edition is of course, in many ways, an improved and more up-to date work than the preceding editions. Gray's Anatomy needs no extended review; it is too well known to require more than mention.

Progressive Medicine, Vol. III and Vol. IV, December, 1908. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences Edited by Hobart Amory Hare, M. D., Profesor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 333 pages, with 26 engravings and 2 colored plates. Per annum, in four paper-bound volumes, containing over 1,200 pages, $6.00, net; in cloth, $9.00, net. Lea & Febiger, Publishers, Philadelphia and New York.

Changes of Address.

Stansbury, Milton P., from St. Luke's Hospital, San Francisco, to Chico, Cal.

Gunn, Herbert, from 1059 O'Farrell st., to 240 Stockton st., San Francisco.

Jones, Carl P., from St. Luke's Hospital, San Francisco, to Grass Valley, Cal.

Huckins, J. W., from Vallejo, Cal., to 1922 Pierce st., San Francisco.

Ranson, Dow H., from St. Luke's Hospital, San Francisco, to Madera, Cal.

Myers, J. J., from Madera, Cal., to Raymond, Cal.

Peterson, Fred W., from Imperial, Cal., to El Centro, Imperial County, Cal.

Patten, Elmer E., Imperial, Imperial County, Cal.

Huff, Melvin B., from Los Angeles, Cal., to Corona, Cal.

Burnham, Clark J., from 1121 Devisadero st., San Francisco, to Alta Vista Bldg., Berkeley, Cal.

Meagher, Jos. F., 4096 Eighteenth st., San Francisco.

Grimes, Wm. L., 163 Sixth ave., San Francisco.

Shinnick, Chas. C., from Oakland, Cal., to Santa Cruz, Cal.

Matsuda, M., temporarily in Japan.

Janss, Herbert, of Los Angeles, is traveling abroad.

Hardin, A. E., from Petaluma, Cal., to Grass Valley, Cal.

Higbee, Annie Carveth, from Whittier, Cal., to Norwalk, Cal.

Williams, Clara L., from 1725 Euclid ave., Berkeley, Cal., to El Granada, Bancroft Way, Berkeley, Cal.

Tillman, Frank J., from San Francisco to Ukiah, Cal.

Potter, Samuel O. L., from 30 Liberty st., San Francisco, to 986 Ellis st., San Francisco.

Richter, C. M., from 2108 Scott st., San Francisco, to 146 Grant ave., San Francisco.

Titchworth, James Chas., from Sherwood, Cal., to Willits, Cal.

Williams-Hammond, Edith S., from 121 Geary st., San Francisco, to 41 Fifth ave., San Francisco.

McMillan, E. H., from Redondo, Cal., to Pasadena, Cal.

Hembree, A. T., from Forest Hill, Cal., to Redondo, Cal.

Dannenbaum, Sydney R., from 2717 Sacramento st., to 2723 Sacramento st., San Francisco.

Pond, Chauncey P., from Groveland, Cal., to Alameda, Cal.

Thorne, Walter S., from 350 Post st., to 240 Stockton st. (Schroth Bldg.), San Francisco.

Helms, Geo. L., 111 Ellis st., San Francisco.

Osmun, W. F., from 1552 Haight st., to Van Ness and Golden Gate aves., San Francisco.

Simpson, Josiah A., from 612 Twentieth st., to 638 Twentieth st., San Francisco.

Paroni, Romilda, from Berkeley, Cal., to 810 Union st., San Francisco, Cal.

Grosse, Alfred B., from 2209 Sutter st., to 162 Post st., San Francisco.

Ryfkogel, H. A. L., from 2209 Sutter st., to 162 Post st., San Francisco.

Smith, Ethan H., from 1424 Gough st., to 2617½ Octavia st., San Francisco.

Magnus, Max Edward, from 681 Hayes st., to 643 Hayes st., San Francisco.

Alexander, P. C., from 1059 O'Farrell st., to 240 Stockton st., San Francisco.

Cadwallader, R., from 1425 Haight st., to 240 Stockton st., San Francisco.

Zillmer, A. L. W., from 731 Clayton st., San Francisco, to 3601 Twenty-third st., San Francisco.

Hess, Hiram A., 749 Hayes st., San Francisco.

Shepherd, A. L., Etiwanda, Cal.

Rosenthal, Chas. H., from 636 Baker st., San Francisco, to 2310 Le Conte ave., Berkeley, Cal.

Ash, Rachael L., from 1275 Third ave., to 2576 Washington st., San Francisco.

Barry, Ernest, from 2510 Washington st., to 240 Stockton st., San Francisco.

Sharp, James G., from 3047 Washington st., to 135 Stockton st., San Francisco.

Lennon, Milton B., from 918 Eddy st., to 946 Eddy st., San Francisco.

Williams, Francis, from 1392 Haight st., to 1200 Masonic ave., San Francisco.

Newmark, Leo, from 2230 Sacramento st., to St. Francis Hotel, San Francisco.

Barney, T. R., from 2933 Grove st., Berkeley, Cal., to 2247 Ashby ave., Berkeley, Cal.

Besson, Edward A., from 928 Ellis st., to 978 Ellis st., San Francisco.

Vecki, Victor G., from 1408 Geary st., to 318 Bush st., San Francisco.

Gaynor, John J., from Eureka, Cal., to Angelus Hospital, Los Angeles, Cal.

Craig, Murdock A., from 520 Sacramento st., Vallejo, Cal., to 626 Sonoma st., Vallejo, Cal.

Hembree, A. F., Garland Bldg., Redondo, Cal.

Kirk, Josiah H., from 627 University ave., Palo Alto, Cal., to First National Bank Bldg., Palo Alto, Cal.

Montgomery, D. W., from 2419 California st., to Elkan Gunst Bldg. (323 Geary st.), San Francisco.

Eaton, Geo. Lee, from 898 Fillmore st., to 323 Geary st. (Elkan Gunst Bldg.), San Francisco.

Hoffman, Lawrence H., 135 Stockton st., San Francisco.

Oliver, Harry R., 135 Stockton st., San Francisco.

French, Chas. E., from 1914 Pine st., to 1178 Eddy st., San Francisco.

Henslee, Wm., from 1884 McAllister st., to 1236 Sixth ave. (Sunset District), San Francisco.

Flint, Wm. H., 1226 State st., Santa Barbara, Cal.

Hurst, Julius H., 1227 State st., Santa Barbara, Cal.

Low, Samuel P., 1220 State st., Santa Barbara, Cal.

Barry, Wm. T., Canfield Blk., Santa Barbara, Cal.

Grissim, J. D., from 1111 Washington st., Oakland, to Union Savings Bank Bldg., Oakland.

Lux, Fred W., from 2661 Clay st., to 135 Stockton st., San Francisco, Cal.

Gleason, Chas. D., from German Hospital to 240 Stockton st., San Francisco.

New Members.

Reinstein, Arthur H., Napa, Cal.
Schulze, Otto T., Napa, Cal.
Bulson, Chas. H., Napa, Cal.
Hawkins, G. G., Middletown, Cal.
Bullington, Perry E., Chico, Cal.
Jones, Carl P., Grass Valley, Cal.
Finney, Wm. N., Lincoln, Cal.
Falk, Eugene V., Eureka, Cal.
Scannell, J. W., Windsor, Cal.
Stansbury, Middleton Pemberton, Chico, Cal.
Johnson, Edith E., 375 Hawthorne ave., Palo Alto, Cal.
Harrison, W. H., 692 Third avenue, San Francisco, Cal.
Holsclaw, Florence M., 391 Sutter st. (Galen Bldg.), San Francisco.
Stark, Bertha W., 1065 Sutter st., San Francisco.
Hopkins-Thorne, Grace L., Fresno, Cal.
Fay, Wilbert L., Forest Hill, Cal.
Friedberger, W., Stockton, Cal.
Tebbetts, Hiram B., City Health Office, Los Angeles, Cal.
Wright, Thompson B., Pasadena, Cal.
Wilson, Horace P., Whittier, Cal.
Fielding, Geo. A., Sawtelle, Cal.
Robinson, Frank Neal, Monrovia, Cal.
Warden, Carl C., Los Angeles, Cal.
Hunter, Geo. G., Los Angeles, Cal.
Theime, D. A. J., Los Angeles, Cal.
Walker, Horatio, Los Angeles, Cal.

Deaths.

Titus, Frank H., died in Texas.
Davidson, Jos. D., of Fresno.
Ogden, Wm. Martin, Los Angeles, Cal.
Carlisle, Eber S., Los Angeles, Cal.
Moody, Mary W., San Francisco.
Chadbourne, Edwin R., Pasadena, Cal.
Joyce, Fred'k L., of San Francisco, died in Monrovia, Cal.

Resigned.

Ulrich, Edward John, San Jose, Cal.
Smith, Rensellar J., Milpitas, Santa Clara County, Cal.

Retired.

Rankin, John T., Los Angeles, Cal.

BOARD OF EXAMINERS, DECEMBER SESSION.

Passed.

School of Medicine.	Date of Graduation.	Percentage.
Coll. of P. & S., S. F., Cal	5, 14, 08	83.3
Coll. of P. & S., S. F., Cal	5, 14, 08	82.0
Coll. of P. & S., S. F., Cal	5, 14, 08	77.1
Coll. of P. & S., S. F., Cal	5, 17, 06	75.8
Cooper Med. Coll., S. F., Cal	5, 6, 08	81.1
Cooper Med. Coll., S. F., Cal	5, 20, 08	78.9
Cooper Med. Coll., S. F., Cal	5, 8, 07	75.0
Univ. of Cal., S. F., Cal	5, 14, 08	76.3
Univ. of Cal., S. F., Cal	5, 14, 07	76.0
Univ. of So. Cal., L. A., Cal	6, 18, 08	78.0
Univ. of So. Cal., L. A., Cal	6, 18, 08	75.0
Coll. of Med. of Columbia Univ., N. Y	5, 27, 08	78.4
Coll of P. & S. of Baltimore, Md	4, –, 94	78.2 plus 5=83.2
Coll. of P. & S. of Chicago, Ill., (Univ. of Ill.)	4, 19, 98	71.3 plus 5=76.3
Coll. of P. & S., N. Y	6, 8, 98	73.4 plus 5=78.4
Denver & Gross Coll. of Med., Colo	5, 14, 08	75.0
Harvard Med. Coll., Mass	6, 24, 08	77.3
Jefferson Med. Coll., Pa	6, 4, 06	84.2
Jefferson Med. Coll., Pa	6, 4, 06	78.6
Jefferson Med. Coll., Pa	5, 29, 02	75.5
Kansas City Med. Coll., Mo	3, –, 98	78.3 plus 5=83.3
Miami Med. Coll., Cin., O	6, 1, 04	77.9
N. W. Med. Sch., Ill	6, 4, 08	78.8
Rush Med. Coll., Ill	8, 27, 08	86.7
Rush Med. Coll., Ill	3, 19, 08	86.3
Rush Med. Coll., Ill	6, 18, 02	82.1
Rush Med. Coll., Ill	5, 27, 96	75.4 plus 5=80.4
Rush Med. Coll., Ill	6, 12, 07	76.1
Univ. of Mich	6, 22, 05	79.5
Univ. of Penn	6, –, 06	81.1
Univ. of Penn	6, 7, 94	71.1 plus 5=76.1
Univ. of Sausame, Switzerland	–, –, 99	79.5
Univ. of Texas	5, 1, 94	70.1 plus 5=75.1
Univ. Med. Coll. of Mo	5, 2, 08	75.7
School of Osteopathy.		
Southern Sch. of Osteo., Ky	–, –, 00	84.5 plus 5=89.5

Failed.

Coll. of P. & S., L. A., Cal	6, 26, 08	73.9
Coll. of P. & S., S. F., Cal	6, 6, 07	69.9
Coll. of P. & S., S. F., Cal	6, 6, 07	68.9
Coll. of P. & S., S. F., Cal	5, 17, 07	68.3
Coll. of P. & S., S. F., Cal	6, 6, 07	67.5
Cooper Med. Coll., S. F., Cal	5, 5, 08	72.5
Univ. of Calif., S. F., Cal	5, 12, 08	72.8
Univ. of So. Cal., L. A., Cal	6, 19, 05	73.3
Univ. of So. Cal., L. A., Cal	6, 18, 08	72.0
Univ. of So. Cal., L. A., Cal	6, 13, 07	70.4
Univ. of So. Cal., L. A., Cal	6, 18, 08	70.0
Univ. of So. Cal., L. A., Cal	9, 3, 04	53.2
Univ. of So. Cal., L. A., Cal	6, –, 03	45.0
Atlanta Med. Coll., Ga	3, 1, 08	16.9
Baltimore Med. Coll., Md	5, 21, 07	63.6
Coll. of P. & S., St. Louis, Mo	4, 27, 08	65.6
Jefferson Med. Coll., Pa	5, 4, 94	52.3 plus 5=57.3
Louisville Med. Coll., Ky	3, 25, 97	62.1 plus 5=67.1
Med. Coll. of Ind	3, 29, 98	39.4 plus 5=44.4
Miami Med. Coll., Cin., O	5, 1, 03	62.2
Omaha Med. Coll., Nebr	4, –, 02	69.5
State Univ. of Iowa	3, 9, 92	61.3 plus 5=66.3
State Univ. of Iowa	3, 5, 85	60.1 plus 10=70.1
Univ. of Louisville, Ky	3, 13, 93	63.4 plus 5=68.4
Univ. of Mich	6, 30, 98	57.3 plus 5=62.3
Univ. of the City of N. Y	4, –, 93	67.8 plus 5=72.8
Univ. of Vermont Coll. of Med., Vt	6, 26, 07	66.5
Washington Univ., Mo	5, 23, 07	71.1
School of Osteopathy.		
Northern Inst. of Osteo., Minn	6, 1, 97	59.2 plus 5=64.2
Still Coll. of Osteo., Iowa	1, 31, 07	54.9

"Plus," credit given for years of practice.

Failed to pass in August; papers revised and certificates issued in December.

Coll. of P. & S., L. A., Cal.	6, 26, 08	73.9
Hahnemann Med. Coll. of Pac., Cal.	5, 21, 08	73.2
Univ. of So. Cal., L. A., Cal.	6, 18, 08	75.1
Univ. of So. Cal., L. A., Cal.	6, 18, 08	73.6
Univ. of So. Cal., L. A., Cal.	6, 18, 08	73.6
Univ. of So. Cal., L. A., Cal.	6, 18, 08	73.3
Jefferson Med. Coll., Pa.	6, 8, 08	74.1
Miami Med. Coll., Cinn., O.	6, –, 05	73.7
Univ. of Copenhagen, Den.	2, 21, 06	73.5
Royal Univ. of Ireland	–, –, 88	80.0

NEW LICENTIATES.

Adler, Howard F.; Boatman, H. F.; Bowling, R. W.; Brown, F. Earl; Bullock, N. H.; Campiche, Paul; Doak, T. C.; Frank, M. A. S.; Gould, N. B.; Guntz, Adolph V.; Hall, Edwin Hines; Hare, Chas. B.; Huggins, W. L.; Hutchison, C. S.; Kaull, L. P.; LaMotte, L. A. J.; Marston, Chas. B.; McCoy, Geo. W.; McKenney, A. C.; Molony, Martin; Mudd, J. L.; Nielsen, Soren; Painton, H. R.; Pascoe, Elmer R.; Proctor, M. C.; Reed, J. Ross; Reynolds, Royal; Richter, H. C.; Rosenberger, H. G.; Ross, K. F.; Sampson, J. H.; Scheier, R. B.; Schoff, C. E.; Seager, H. W.; Sheaff, P. A.; Shortlidge, E. D.; Smith, F. J.; Smith, Walter A.; Soll, C. H.; Sylvester, F. M.; Topham, B. E.; VanPatten, P. S.; Ward, J. M.; Weber, W. L.; Wood, E. H.

NEW AND NON-OFFICIAL REMEDIES.

(Continued)

TRIPHENIN.

Triphenin, $C_6H_4(OC_2H_5)NH(CH_3CH_2CO) = C_{11}H_{13}NO_2$, is a derivative of paraphenetidin, differing from acetphenetidin (phenacetin), $C_6H_4(OC_2H_5)NH(CH_3CO)$, in that the acetic acid residue, $(CH_3.CO)$, has been replaced by the propanoic residue, (CH_3CH_2CO).

Actions and Uses.—Triphenin is antipyretic, analgesic and hypnotic; its action is slower and milder than that of phenecetin, because it is less soluble, and it is said to be free from by- or after-effects. Dosage.—As an antipyretic, 0.25 to 0.6 Gm. (4 to 10 grains); as an antineuralgic, 1 to 1.3 Gm. (15 to 20 grains), preferably in wafers. Manufactured by E. Merck, Darmstadt (Merck & Co., New York).

TROPACOCAINE HYDROCHLORIDE.

Tropacocaine hydrochloride, $C_8H_{14}NO(C_7H_5O).HCl = C_{15}H_{19}NO_2.HCl$, is the hydrochloride of synthetic tropacocaine.

Actions and Uses.—Tropacocaine hydrochloride is a local anesthetic, resembling cocaine very closely in its general action, but only half as poisonous. It is reported that anesthesia sets in more rapidly and lasts longer than with cocaine. It produces less dilatation of the pupil, sometimes none at all. It is recommended as a local anesthetic. Dosage.—It is applied in 3 to 10 per cent aqueous solutions containing 0.6 per cent sodium chloride. Manufactured by E. Merck, Darmstadt (Merck & Co., New York).

TUMENOL.

Tumenol is a crude mixture of tumenol sulphone and tumenol sulphonic acid derived from bituminous shale.

Actions and Uses.—It is said to be a non-toxic and non-irritant protective and palliative to the skin. Dosage.—As 5 to 20 per cent ointment or 10 per cent solution in water or glycerin and in the form of soap plaster (with salicylic acid). Manufactured by Farbwerke, vorm. Meister, Lucius & Bruening, Hoechst a. M. (Victor Koechl & Co., New York).

TUMENOL SULPHONE

Tumenol sulphone is a mixture of the sulphonated constituents of tumenol venale which are non-combinable with alkali.

Actions and Uses.—These are described under Tumenol, which see. Dosage.—It is used undiluted for pencillings on squamous and vesiculose eczemas. Manufactured by Farbwerke, vorm. Meister, Lucius & Bruening, Hoechst a. M. (Victor Koechl & Co., New York).

TUMENOL SULPHONIC ACID.

Tumenol sulphonic acid consists of the sulphonated constituents of tumenol venale, capable of combining with caustic alkalies.

Actions and Uses.—See Tumenol. Dosage.—It is used in substance, finely powdered, as a 5 to 10 per cent paste with or without zinc oxide, and in 2 to 5 per cent aqueous solutions as fomentations. Manufactured by Farbwerke, vorm. Meister, Lucius & Bruening, Hoechst a. M. (Victor Koechl & Co., New York).

TUSSOL.

Tussol, $C_{11}H_{12}N_2O.C_6H_5.CHOH.COOH = C_{19}H_{20}O_4N_2$, is a salt of mandelic acid, $C_6H_5(CHOH.COOH)$, and antipyrine.

Actions and Uses.—Tussol combines the antipyretic, analgesic and sedative action of antipyrine with the stimulant action of mandelic acid on glandular secretions. It is recommended for use in the treatment of whooping cough. Some observers question whether it is more effective than a mixture of its components. Dosage.—0.05, 0.1, 0.25, 0.4 or 0.5 Gm. (½, 2, 4, 6 or 8 grains), according to the age of the patient. Manufactured by Farbwerke, vorm. Meister, Lucius & Bruening, Hoechst a. M. (Victor Koechl & Co., New York).

URETHANE.

A name commonly applied to Aethylis Carbamas, U. S. P. Manufactured by E. Merck, Darmstadt (Merck & Co., New York).

URIFORM.

Each 8 Cc. (2 fluidrams) is said to contain: Hexamethylenetetramine 0.5 Gm. (7½ grains), Saw Palmetto 0.3 Gm. (5 grains), Santal 0.16 Gm. (2½ grains) Damiana 0.16 Gm. (2½ grains), Coca, 0.16 Gm. (2½ grains), and Nux Vomica 0.016 Gm. (¼ grain) in a menstruum containing 20 per cent. of alcohol with sugar and aromatics. Dosage.—For adults, 4 to 8 Cc. (1 to 2 fluidrams). Prepared by Schiffelin & Co., New York. U. S. trademark No. 37,924.

URITONE.

A name applied to Hexamethylenamina, U. S. P. Manufactured by Parke, Davis & Co., Detroit, Mich. U. S. trademark.

UROPHERIN-B.

Uropherin-B., $LiC_7H_7N_4O_2 + LiC_7H_5O_2$, is a double salt of theobromine-lithium and lithium benzoate.

Actions and Uses.—It is a diuretic, said to be particularly efficient in connection with digitalis. Dosage.—0.3 to 1 Gm. (5 to 15 grains) in powder or capsules, followed by water. Manufactured by E. Merck, Darmstadt (Merck & Co., New York).

California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

PHILIP MILLS JONES, M. D., Secretary and Editor

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Secretary State Society, - - Butler Building,
State Journal, - - - San Francisco.
Official Register, - - -

Telephone Douglas 2537

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All Scientific Papers submitted for Publication must be Typewritten.

Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

VOL. VII MAR., 1909. No. 3

EDITORIAL NOTES.

STATE SOCIETY PROGRAM.

In this issue will be found an outline of the program for the annual meeting of the State Society, which will be held at the Hotel Vendome, San Jose, the Tuesday, Wednesday and Thursday of the third week in April—the 20th, 21st and 22nd. The Public Health Association will, as usual, meet on Monday, April 19th, and a program of unusual interest is promised, though, at the time of writing, the details are not ready for publication. It will be noted that there are some unusual and interesting features connected with this coming annual meeting of our Society. A special effort has been made by the Committee on Scientific Program (and much credit is due the Chairman of that Committee, Dr. Martin Fischer) to secure an elaborate and instructive scientific exhibit with a certain amount of time set aside for demonstrating and lecturing upon some of the more notable exhibits. This is quite a new thing with us (though it has been a feature of the A. M. A. meetings for the last few years) and it should prove both interesting and profitable in a high degree. The symposium plan, which was found so acceptable, in the last two years, is continued and will be found of great interest. All papers are to be strictly limited in length and the President, Dr. Beckett, announces that he will rigidly enforce the time limit on readers of papers and the discussers thereof. It is to be hoped that every County Medical Society will be well represented at this meeting; there is no physician in the State who would not be helped and benefited by attending the meeting and participating in the work. And by just so much a he is helped, his patients are benefited and the community gains. Therefore, let every one of our members take heed for his time and to his affairs and make the greatest effort to attend this meeting. Let us have the biggest and best meeting on record.

EMMANUEL MOVEMENT.

The Rev. Mr. Worcester, rector of the Emmanuel Church, in Boston, has recently been in our State and has attracted a good deal of attention to what is now known as the "Emmanuel Movement." A number of medical journals have recently contained a good deal of matter anent this subject, pro and con. On January 25th, Mr. Worcester addressed a meeting of clergymen and physicians at the St. Francis Hotel, San Francisco, and on the night of the 26th he addressed a public meeting, in the same city, where the attendance as reported by the press, was between six and eight thousand. We have here "a condition and not a theory." The keynote of the "movement" as given by Mr. Worcester, is that no persons shall be treated by the clergy engaging in this endeavor unless said persons shall be under the charge of a physician who recommends that the treatment by the clergy be employed. In the *Journal A. M. A.* for January 23rd is a letter signed by Drs. Goldthwait, Mumford, Cabot and Pratt, of Boston, outlining the rules set down for carrying on the work and for the guidance of the clergy and the physicians. No person may be accepted for treatment at Emmanuel Church unless so recommended by his physician; if he applies and has no physician, he is referred to one for examination before his treatment will be undertaken by the ministers. That is all very well and as it should be. But there are ministers and ministers, just as there are doctors and doctors. The public mind is simple; when six to eight thousand people gather to listen to this new "gospel of health," the vast majority of them are not going to appreciate the facts as set forth; they are going to regard the preachment as a new cure for the particular thing which they happen to have—be it tuberculosis or a broken leg. Furthermore, while the clergy of Emmanuel Church, and of other duly authorized churches may abide by the rules placing their work under medical guidance, who is to prevent any unscrupulous minister (and, alas! there are some such) from starting an "Emmanuel movement" shop of his own? The good that may have been done or that may be done to-day is not criticized; the possibilities of another form of charlatanry must not be overlooked. There has always been a subtle relation between medical vagaries and the ministry; it is said on good authority that a very large percentage of the notorious quacks in the United States are broken down or unfrocked clergymen. Facts are facts and the elemental type of the average human mind is one of them that can not be ignored. Within a year we shall hear of more than one unauthorized "Emmanuel movement" shop.

BILLS ON TUBERCULOSIS.

The Tuberculosis Committee of the State Medical Society has had prepared and introduced into the Legislature, two bills relating to tuberculosis. One, Senate Bill No. 63, creates a Tuberculosis Commission of seven members and appropriates $5,000.00 for carrying on a careful study of tuberculosis as it is found to exist in this State. The Commission is to study the records of all hospitals, dispensaries or other institutions and compile their records so far as these relate to tuberculosis. It is also to study and report the relation of tuberculosis to the general public health of the State. It seems to be an excellent bill and our members should use their influence to secure its passage.* In discussing the matter in committee, some of the Senators were of the opinion that the work should be in the hands of the State Board of Health, which argument is strangely in line with the general argument in the last issue of the JOURNAL. But the State Board of Health, as at present equipped by law, has at least as much work as it can do; it should have more funds and more machinery at its disposal and then it could undertake such side issues as the present investigation and study of conditions relating to tuberculosis. The other bill, Senate No. 59, relates to the reporting of cases of tuberculosis and seems to have got around the objections which have, heretofore, been urged against compulsory notification. It declares that "tuberculosis is an infectious and communicable disease" and as such is to be reported. It provides for the disinfection of premises after the death of a tuberculotic therein; it provides for the careful recording of all information relating to cases of tuberculosis that would in time be of inestimable value. It is a good bill and should receive our united support. The wave of popular approval of the fight against tuberculosis should be utilized by us as a means of floating into the statute books some good legislation for the benefit of the people. Urge upon your representatives the passage of these bills.

* This bill has been withdrawn on account of the objections stated.—Ed.

ABOUT BILLS MEDICAL.

The printing office at Sacramento was a little slow at getting started when the Legislature began legislating, and consequently the various bills relating to the practice of medicine had not been ground out at the time the last number of the JOURNAL went to press. Now, however, we are able to present an analysis of those which are most important. Of course there is a bill to create a board of examiners in Naturopathy, that peculiar and not understandable cult which flourishes mostly on the sea coast near Los Angeles. Then there is a vicious bill which is an exact copy of our present law except that it licenses all the practitioners of "chiropractic" now in the State and so would license an unknown number of quacks. The prize freak of the collection is a bill said to have emanated from the College of P. & S., San Francisco, though this may be an idle rumor. It is a wonder! It creates a Medical Council of 23 members and gives them unlimited authority to do anything they wish from licensing physicians without examination to playing the races. It provides a tax of $5.00 a year on all physicians and if they don't pay up promptly they lose their licenses. This tax, together with the large fees for examinations, would create an income of about $50,000.00 a year, the which the Council may expend in any way that it sees fit; there are absolutely no strings upon the expenditure of the money. The San Francisco *Chronicle* published an article in which it suggested that the purpose of this bill was to provide funds for the purchase, from the present owners, Dr. Winslow Anderson, et al. (including Dr. Boxton, the ex-boodling Supervisor of San Francisco?) of the College of Physicians and Surgeons of San Francisco. This may be a canard, but it is known that the College referred to was for sale a few months ago and it certainly looks suspicious. Still another bill has been drawn up, though, at the time of writing, it has not been introduced. It has some things to commend it but much that is very bad. It allows the Governor to appoint the board without any limitations in the nature of nominations from the various societies. It establishes reciprocity with all States (which would return unto—or upon—us 80% of those rejected by our examinations); it fixes an arbitrary standard of education instead of having the flexible standard as now provided—and the Supreme Court says the present arrangement is wise as the details of education are constantly changing.

DOCTOR FOSTER.

Some county societies have already passed resolutions endorsing Dr. N. K. Foster as Secretary of the State Board of Health and requesting his reappointment by the Governor when his term expires in April. All societies should do this before that time and should send the resolutions to the Governor. Furthermore, individual members who know the Governor (or if they do not know him) should write at once and urge this reappointment. Dr. Foster has done more than any other single individual in the State, to make the State Board of Health a real power for the good of the people and the betterment of public health conditions. His retirement from the work that he has thus far performed with remarkable ability and tact, would be in the nature of a calamity. Of untiring energy, calm judgment, with a broad grasp of conditions and no mistaken ideas as to what things are possible and what things are impracticable, he has fulfilled the duties of his office in a way to attract the attention of anyone giving a moment's thought to public health matters. By all means urge the Governor to reappoint Dr. N. K. Foster and let him know that the entire medical profession of the State approves of Dr. Foster and regards him as a man most valuable to the people.

NOTICE!

FORTIETH ANNUAL MEETING

Medical Society, State of California

WRITE TO THE HOTEL VENDOME AT ONCE AND SECURE RESERVATION.

WHEN YOU BUY YOUR TICKET TO SAN JOSE, GET A RECEIPT-CERTIFICATE FROM THE AGENT. WHEN YOU RETURN, YOU WILL HAVE TO PAY ONE-THIRD FARE.

THIS IS THE CUSTOMARY ARRANGEMENT.

HERE FOLLOWS AN OUTLINE OF THE PROGRAM:

April 20, 21 and 22, 1909.

Except for details, the Scientific program for the next meeting of the State Society is complete. The general arrangement of the program is about as follows:

During the morning session of the first day the President will deliver his address, and the Chairmen of the various committees will report.

The afternoon of the first day will be devoted to sectional meetings. The Eye, Ear, Nose and Throat Section will have a symposium on Chronic Suppurative Otitis Media. Drs. Moffitt, Fredericks, Hulen, Sewall, Welty (San Francisco), Wintermute (Berkeley), Hibbard, Fleming and Ellis (Los Angeles), will read papers on the medical and surgical aspects of the subject.

The discussion of these papers will be opened by Drs. Bine, Payne, Pischel (San Francisco); Trowbridge (Fresno); Powell (Stockton); Thomas, Clarke (Oakland); Hastings and Macleish (Los Angeles).

The joint meeting with the Pacific Coast Branch of the American Urological Association held during the same hours will consider Urinary Tuberculosis.

The afternoon of the second day will be devoted to the scientific exhibit. While this will be open during the entire session, special demonstrations are planned for this afternoon. Dr. Ryfkogel (San Francisco) will make a surgical demonstration. Dr. Brumwell (King City) will exhibit a dissection. Drs. Painter (San Francisco) and Wilbur (Palo Alto) will exhibit X-Ray apparatus and plates. Dr. Garrey and assistants (San Francisco) will make a physiological exhibit, and Drs. Leonard, Black (Los Angeles), Moore (Oakland), Gillihan (Berkeley), and Wherry will show some pathological specimens.

During the morning of the second day, and during both sessions of the third day, medical and surgical papers will be presented by the following: Drs. Burnham, Clark and Newman (San Diego); Drs. King, Soiland, Richardson, Cole, Miller, Martin, Leonard, Barlow, Stookey, Edwards, and MacGowan (Los Angeles); Drs. Sherk and Roberts (Pasadena); Dr. Ball (Santa Ana); Drs. Moseley and Hoey (Redlands); Dr. Evans (Highlands); Dr. King (Banning); Dr. Thomas (Claremont); Dr. Roblee (Riverside); Drs. Barry and Brown (Santa Barbara); Dr. Bering (Tulare); Dr. Wilbur (Palo Alto); Dr. Pope (Watsonville); Dr. Edwards (Salinas City); Dr. Clark (San Leandro); Dr. Blair (San Jose); Dr. Hogan (Vallejo); Drs. Brown, Rothschild, Porter, Cooper, Tait, Russ, Spaulding, Levison, Barbat and Hunkin (San Francisco).

As last year, the reading of the individual papers may not take more than ten minutes. Adherence to this rule is urged upon the contributors not as a hardship, but in the interests of a rapidly moving and good program. Those who question the wisdom of so restricted a time are asked to recall the disastrous results which, in every instance, followed infraction of this rule at the Coronado Meeting last year. As heretofore, no limit is placed upon the length of the published paper.

COUNTY SECRETARIES.

A good many County Medical Society Secretaries do not seem to realize the importance of their position. On the County Secretary really depends the whole success or failure of the County Society, and on the County Society is founded the whole structure of medical organization—the State Society and the American Medical Association. The good that these organizations are doing in California and in the whole United States, is incalculable. Most of us do not seem to realize a tithe of the work that is really being done for the betterment of our profession and the consequent further protection of the people. In our own State, consider the difference between the attitude of the average legislator now, and the same individual a few years ago when we were a heterogeneous body of disorganized individuals, not in touch with each other, not knowing what was going on in other parts of the State; not even knowing what should be done for the people nor agreeing amongst ourselves upon anything. Now it is quite different. Physicians in the far North are informed of what is being done by those in the far South. Definite policies are outlined and a large number of widely separated individuals are in close touch in connection with these policies; they inform their own respective legislators *why* certain things should be done, and *why* certain other things should not be done, and in many instances they do this either before the representative is elected, or before the Legislature has assembled. So, too, with the American Medical Association, which is made up of the various State Societies. It is doing a magnificent work in bringing together physicians from all parts of the country and in unifying our efforts to improve things within our profession and thus help the people whose servants we are, toward the securing for themselves better medical attendance.

COUNCIL ON EDUCATION.

Thus, for example, the Council on Medical Education, of the American Medical Association, has done more to raise the standards of medical schools, bring about the consolidation of some and put to shame others, than anything that has ever been done in this country heretofore. And working with the Council on Medical Education is the Directory Department of the A. M. A. itself. The amount of most valuable work that is here being done is almost unbelievable. A record is made of all graduates from all schools in the country, and where these graduates are licensed; and this record is kept up to date and carefully stored in fire-proof vaults. Of course the gathering of all this information began with the undertaking by the A. M. A. of the publication of a reliable directory of physicians—something that had never been done previously. It was soon evident that it would be necessary to accumulate a vast store of information in excess of that which actually gets into the published book. Many states have always been careless in the matter of keeping records of graduates and licentiates. Furthermore, nowhere in the United States was there assembled a complete list of all graduates of all schools and so questions of doubtful record could not be settled except at an enormous expense of time and energy. Now this information is assembled in one safe place and at any time, in a few seconds, the identity of the individual, his place of graduation and much of his history may be ascertained. It is almost impossible to overestimate the value of this work to the medical profession, and, of course, incidentally to the people. And this is just one part of the great work that the A. M. A. is doing for all of us—and is able to do because of the existence of medical organization and of County Medical Societies.

REVIEW OF THE WORK DONE IN THE ANATOMICAL DEPARTMENT OF COOPER MEDICAL COLLEGE.*

By F. E. BLAISDELL, M. D., San Francisco.

Realizing the great importance of anatomy in the study of medicine and surgery, every effort has been made to improve the course of anatomical instruction during the last few years. The improvement has been gradual in the several branches. The work of the teachers and students has been systematized and a spirit of earnestness has been developed and maintained throughout. Careful watchfulness on the part of the teachers as to the quantity and quality of work done by the students has eliminated largely the tendency to do superficial work, and made it impossible to neglect and at the same time receive credit for work which was not done.

There has been greater companionship between the teachers and students. The latter have been constantly followed in their work, encouraged and criticized when necessary and always guided onwards to the accomplishment of laudatory work; as a result a feeling of pride has been engendered, which has had the result of making the student look upon the dissecting room as a resort for earnest work and discussion.

The improvement could have been more rapid and maintained more thoroughly, had it been possible to retain experienced teachers. Usually when an instructor had gained sufficient experience to become truly valuable, work in some other field with greater remuneration called him away and a new and less experienced teacher would have to take his place. This intermittent value of teachers has had a retarding influence upon ideal work.

The conduct of the students has been considerably better in the last two or three years. This no doubt is partly due to the fines imposed for all grievous breach of the rules with destruction of property.

Realizing that lack of promptness on the part of teachers had considerable to do with outbreaks of riotous demonstrations, an effort has been made by the teachers to be a few minutes early.

Disregard of teachers for rules of the college, in the presence of students, has had a demoralizing effect upon the moral control of them. The teach-

* Read before the Cooper College Science Club.

ers in my department have been cautioned to maintain rigid regard for prohibitory rules.

It is the custom to study the personality, moral and intellectual status of each and every student and to deal with him according to his own merits —to encourage the slow, to hold back the too rapid and superficial worker, to advise and restrain the over-eager; to criticize and reprimand those who ignore advice. To at all times diffuse enthusiasm for the study of anatomy, to promote conversation and discussion, ignoring topics not anatomical in the class room. Never to condemn a part or tissue of the body—not even the *os sphenoidale "damnatum,"* but to portray its beauties and wonderful adaptation to its Atlantian task of forming the cranial base, the keystone of the arch as it were, and offering such an interesting array of foramina for the transmission of important nerves and vessels. To at all times arouse interest and to guide the student into the line of independent power of observation.

The technical terms, the *bete noir* of most students, have been discussed etymologically and compared with the common English terms, the former being but the Latin translation of the latter and really easy to master.

While the efforts of the department's teachers have not been as perfect as they should, the cornerstone has been laid and the road indicated for future and greater work.

Besides moral encouragement, the department recognizes the responsibilities resting upon it to supply proper material for dissection and demonstration. For, to see and to form mental images of the various parts of the human body, is an indispensable aid in acquiring the material for future recollection and work in after life. While a teacher and text books are but guides, the individual students must dissect out, handle, see and feel the structures of the human body. Not only to see them once, but over and over again, to reiterate, and with each review to see new details and relationships.

A person, to be a true student and investigator, must let the mentality of the ego have complete control of the physical body, so that laziness, procrastination, and weariness of monotony will find no resting place, and a headache will be forgotten in the presence of new facts, where persistency of purpose prevails.

A few years ago anatomical material was not plentiful. At present some 70 cadavers are kept on hand in wooden tanks. The embalming is excellent for dissecting purposes and the cadavers will keep a year or more in the tanks and never putrify upon the dissecting table, but on the contrary mummify. No disagreeable odor permeates the dissecting room and in case of cuts upon the hand, infection rarely occurs.

While for dissection purposes the material is almost ideal, the effect of the alcohol and carbolic acid used in the embalming process stiffens the organs and extremities and renders surgical and gynecological demonstrations upon the cadaver more or less unsatisfactory. For the past year experiments to discover new methods have been tried in order to find some manner of having the muscles soft and of natural color and the articulations flexible so that abduction, adduction and flexure of the extremities could be easily accomplished. The results of the investigations still in progress have been varied.

The starting of a bone collection for teaching purposes and also for osteological research in the variation of the bones of different bodies, is a feature now being developed.

Preserved dissections, hardened brains of different species of animals for comparative work are being accumulated. Embryological serial sections and normal tissue sections are being gradually acquired to constitute embryological and histological libraries.

The course of the anatomical department, as given in the college announcement, is no doubt familiar to you all, so I shall now simply confine myself to the intrinsic facts of the class room.

The classes do not now have to listen to the teacher as he monotonously lectures, for the students are made to do the talking while the teacher listens, each student is wide awake and follows his classmate in his recitation.

The instruction in osteology, arthrology and myology is conducted in this manner, with the bones, dissected joints, ligaments and cadaver at hand for the students to demonstrate facts as they state them. They learn to see, feel and handle the structures. The text book has performed its function in supplying the student with his first knowledge of the bone, joint or muscle, but now the students lecture to the teacher, who simply corrects mistakes or criticizes and emphasizes important points. These recitations involve all the details of the object under consideration. The anatomy of the sophomore year is taught in the same way.

Bone modeling for six hours a week for two months in the freshman year, gives an excellent opportunity to observe how the latent possibilities in the student can be aroused or brought out.

From a block of clay the student gradually develops a model, of the same size with all the details as are to be observed on the original and natural bone. His attention is attracted to the details and he is face to face with the three dimensions, and the whys and wherefores come to his mind as interrogatives. This is a golden opportunity for the teacher to study each student and to form an idea of his weak and strong points in powers of observation and artistic ability. When the model is finished the student lectures to the teacher on the model, pointing out the facts and details as he previously did on the natural bone, which he has on hand to compare with his model. This test is passed before he receives credit for his work.

After the freshmen have modeled all of the most important bones, some 20 in number, they enter the dissecting room to begin work there. Five students are assigned to a cadaver, and each is required to keep the part he is to work upon neatly

wrapped in muslin bandages. If the part be a lower upon which he is to work, he is first assigned the superficial structures of the anterior abdominal wall. This work is outlined according to Barker's Manual. The integument first receives his attention, he reads it up in the text book and also learns that immediately beneath it is the superficial fascia, and beneath that the deep fascia. He now studies the lines for incising the integument which he reflects, then begins to search out the superficial nerves, blood vessels and lymphatics, which he traces to the deep fascia if they pierce it in the region upon which he is working, if not, then they are traced to the limits of the region. After these structures are all cleaned and the superficial fascia reflected and an independent knowledge is gained of all the structures exposed, he takes his first or superficial quiz. If this proves satisfactory to the instructor, the student is allowed to give his attention to the deeper structures; if not, he must review his work and give another demonstration and recitation.

The second quiz includes all of the structures in the anterior abdominal wall down to the peritoneum. This also includes the surgical anatomy of inguinal hernia, anastomoses, etc. In fact, this second quiz involves everything in that region. The teacher searches out what the student has overlooked or does not understand, and explains and demonstrates it to him. The student must review his work if the recitation falls below 75%.

The student may have to answer 50 to 100 questions, it all depends upon how well he can carry on a demonstration and recitation without being prompted by questions. A quiz may consume an hour's time.

To still further illustrate how the anatomical instruction is carried out, I will say that the first quiz on the abdominal and thoracic cavities does not require dissection, except in the thorax the sternum has to be removed after work on the anterior thoracic wall; the anterior mediastinum and superficial part of the superior are dissected out so as to reveal the pericardium and great vessels arising from the base of the heart, the pericardium being incised longitudinally, otherwise the parts are studied in situ. The student learns the boundaries of these cavities and to demonstrate the position and relation of the viscera and peritoneum and pleura. After passing a successful demonstration the student dissects out the blood and nerve supply to the viscera, paying particular attention to the sympathetic nervous system and lymphatics. After the quiz the student takes up the dorsal aspect of the trunk.

Our method is to divide the body into five parts—head, right and left uppers, right and left lowers. Each upper includes the corresponding part of the thoracic cavity, each lower the corresponding part of the abdominal cavity.

The head is divided into 10 regions for quiz purposes, three of which require a superficial and deep quiz, so that the student has to take 13 quizzes on the head before his work is completed.

A lower is divided into 13 regions, 10 of which are again subdivided into superficial and deep, making 23 quizzes necessary.

An upper is divided into 11 regions, 8 of which are again subdivided, making 19 quizzes for each upper.

So that when the student has completed the dissection of the entire body, he shall have taken 97 quizzes altogether. It is to be borne in mind that these quizzes are not brief and superficial, but on the contrary are a complete review of the anatomy of the part under consideration. Two students may be quizzed at one time, but no more. This method requires an immense amount of work on the part of the teacher, but the student is drilled in talking and his powers of observation and description are exercised. Personally, I inspect the dissections from time to time, and when they are completed and quizzes taken, I make a final examination of them, and if the work is satisfactory I give credit on a day book; if the work is not reasonably well done or structures are overlooked, the student is directed to satisfactorily complete it.

When the entire body has been dissected and all quizzes taken the student presents his cards to me, and I check off the dates of assignments on the register and countersign the cards. The date of countersigning is also entered on the register. The register is a complete record of the work done by each student.

In the second semester of the second year the sophomores devote the time allotted to them for dissections to study of the brain. This continues for two months. The brains have been hardened in a 10% formalin solution, and each student is assigned one. Two students work together and having two brains for study, one can be sectioned longitudinally and the other transversely. In this way they get the opportunity to study two kinds of sections.

The students are first required to study the encephalon as a whole, the basal and external surfaces, then the meninges and blood supply, followed by relations to the cranial wall. One brain is sectioned longitudinally in the median plane and the mesial surfaces of the hemispheres receive attention, then the cerebral lobes and their boundaries, sulci and convolutions; by transverse horizontal sectioning the centrum ovale minor and major are studied, lateral ventricles and their boundaries are next taken up and so on.

At this time another brain is sectioned transversely on a plane through the corpora albicantia, the optic thalami, caudate and lenticular nuclei are studied in regular order. In fact, every part of the cerebrum is revealed and studied in the order of logical sequence.

The thalamencephalon, mesencephalon mentencephalon, myelencephalon and myelon are studied in a similar manner. The basal ganglia and nuclei are located and nerve tracts traced. After the encephalon has been studied the regular recitation hours are occupied in the study of the cranial nerves, and their superficial and deep origins work-

ed out in conjunction with the laboratory work. Many of the specimens are beautifully adapted to show the difference between the white and gray matter, many nerve tracts being readily traced.

A certain amount of work is assigned for each laboratory period and when that is mastered, each student recites and demonstrates to the teacher the parts under discussion as they appear in the specimens before him.

After the brain dissection is completed a review quiz is taken and the card is signed up.

The remaining two months of the semester are occupied in the study of the spinal nerves and sympathetic system, eye, ear and nasal cavities.

During the whole course the embryology of the first year is constantly referred to.

There can be no doubt but that the teachers in the anatomical department are kept busy, and that the students have ample opportunity to become proficient in their anatomy.

Different text books have been used and the general consensus of opinion is in favor of Gray, in combination with a dissecting manual, such as Barkers.

TOBACCO AMBLYOPIA (FROM CIGARS) IN A WOMAN.*

By WALTER SCOTT FRANKLIN, M. D., San Francisco.

K. K., a native of Sweden, single, 52 years old, a woman of refinement and education, consulted me February 19, 1908, for failing sight.

Her family history showed nothing of importance. She has had the usual diseases of childhood, otherwise no serious ailment until the present. Uses tea and coffee moderately, does a large amount of brain work and was not questioned in regard to the use of tobacco.

Patient could not state definitely how long her sight has been failing. She remarked that it was difficult to distinguish gold from silver coins and on two occasions had given a five-dollar piece in place of a nickel. At no time has she had any pain either within the head or eyes. One week ago she realized how poor her sight had become and until that time had attributed her failing vision to advancing age, expecting to have same corrected with a pair of glasses.

The following is the examination: Head well shaped, face comparatively symmetrical. Eyes deep set in orbits. Palpebral apertures equal, lids normal. Movement of eyes good, lids closely followed the rotations of the globe. Conjunctivae and corneae negative. Pupils moderately large, equal, reacted sluggishly to light, normal to convergence and consensually.

The lenses and media were clear, the changes on the discs being the only ophthalmoscopic findings. The discs were distinctly paler and somewhat shallow on their temporal quadrants. The retinae were absolutely negative, the blood vessels normal.

Corneal astigmatism was one diopter with the rule in either eye, the retinoscopic findings being hyperopia one D vertically and 1.75 D horizontally. Tension of globes normal; not sensitive to deep pressure.

Vision was reduced to counting fingers at six feet with the right eye and at five with left. The correction did not improve the vision.

The reduced vision and the circumscribed paleness of the optic discs on their temporal sides led me at once to suspect a toxic amblyopia in an advanced stage. When questioned in regard to the use of alcohol or drugs her denial was positive. This led to the question of tobacco and much to my surprise she admitted smoking cigars. For the past two years patient has been smoking from six to eight domestic cigars daily. She has never used a pipe or cigarettes and though impressed with the seriousness of her condition denied the use of alcohol. It is true that people ordinarily deny drinking, being somewhat ashamed of the confession, but in this case the admission regarding smoking and the character of the woman make it morally certain that her answers were correct

Her field of vision showed a relative central scotoma for form and an absolute central scotoma for red and green. The scotoma made an oval from Mariottes blind-spot to the macula.

I was able to demonstrate hemeralopia and with a number one London smoked glass her vision was sensibly improved.

Owing to the reduced vision, the absolute scotomata and the pallor of the discs, the prognosis for central vision was not favorable.

The total abstaining from tobacco was impressed upon the patient, strychnine was injected hypodermatically and potassium iodide in large doses given internally

The sight has gradually but steadily improved, the scotoma for white or form being absent, that for red and green still remaining in a relative sense, but difficult of demonstration.

On September 5, 1908, patient's condition was as follows: Exterior of eyes negative. Pupils slightly larger than the average and reacting comparatively quickly to light, etc.; papillae still show a paleness on temporal third, the nutrient vessels standing out as thin lines and a distinct shallowing being noticeable. Vision being 20/30th with either eye alone, and 20/20th minus with the correcting lenses, i. e., practically normal vision. Field as denoted above.

Beer first called attention to tobacco as an etiological factor of amblyopia in the beginning of the nineteenth century. His observations were unnoticed until Mackenzie in 1854 again remarked this point, and it was not until the sixties and seventies that the writings of Hutchinson, Forster, Nettleship and others gave it prominence.

The pathological changes in the optic nerve due to tobacco are identical with those caused by alcohol and the mixed intoxication of alcohol and tobacco. A peculiar predilection is shown for the papillo-macula bundle of fibers lying in that portion of the nerve between the globe and the optic foramen. The inflammation is purely interstitial in character, is limited to the central bundle of fibers and brings on atrophy by the subsequent cicatricial contraction. These pathologic changes account accurately for the clinical signs, the loss of central vision, and show how guarded the prognosis must be when examining a case giving evidence of the atrophic state of these fibers, remembering that atrophied nerve fibers do not regain their vitality. The paleness of the disc, before the state of atrophy, is caused by a relative devitalizing effect on the fibers from the inflamed and swollen interstitial tissue. Complete atrophy is the end of the inflammatory state and results in permanent loss of central vision, though the peripheral sight may remain unchanged. A number of isolated cases of complete atrophy of the optic

* Read at the San Francisco Society of Eye, Ear, Nose and Throat Surgeons, September 17, 1908.

nerve following the misuse of tobacco have been reported, but those having large clinical facilities deny its existence. Most likely it is a complication of atrophy from spinal origin. Others have described the lesion as beginning at the macula and the neuritic atrophy as secondary to this.

Various authors have questioned the occurrence of a purely alcohol or tobacco amblyopia, claiming that a mixture of these two is necessary for the above changes to come on. It has been shown that either alone may produce this typical change. Uhthoff, in 327 cases of intoxication amblyopia, found 41 due to tobacco alone, the remaining 286 being equally divided between alcohol and the mixed use of these two.

No clinical differentiation is possible between the intoxication of tobacco alone, alcohol alone or the mixed form. Although claimed that tobacco caused the neuritis to begin in one eye before the other this is not characteristic of the drug. A positive differential diagnosis can not be made either by the character of the scotoma or the course of the symptoms. According to Martin the pupil is contracted in the tobacco cases and dilated in those due to alcohol, but this is not certain and in my case the pupil was moderately dilated.

Very few experiments have been undertaken on animals with nicotine, and the results of those few unfortunately vary with different observers.

Men have no particular predisposition toward toxic amblyopia, the large majority of cases occurring in the male sex being due to a wider misuse of tobacco and alcohol among men than among women. Still, in women, the amblyopia is generally of the mixed form and my case comes under the heading of a pure nicotine neuritis.

As most cases come on between the ages of 35 and 55, Fuchs observes that one's tolerance toward tobacco diminishes with years. Cases occurring in very young adults are suspicious of hereditary neuritis optica.

Unfortunately no statistics are available showing the percentage of strong smokers who get tobacco amblyopia. Among polyclinic eye cases the percentage of pure nicotine amblyopia varies from 0.04 to 0.13 of one per cent. This percentage is presumably greater in certain countries and in private practice.

According to Lewin cigars cause the largest percentage of toxic amblyopia, then follow in descending order cigarettes, pipes and the Turkish hookar or water pipe.

The particular use made of the tobacco has no direct influence on the neuritis as chewing, inhaling, swallowing the smoke, cold smoking, etc., have all produced their cases.

Tobacco contains from 2 to 8 p. c. of nicotine, depending upon the nativity, grade and freshness of the plant. The Havana tobacco of good grade and light color contains the least nicotine while the cheap domestic brands are higher. Ordinarily green or wet tobacco has a higher percentage of nicotine than the dry forms.

The amount of tobacco smoked daily necessary to produce toxic amblyopia varies from 30.0 gm., the figure of Hirschberg, to 15.0 gm., as given by Groenouw. Taking this roughly as containing 4% of nicotine, we find that it is necessary to smoke approximately from 0.75 to 1.0 gm. of pure nicotine a day in order to produce a toxic amblyopia. But, of course, the total amount of the nicotine contained within the cigar does not enter the smoke, and it has been calculated that about 17% is carried this way. Every puff makes the cigar stronger, as the smoke is filtered through the entire portion of the remaining cigar, hence the one who throws away the last quarter or end piece avoids, according to Theodorovits, approximately 50% of the entire amount of nicotine. This applies to cigarettes also, and it is well known how the Spaniards throw away their cigarettes after taking but a few puffs. The above quantity of nicotine is contained in 7 to 8 of the cheaper domestic cigars and about 10 or 11 of Cuban, or approximately 60 cigarettes.

The brand of cigar smoked by the patient reported was a domestic article, the filler being from the cheapest grade of Cuban tobacco and the wrapper seed tobacco.

V. Jaksch reports a case of death in a young adult from 0.05 gm. of pure nicotine, showing what a powerful poison this is.

It has always been a source of wonder to me how an intelligent person could allow a reduced vision to go unnoticed. This applies particularly to the case above where the patient allowed the vision to fall to approximately 1/400 of the normal without applying for relief. The explanation lies in the insidiousness of the attack and the absence of pain. Most patients complain of a slight haze or fog in front of the eyes, and those wearing glasses attribute same to the glasses, mentioning that they would clean their glasses four or five times a day, not realizing that the trouble was in the eye. The day blindness, hemeralopia, is usually not real, as in my case, but due to the excessive light of the sun causing blending. The diminished light of night causes the pupil to dilate, brings a larger portion of the retina into the central field and thereby gives the impression of better vision.

The diagnosis is made by the reduced vision, the paleness of the temporal quadrant of the disc and the central scotomata. The latter are in the beginning but relative for colors, then for form and vary toward all degrees of the absolute depending upon the stage of the neuritis.

In a large number of cases the complete stopping of nicotine will effect a cure. This should be impressed upon the patient, and it is found that those suffering from nicotine will more readily stop smoking than the alcoholic subject give up his drinking. Hence, the outcome is more favorable from the tobacco cases than from those due purely to alcohol or the mixed use of these two drugs. Smoked glasses, potassium iodide, strychnine, electricity, etc., have all been used and with good result.

I have purposely avoided mentioning the other changes occurring in the eye and other portions of the system from tobacco and alcohol, limiting my paper to the chronic retro-bulbar neuritis. Other drugs capable of producing similar changes to the above are strammonium, cannabis indica, chloroform, chloral, opium, bi-sulphide of carbon, nitrobenzol, arsenic, lead, iodoform, and the toxin of diabetes.

A CASE OF PYLORIC STENOSIS IN THE NEWLY BORN.*

By HENRY J. KREUTZMANN, M. D. San Francisco.

On Sunday, the 10th of May, 1908, at 9:40 a. m., a baby boy was born to Mrs. A. E. in this city. Incidentally I might mention that about two years ago I had performed Alexander's operation upon the lady for retroversion and slight descensus of the uterus. Pregnancy (it was the first) was without mishap; the lady is of short stature, but her pelvic measurements being normal, delivery occurred without any difficulty in shorter time than usual, owing to a strong, muscular physique of parturient. The baby was perfectly normal; its weight at birth was 7¼ pounds, it acted in every way as a perfectly normal baby; it took the breasts and showed a phenomenal development, gaining 7 ounces the first week, 10 ounces the second week, and eleven ounces the third week after birth. On the eleventh day of its life I performed circumcision, the urethral opening in the prepuce being rather small.

When two weeks old the baby vomited for the first time. This vomiting, coming shortly after circumcision, was attributed to the disturbance brought about by the little operation. The next day the baby vomited again, once a day, then twice a day, then oftener. The vomiting occurred at first after the same meal, at 6 a. m.; this same 6 a. m. vomiting was kept up all along; to it was added another and another; finally the baby vomited also in the night time, which before he had not done; before he had kept all his night meals well. The vomiting took place soon after nursing; the quantity varied, also the manner, being sometimes the usual throwing up, at other times more forceful. There was considerable gas belched and passed per rectum. The passages were frequent but very good in consistency and color. The baby was sleeping, resting, gaining; for this reason no weight was attached to his vomiting for some time.

When the baby was just three weeks old, I saw for the first time the baby vomiting; it was soon after a meal; he had taken the breast very energetically and when he vomited, milk, partly coagulated, was expelled with a great deal of force, passing even through the nose. I was astonished and somewhat perturbed over this sort of a vomitus; but the baby appearing without any distress, I consoled myself with the old adage: "Babies who throw up —grow up," or I rather had in my mind the German word, Speikinder—Gedeihkinder, which means the same.

Under the circumstances, the baby thriving, sleeping and gaining, I did not oppose when the family wished to go to their summer home in Menlo Park. The trip was made in an automobile the next day, Monday, the baby sleeping on the way. After the arrival in the country the baby vomited more and began to show some restlessness; so Dr. Harry B. Reynolds of Palo Alto, to whom I had referred the family, was called. When the patient did not sufficiently improve under his treatment with change in diet, physics, lavage of the stomach and rectal feeding, I was called and I saw the baby on Tuesday, June 10th, in the forenoon, six days after the first visit by Dr. Reynolds.

At our first consultation the question of pyloric stenosis was not taken up. The baby was fairly well nourished yet; the inspection of the child failed to show anything peculiar; we looked upon the case as one of disturbed digestion, hard to explain though in its etiology. When after thirty-six hours of absolute inanition and continued vomiting, the baby was seen again, we both agreed that the case was one of stenosis of the pylorus. I felt distinctly the tumor in the region of the pylorus; but even then the distention of the stomach was not great, probably because nourishment was withheld at the time before examination.

To be prepared for every emergency the baby was removed to the Adler Sanitarium in this city the next morning, June 12th, 1908. Dr. Langley Porter was called in consultation, and from that time on we treated the patient conjointly.

During our observation the case presented a typical picture of pyloric stenosis in a baby, as characteristic as ever one has been described. Temperature kept normal, pulse at times rather rapid and weak. Patient vomited everything that he had occasion to. No fecal matter was discharged per rectum, only the residue of rectal feedings, mixed with bile stained secretion of the intestines. The urine became very scanty, concentrated, the salts of uric staining the diapers blood red. The supra-umbilical region was greatly distended, bulging; the distention was due to the stomach; at times the antiperistaltic waves of the stomach could beautifully be seen. The infra-umbilical region appeared insignificant. At times, not always, a button-like hardness could be felt in the region of the pylorus.

Our next effort was to keep the baby alive. He was kept warm, handled as little as possible; olive oil, later sweet lard, was rubbed into his skin, and alimentation carried on through his rectum. Besides this general idea of preserving his vital forces as much as possible, we resorted to three distinct attempts of therapeutic measures, calculated to overcome the pyloric stenosis.

1. Acting on the idea that the contents of the stomach, either gastric secretions or ingested food, was producing the obstacle through irritation, the stomach was washed, weak predigested whey, or Vichy water was given; no result.

2. The patient was at times very restless, appar-

*Read before the San Francisco County Medical Society.

ently in great pain, did not sleep; in order to relieve the suffering, to induce sleep and at the same time, possibly, to overcome the spasms that might cause the stenosis, opium, chloralhydrate, bromides were given; the result as far as pain and sleep were concerned, was obtained, but as far as the stenosis was concerned, the result was nil.

3. As a directly curative measure, regular teaspoon doses of olive oil were given per os upon the recommendation of some authority; no result.

The patient was losing weight and ground slowly but steadily. The critical time for the decision for surgical interference arrived. This could not so easily be determined. On one side we had to consider that an intra-abdominal operation in so small a baby constitutes a most serious undertaking; on the other side, the proper time for a possibly life-saving operation must not be lost; we did not wish to resort to the operation in extremis, with no chance for recovery. So after eight days of expectant treatment we decided for an operation. Doctor Cheney and Doctor Lewitt saw the patient and were kind enough to corroborate our diagnosis as well as our proposition for immediate operation.

Having knowledge that Dr. Stillman, shortly before, had successfully operated in a similar case, we suggested that he should do the operation in order to give the baby the very best chances.

On June 19th, 1908, posterior gastro-jejunostomy was performed by Dr. Stillman. The mass was seen and palpated but no time lost to find out much about it. The baby stood everything very well, was slightly collapsed, but responded to stimulation, soon took water and kept it down. For a few days he would occasionally vomit bile-stained mucus and we feared that the much dreaded circulus vitiosus might have been established—but everything went well; vomiting ceased, the bowels moved, the wound healed well—in one word he survived. It required a good deal of experimenting but finally a proper food was found and he soon began to show increase in weight, not rapid, not regular, but increase anyhow, and his weight is now 13 pounds. The abdomen shows the normal aspect of a healthy infant; digestion is perfect.

DR. WM. FITCH CHENEY.

I have seen four cases of pyloric stenosis in infants, all of them in consultation.

Case 1. Seen with Dr. R. W. Baum in February, March and April, 1905. This baby was born in January, 1905, nursed exclusively at the breast and remained perfectly well until three weeks' old. Then he began to vomit. The food was changed to a condensed milk mixture, then to peptonized milk, then nothing was given but a weak brandy solution; but vomiting persisted with all. His weight fell from 9 to 6⅞ pounds. I saw him first on February 28th, when he was seven weeks old. He was then greatly emaciated and had a very definite peristaltic wave across his stomach whenever the viscus was filled. Lavage always showed retention in the stomach. His weight had fallen to six pounds by early April. It then remained stationary for a time and then gradually the baby gained and vomiting ceased. By May 7th he weighed again 7⅝ pounds and after that gained continuously and normally. Both Dr. Baum and myself felt that peptonized milk in small amounts and daily lavage were what kept him alive.

Case 2. Seen with Dr. B. W. Stark on March 4th, 1908. The baby was then three weeks old, nursed at the breast from birth. He began to vomit at two weeks, apparently all food taken, shortly after nursing. This vomiting persisted in spite of milk sugar solution, condensed milk and peptonized milk mixtures. The food would frequently be retained for several feedings and then be vomited in large quantities. Emaciation rapidly occurred. Physical examination showed a definite peristaltic wave over the stomach and a palpable mass in the right hypochondrium, the size of the thumb. Lavage always showed food residue in the stomach. A gastroenterostomy was performed by Dr. Stanley Stillman on March 10th and the infant recovered.

Case 3. This was seen on June 9th, 1908, with Drs. Kreutzmann, Lewitt and Porter and has been described in detail by Dr. Kreutzmann. This infant was normal at birth, nursed at the breast, did well for three weeks and then vomiting began, persisting in spite of various kinds of food, with rapid loss in weight. The abdomen showed a peristaltic wave and a mass at the hypertrophied pylorus. Gastroenterostomy by Dr. Stillman on June 19th resulted in recovery.

Case 4. Seen in consultation with Dr. W. B. Lewitt, October 8th, 1908. This baby had been nursed at the breast exclusively but began to vomit on the 17th day of life and had vomited persistently since then, at first infrequently, gradually more constantly. After two or three nursings a large quantity would be vomited. There had been loss of weight from 8 pounds at birth to one ounce less than 7 pounds. The abdomen showed a peristaltic wave and a palpable mass as the pylorus. This case is still under medical treatment. Dr. Lewitt will report it in detail.

DR. LANGLEY PORTER.

It has been written, "We are most ignorant of what we are most assured." The worth of this axiom is never more clearly brought out than in its relation to the subject under discussion to-night. When one has seen a few little sufferers from congenital pyloric stenosis, one wonders that the condition escaped notice, until within recent times. It is true that Beardsley, of New Haven, in 1781 described a case with post-mortem notes, which seems to belong in this classification. And there are several other reports, notably that of Williamson (1841). It was not, however, until Hirshsprung, in 1887, reported three cases with autopsies that attention was centered on the condition and that observation and study were directed to it. Even at that time interest was aroused in but a few clinicians, chiefly Englishmen and Germans. Before 1808, while recorded cases were few and pathological data scanty, a school of observers, ably led by

Pfaundler of Munich, denied this symptom complex a place as a clinical entity; but in the face of accumulating material carefully reported from America as well as Europe, this position became untenable and these observers admitted the occasional occurrence of such a condition. But they doubted the diagnosis of a large proportion of the published cases, which proportion they assumed to be due not to a cognenital malformation but to a physiological error which had given rise to pyloric spasm. The Edinburgh and London men at this time were for the most part impressed with the idea that the condition was a true stenosis due to an obstructing pyloric tumor which was visible and palpable in the post-mortem room. As the matter stands to-day no one denies that cases occur during early infancy in which there is definite hyperplasia of the circular pyloric muscle with more or less complete stenosis, which cases present no signs or symptoms other than those referable to obstructions of varying degrees at the pylorus. The most characteristic of these signs are propulsive, cumulative vomiting, visible peristalsis of a large thickened stomach, shrunken hypogastrium, wasting, scanty urine and scanty meconium-like stools. The usual time of onset of these signs is in the latter weeks of the first month, most often in the third, as distinguished from the onset of symptoms immediately after birth in that very much rarer and always fatal condition, pyloroduodenal atresia. Why the onset of symptoms in hypertrophic stenosis is delayed no one has explained. Miller and Wilcox, however, have shown that vernin secretion is very much increased in coagulating power. We know that digestion is a developing function; we know that during the colostrum period vernin is not secreted by the human infant's stomach, and it may very well be that the appearance of this secretion is delayed in these cases, and that while there is no vernin, the milk, uncoagulated, can flow through a very narrow pylorus into the duodenum and there undergo digestion. But when late fermentation appears when coagulation takes place in the stomach, the physiological guardian action of the pyloric ring muscle becomes developed, and in its hypertrophied state it so overdoes its duty that the normally developed antagonistic longitudinal muscle cannot overcome its contraction, and obstruction is set up. I hope at a later meeting to report on the development of the vernin function of young babies.

There is a great diversity of opinion among the best minds of our profession in regard both to the etiology and to the treatment of the condition; the two extremes are represented by Hutchinson, Heubner and Bloch on the one hand, and Scudder and Morse on the other. The first hold with Pfaundler and attribute the obstruction to spasm of the stenosed pyloric ring muscle rather than to its hyperplasia alone. Hutchinson would go so far as to exclude all cases from operation, while Scudder and his colleagues consider that properly diagnosed cases of pyloric stenosis should at once be operated upon, and they attribute little value to spasm as a factor in the obstruction that occurs in such cases. The third school, which seems to me to have right with it, is led by Cautley, who since 1898 has seen more than twenty cases and who has given the matter very deep and earnest consideration. He admits the condition called by the Munich men, pure pyloric spasm, exists and thinks that many cases diagnosed pyloric stenosis that have spontaneously recovered are examples of this state. He further divides the cases of pure pyloric hyperplasia into those in which the circular muscle is so hypertrophied, the pyloric passage so narrow and the mucous membrane so folded that the stenosis is absolute and anatomical. The second class of case from his point of view is that in which although the hypertrophy is well marked, the pyloric canal is narrowed but to a slight degree, and in which the folds of the mucous membrane do not cause complete, continuous obstruction. Obstruction in this class of case he thinks may be attributed to irritative spasm of the hypertrophied pyloric sphincter, and patients suffering with this type of case under wise feeding may recover without other treatment. The first class in which I think are included all the cases reported to-night can be relieved only by operation and these patients will certainly die unless they are so relieved.

John Lovett Morse has recently published a most illuminating report on a case of this class which was successfully operated. Gastroenterostomy was done in the second month. During the eighth month the child died of a peritonitis, probably pneumococcic. After operation the child had developed in an absolutely normal way. On examination of the pylorus a perfectly characteristic tumor was found, spindle-shaped, obliterating the canal and extending into the duodenum, in appearance like the cervix uteri. In fact, the post-mortem findings differed not at all from the post-mortem findings obtained from other children, in whom death had been directly due to the obstruction of such a tumor. This case proves that at least some of these tumors do not alter as the Pfaundler-Bloch school teaches, and become patent in the later months of life. And such post-mortem findings clearly show that all cases of this disease are not due in any degree to spasm. As a student I saw a number of Cautley's cases and those of Voelecker and Newton Pitt and I have had the good fortune through the courtesy of Doctors Kreutzmann and Krone to be allowed to aid in the diagnosis and conduct of two cases in this vicinity, and Dr. Lartigau allowed me to be present at the operation of his patient; so in all, I have seen in eighteen months, three undoubted cases of this symptom complex of vomiting, pyloric obstruction, visible peristalsis, and depressed hypogastrium with scanty stools. I have further seen within the last few years four cases of intractable vomiting that correspond in type with the so-called pyloric spasm of the Pfaundler school as emphasized by Kopik in his recent paper. Personally I can see no justification for bringing these two groups of cases into juxtaposition. The spasm cases show a vomiting of vastly different type and do not have so marked hypogastric recession. The visible peris-

talsis in them is one that is so slight that it would escape attention were it not diligently searched for and since I have been looking for visible peristalsis of minor degrees, I have seen it in a number of little babies who, so far as one can judge, were suffering from nothing except too large amounts of food, or food of too high a fat content. Moreover, these babies are almost always bottle babies in contra-distinction to the stenotic babies who are usually breast fed. There seems to be no difference between this so-called pure pyloric spasm and the condition that arises in older infants accompanied by hyperchlorhydria.

In considering this morbid entity many interesting questions arise. A certain number of cases in which the clinical picture has been correctly drawn by excellent observers and which must have been true types of this disease, have gone on to recovery without operation. The validity of these observations cannot be doubted and the first question that arises is, "Why should we operate at all?" The answer to that is contained in the experience of untreated cases 89% of which have died, contrasted with the operative cases, 43½% have died. To quote the operative figures is not to make a fair statement of the cases either, because for a number of years after Hirschsprung's paper, diagnoses were delayed and operative interference was also delayed even after diagnosis, while the patient was treated expectantly. Moreover, even when the patient came to operation, operative procedures were more or less experimental. Pylorectomy, for instance, has been advocated, attempted and abandoned. Loretta's operation has also been practically abandoned in this country, Germany and England, although it is still the operation of choice in Scotland. Gastroenterostomy is only now being generally adopted, not because it is ideal but because it is practical, and the results, as you can realize from the cases reported to-night, are increasingly favorable. I have no doubt that in the near future when medical men are alert for this condition and bring their little patients early and in fair condition that the surgeon will save at least 90% of them.

When to operate is the second question that presents itself. Robert Hutchison, of London, is the only authority with extensive experience who unqualifiedly opposes operation under any circumstances. He justifies himself by the report of fourteen cases with one fatality. To quote him, including one case that died, the mortality has been one in fourteen. All the others have got well, and when I say well I mean perfectly well. I have followed these cases for three or four years and they remained perfectly healthy children, and I would say that the majority of cases, so far as I have seen, are not left with dilatation of the stomach; the condition seems to be one of genuine cure. Hutchison rejects the use of drugs, opium and belladonna, and where he has tried it, he rejects rectal feeding because he has found it impossible to make children retain for any length of time solutions given by rectum. He stakes his whole therapeutic attack in systematic diurnal stomach washing and in frequently feeding the child, if possible, small amounts of human milk, and if this is not feasible he gives thoroughly peptonized milk with an equal quantity of water. He calls attention to the danger of opium even in minute doses and cites one instance where 1-20 of a minim of the tincture given before each feeding for six or seven doses rendered the child comatose. He says in his experience relief cannot be expected for a long time. Although the children cease vomiting they go on losing weight for two or three months, and suddenly when the clinical picture seems blackest, they round the corner and begin to improve. His idea is that the disease is nothing else than a spasm of the hypertrophied pylorus and when the child is weak enough the spasm spontaneously gives way. He goes so far as to predict in the future operation will have no place in the treatment of this condition. So far at Hutchison's cases are concerned, I heard him report them in person, and in the discussion Cautley stated that he doubted very much the accuracy of the diagnosis; but allowing him full weight for the cases reported, considering the brilliant results that surgeons have achieved in this field, can we be justified if we allow these children to lag along in suffering and distress for four or five months and go on to a condition that will make a chance of successful surgical intervention slight, should that intervention become necessary? Personally, I believe not. I believe that stomach washing and medical treatment should be limited at the most to ten days or two weeks. If in that time there is no amelioration a surgeon should be called; but if during that space there is some improvement or even if the child but holds its own, then, unquestionably we are not justified in advising operation.

But after all is said and done, of this condition we know nothing at all save that we are very sure that some nurslings in their first month present a symptom complex that can be due only to obstruction at the pylorus and that some infants with such symptoms will have an enormously overgrown, hard, contracted pyloric sphincter. Beyond this we lose ourselves amidst the fogs of conjecture. We are not even certain that we have not included two or more conditions under one heading. Of the etiology we know nothing whatever. We are equally at a loss to explain the manner of onset even as we are to understand why some of the cases die while others go on to spontaneous recovery. We are indeed in this matter "most ignorant of what we are most assured."

Discussion.

Dr. Cheney: I simply wish to make a résumé of some of the points. Our object always with these babies is to save life and the essentials to saving life are accurate diagnoses and consequent careful consideration as to the means at our disposal for cure. In regard to the diagnosis, I wish to point out that there are two distinct classes of cases. There is hypertrophic stenosis where there is distinct organic thickening of the tissue and also that group of cases known as pyloric spasm which are possible to cure without surgical means. Our duty is to decide with which condition we are dealing. This matter has been gone over very carefully to-night. It is possible to form an opinion as to whether the case is

one of spasm or stenosis by the condition of the abdomen, by the difference in the peristaltic wave, the absence or faint rumbling of gas in the cases of spasm, or a palpable tumor in the stenosis which is in many cases present. It is not possible at a given time to decide this question and therefore the wisdom in delaying until we have watched the case in an effort to decide. By careful watching it is possible to decide whether we have stenosis or spasm and then we are guided somewhat as to whether we shall recommend surgery or not. If the case is decided to be stenosis we must even further carefully consider it, for as Dr. Porter brought out, some of the stenosis cases get well without operation. Yet the percentage is so small in consideration with the percentage of cases that die that it is not justifiable to wait and take that chance if the diagnosis of stenosis has been made. The other factor to be considered in these cases is the surgeon, the qualifications of the man who is going to do the work and what he is going to do. I do not believe that these cases should be operated upon indiscriminately, my fear is that the reports to-night will cause a good many babies' abdomens to be opened by incompetent men. It is not at all an operation to be rushed into. In the second place, what is the surgeon going to do when he does operate? It has only lately been pretty well decided that the gastroenterostomy offers the best chances. I might advise operation for gastroenterostomy where I would not advise operation for divulsion. If the operation is done by the best possible technic and by the best man, we have evidence that the results are good. All of the cases reported to-night have had good results, the only case of stenosis reported where the child died was the case allowed to go unoperated upon.

Dr. Barbat: There is not a great deal left to say upon this subject. The first case which attracted my attention was the child of a woman whom I delivered in 1904. The child did very well for two weeks, and then began to vomit, at first occasionally, then after every feeding. Change of diet made no difference, and a diagnosis of pyloric stenosis was made and operation advised. The parents changed doctors and the baby died at the age of six weeks. An autopsy revealed a stenosed pylorus, which would only admit a probe. The next case is the one which has been reported by Dr. Mohun. I confirmed the doctor's diagnosis, and agreed with him in regard to immediate operation, before the child became too weak. We operated on the 21st day after birth, and found on opening the abdomen at the site of the pylorus, a hard, glistening white mass the size of a marble. A no-loop posterior gastroenterostomy was done without reversing the jejunum, but keeping it in its normal direction. The baby was allowed some nourishment the same day, and at the end of five days was getting practically regular nursing. Although the operation is attended by many technical difficulties, the children take their anesthetic like milk and are ready for nursing in the afternoon. It is comparatively easy to do a gastroenterostomy on a dog or rabbit, or an adult, but when we attempt to operate upon a three weeks' old baby with a contracted intestine, it is a different matter. In this case the jejunum was no larger than an ordinary lead pencil, and it is not a particularly easy thing to place two rows of stitches between the stomach and jejunum. I have my doubts regarding the large number of cases reported as recovering under medical treatment alone, and believe that they are all to be classed under the spasmodic type and not the true stenotic type. During my trip east I inquired about this class of cases and received a good deal of information from the internes in some of the hospitals. I found that there have been a number of patients operated upon but not reported on account of the fatal results. There are a number of reasons for failure in these cases, faulty technic, and delay in bringing the patient to the surgeon being the principal ones. The medical man must bring the surgeon in consultation early, before the child has become too weak to stand operative measures. If this is done we will look for a very large percentage of recoveries in these otherwise hopeless cases. It is a mistaken idea that it is more dangerous to give a new born baby an anesthetic and operate upon it than to wait until it is older. I have done major operations on babies less than twenty-four hours old without any trouble, where it would probably have been fatal if I had waited.

Dr. Dudley Tait: My personal experience with the operative side of this question is limited to one case the clinical history of which was given to you to night by Dr. Brown. In this case, after having failed to control the vomiting by means of a gastrojejunostomy, I made a gastroenterostomy on the fifth day but even then failed to get the desired result, the patient dying three days later without any local reaction. No autopsy having been performed nothing of interest can be elicited by further reference to this case. It has seemed to me to-night after listening to the numerous papers that this question has been viewed entirely from the weakest side of surgery, the mechanical side. After having perused the case histories in American and French literature no impartial observer will be convinced as to the cause of the congenital pyloric stenosis and therefore the propriety of surgical intervention in this condition. The question still remains unanswered, are we dealing with pure spasm or advanced pathological condition? Personally, I am inclined to favor the spasm theory, with gastritis as a possible factor, for the following reasons: first, the not infrequent onset of the clinical syndrome upon changing the infant's food; second, its variable date of occurrence often as late as three or four months after birth; third, the clinical and postmortem evidences of gastritis, mucus, pus and bacteria in the vomitus; fourth, the pathological findings in cases recovering under medical treatment and dying later from other causes, in one case as late as six months afterwards. In several such cases reported independently by Batten, Ibraham and Bloch, the autopsies showed hypertrophy and stenosis fully as marked as in the cases that had died after operation; fifth, the hypertrophy does not involve the stenotic ring alone but the entire region of the pylorus and generally the prepyloric area, the longitudinal and circular fibres being increased; sixth, in animal experimentation I have found that any injury involving the perpyloric area (elastic ligaments, etc.), will give a spasm of the pylorus, this spasm having been noted at autopsy as late as the ninth day. No sections, however, were made in this case and consequently I am not prepared to state whether or not any muscular hypertrophy existed; seventh, similar muscular hypertrophy has been found in other parts of the body; eighth, in the numerous reported cases of congenital pyloric stenosis in infants I can only find two in which tests were made to determine the presence of pyloric permeability; ninth, a very large proportion of cases recover under purely medical treatment. All these facts render it impossible to state definitely what part surgery is to play in the treatment of congenital pyloric stenosis in infants. When we remember that the Mayos are retracing their steps in gastric surgery, restricting the list of operable conditions, when we note that foreign surgeons who have had considerable experience with the operative treatment of infantile pyloric stenosis are becoming more conservative, we must admit that the surgeon must possess something more than mere mechanical views if he decides to invade what seems to be the medical man's domain.

Dr. MacMonagle: I have never had any cases of

congenital pyloric stenosis in infants. In a general way I am inclined to take the stand which Dr. Tait has taken. The question of the future health of the child operated upon and the action of the pyloric stenosis and the artificial opening after operation, seem to me very important and worthy of consideration. The reports of the future health of these cases will certainly be very interesting and instructive. In a number of cases of gastroenterostomy done upon adults, an autopsy some time after, has shown the pyloric stenosis cured and the artificial openings closed. In other cases, it has shown both the pyloric stenosis and the artificial opening closed. This condition of affairs is certainly very grave and should receive serious attention in coming to the decision of operating. Of course if there is an absolute obstruction of an organic nature, to the passage of material from the stomach to the intestines, there is only one thing to do in order to give the patient the slightest chance of relief, that is relieving the obstruction by making the junction of viscera in the way that seems best, or by removing the obstruction by leaving the pyloric stenosis as it is and opening a new channel from the stomach to the intestines. I do not mean this as a criticism upon the cases that have here been referred to to-night, as I believe these cases were carefully diagnosed and well treated. I merely want to raise the question of the future action, of the difficulties in such cases and in regard to the surgical procedure in all cases, as I fear that some enthusiasts may be led to surgical means as a relief before it is clearly established that a good result cannot be obtained by medical means.

THE FAUCIAL TONSILS CONSIDERED FROM A MEDICAL AND SURGICAL STANDPOINT.

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The mere mention of the subject of this paper will bring to our minds thoughts, and probably experiences, we have had concerning these masses of lymphoid tissue.

Treat the subject as lightly as you will, nevertheless the prominent position of the faucial tonsils at the orifice of the respiratory and alimentary tracts, their exposed position to foreign substances, their close relation to the cervical lymphatics and their great vascularity gives them an importance not easily ignored. One remarkable feature is that these organs so ready of access and so easily observed have remained a kind of medical enigma.

What passes in the mind of the average observer when examining the tonsils? He notes if they are red, swollen and for the presence of exudate. If this trio are absent his investigation, as a rule, ceases and so the tonsils have remained for many years comparatively unmolested except for the tonsillotome (which is capable of removing a piece of the tonsil) and a long list of gargles and swabs.

Gradually the importance of a more serious consideration of the faucial tonsils has forced itself upon us. Aside from their local effect, their relation to certain systemic conditions has proven so intimate that in many instances our previous lethargy has changed to alarm.

Considering the faucial tonsils as a pathological entity they may be regarded from two points of view. First, diseases characteristic of themselves with their local effect and second as a portal of infection whereby the general economy may suffer from some apparently remote disorder.

By a gradual pathological chain the acute forms of tonsillitis can be merged into the chronic and so, various types of tonsillitis can, for clinical purposes, be described as a continuation of the same inflammatory disease. An acute superficial or catarrhal inflammation may readily subside or it may extend to the more severe form of lacuna tonsillitis, more commonly known as follicular, where the infection extends into the tonsillar crypts which accumulate a debris of epithelial cells, leukocytes and bacteria. These crypts form a favorable spot for the encouragement of bacterial growth and the tonsil reacts against it by inflammatory reaction. Let this condition carry us to the next type, i. e., parenchymatous inflammation where the stroma of the tonsil becomes involved; this may assume an acute condition where pus is formed from an infection of the surroundig tissue, as in peritonsillar abscess or quinsy. A more chronic course may be followed which resolves itself into organized inflammatory exudate in the form of scar tissue and an hypertrophy of the connective tissue. The acute lacuna tonsillitis just mentioned may assume, like unto itself, a chronic form the so-called caseous tonsillitis which consists of masses of inspissated secretion and bacteria mixed with food.

What the agent is that prompts these various changes and decides whether an acute superficial inflammation will subside as such or go on to graver forms can only be determined by knowing the nature of the infection which originally involved it in disease or attacked it later.

During the acute and chronic forms of tonsillitis many investigators have demonstrated the presence of pathogenic micro-organisms such as streptococcus, staphylococcus (aureous and albus) and diplococcus. In lesser frequency are found the pneumococcus, Kloebs-Laeffler bacillus, staphylococcus citreous, micrococcus tetragynous, micrococcus albus liquefaciens, bacillus tuberculosis, leptothrix and other forms.

Whether an acute attack can leave a permanent stigma upon the tonsil or whether it requires a long series of acute infections to accomplish the same end is merely a matter of degree; suffice it to say that the ill effect of the presence in the throat of an obstruction that can so impair functions and development, is a matter of serious consequence.

The effect of enlarged faucial tonsils upon articulation and deglutition is most marked. They can change the development of the mouth and nares such as faulty dental alignment, narrow palate arch and drooping lower maxilla. Note the dull and listless manner with stupid expression and thick lips. The local effect upon the mucous membrane of the entire respiratory tract from constantly breathing through the mouth causes a hacky cough and tendency to chronic bronchial affections. Their influence upon taste, hearing and smell is marked. Disturbed sleep with efforts at breathing has an influence upon the development of the chest and we see in these cases the so-called pigeon-breast.

Many reflex symptoms might also be mentioned, due to local irritation from the enlarged tonsils.

It is not my intention to enter minutely into the histology and pathology of the faucial tonsils, yet a few words regarding lymphatic tissue will show how we may class them and what relation they hold to the general economy. A true lymphatic gland consists of a capsule of connective tissue which sends fibrous prolongations inward dividing the gland into various divisions. The center of the gland is composed of a loose and rectiform tissue through which flows lymph. The functions of these glands seem to be to neutralize certain toxins and destroy bacteria; they act as cleansers or scavengers. If the glands become overtaxed by the continued presense of a toxin, an excessively virulent bacteria, or by a lessened vitality they become, instead of a protection, a veritable focus of disease distributing their poisons directly to the lymph circulation.

In describing a lymph gland I have in a word embodied the construction and function of the tonsil for like a lymphatic gland it consists of a stroma of connective tissue containing blood and lymph vessels and in its depth germinating centers where are found cells undergoing mitotic division, the lymphocytes. The faucial tonsil only differs from a lymphatic gland proper in its epithelial covering which dips into it in the form of crypts; its exposed position and relation to external influences.

As all lymph glands are part of and in the direct course of the lymphatic circulation, and as the tonsil is an integral part of this system, is it not interesting to follow some of the experiments that have been attempted to determine the powers these glands possess in their resistance to toxins and bacteria and if overcome by such their resulting influence upon the general system? The difference in relation of the tonsils and lymph glands to the lymph channels is that in the tonsil they have their origin while they merely pass through the lymph glands.

The usual course of an infection, if succeeding in passing the various barriers, would likely be through the tonsil into the deep cervical chain of glands beneath the sterno-cleido-mastoid muscle thence to the thoracic glands and finally the thoracic duct. It thus distributes an infection directly into the circulation, producing such conditions as general sepsis, rheumatic arthritis, endocarditis, nephritis, leukemia, general tuberculosis, pleurisy, etc.

Four cases are here appended demonstrating the close relation between a tonsilitis and various organic lesions. They were taken from the records of Dr. R. Langley Porter and Dr. Philip King Brown.

Case No. 1: A child, female, aged 9. Endocarditis, double mitral lesions. The child comes complaining of shortness of breath, some dizziness and an occasional fainting spell. She is very pale but moderately nourished, well grown and apparently anemic. On examination she has chronically enlarged tonsils with a chronic pharyngitis. Anterior and posterior cervical glands moderately enlarged. Chest shows slight rickety deformity. The heart is enlarged especially to the right. There are very marked presystolic and systolic bruits. The child is unquestionably suffering from a mitral stenosis with regurgitation, but the heart is well compensated. In this case there is no history of any rheumatism or other infective disease, and the morbid condition can with assurance be assigned to the repeated attacks of tonsillitis of which there is a definite history.

Case No. 2. A female child, aged 11 months. Pseudo leukemia infantum. The child has an adenoid and enlarged tonsils which show crypts filled with secretion, picture of acute tonsilitis. Up to the time of the onset the child was a perfectly healthy baby, had been properly fed and the attack of tonsillitis lasted about six days. After this the child began to go rapidly down hill and was very pale. An examination shows but 50% by the Dare instrument. The blood picture showed 12,000 leucocytes of which 80% were lymphocytes. There were many nucleated red cells, marked deformity of the red cells and a number of megalocytes. The spleen was enlarged and tender. The condition maintained itself for about two months and finally disappeared under careful feeding and iron therapy. There was no question that the toxemia which led up to the blood condition was directly due to the infection of tonsillitis.

Case No. 3. A. S., male, aged 14. Hematuria, rash, temperature. Seen in consultation with the history of having an attack of acute tonsilitis three days previously, and followed next day by enlargement of the anterior and posterior cervical glands. The posterior cervical glands were markedly enlarged and tender so that the head was retracted and carried in a position to suggest meningitis. On the fifth day of the disease a marked hematuria with a very definite diminution of urine was manifest. A question arose as to whether we were not dealing with a case of scarlet fever. It was decided that we were not because there had been no discernible rash, and there was no strawberry tongue or circumoral pallor; also the onset was not abrupt and the pulse rate never was unduly rapid. This decision seemed to be warranted when during the course of the disease no desquamation became apparent. This case may be looked upon as one of infection through the tonsils and naso pharynx.

Case No. 4. R. A., Dec. 12th, 1902. Age 6½ years. Endocarditis, tuberculosis, fever. History chronic constipation from birth. Bleeding with movements. Several attacks of protracted vomiting over a period of two years necessitating rectal feeding. Has had frequent bronchitis, also skin disturbance causing itching. Status: High color, coated tongue, loud systolic murmur all over heart. Liver tender over lower border, also in upper epigastrium. April, 1903: Loud systolic murmur, daily temperature per rectum 100-101°, pulse irregular. July, 1903: Removed portion of tonsil by tonsillotome, followed by fever each day over a long period of time. August, 1905: Tonsils very inflamed and complains of headache and fever each day, also palpitation of heart. Considerable prostration every afternoon. August 15th, 1907: Tonsils smaller and less troublesome. Mitral regurgitation plainly heard. Jan. 13th, 1908: Following several attacks of tonsillitis developed a swelling in right wrist. Dr. Levison by X-ray, etc., makes a diagnosis of tuberculosis of a tendon. Feb. 5th, 1908: Dr. Deane removed tonsils by radical method which were found to be small, adhesive and deeply imbedded. Feb. 5th, 1909: One year later. Wrist symptoms entirely abated, slight systolic murmur. Child has never been in such good physical condition. Has gained markedly in weight and strength.

As to the tonsil having a direct connection with the respiratory tract, an infection can start by taking the same course but from the thoracic glands it can pass through the hilus of the lung to the visceral pulmonary lymphatics and by that means infect the apices of the lung, which, on account of

being away from the direct respiratory current and with less motion they form a peculiarly favorable position to harbor a tubercular infection. Dr. J. Grober made a series of experiments upon the lower animals illustrating this point, three of which I may be permitted to quote.

First experiment, September 16. A young rabbit was anesthetized by ether and chloroformed, and 1 c.c. of sterilized emulsion of black Chinese paint injected into the left tonsil.

September 23rd, 1902, the autopsy showed black particles in the blood. Behind the left tonsil there was a mass composed of the coloring matter and leucocytes. The lymph glands on left side of the neck, as far as the upper border of the thyroid cartilage, were stained black. The microscope demonstrated the lymph vessels filled with free coloring matter, as well as leucocytes which enclosed small particles of pigment.

The glands and lymph vessels were fairly packed with the coloring matter. Beyond the zone of the lymph glands and vessels little coloring matter was found.

Second experiment: A small dog was narcotized by morphin injections. Six and one-half c.c. of the sterilized emulsion of black pigment was injected into the tonsil.

The autopsy, after complete exsanguination, showed the following conditions: Very little coloring matter in the leucocytes, none being free in the blood. The tonsil and the loose connective tissue containing the afferent lymphatic vessels of the tonsil were of a deep black color.

Along the muscles of the neck, as far as the hyoid bone and to the median line, there were streaks of pigment. The pigmented area also spread downward below the hyoid bone, where it extended 1 cm. beyond the median line. The coloring matter was traced to the bony opening of the thorax and to the parietal pleura, which, when stripped off and examined by transmitted light, showed the black pigmentation. The lymph vessels of the paratracheal connective tissue and of the esophagus, as far as 2 or 3 cm. above the bifurcation of the trachea, were also colored, whereas on the left or uninjected side no such phenomenon was found. All the lymph glands on the lateral wall of the pharynx, hyoid bone, larynx, along the deep vessels of the neck and supraclavicular fossa on the right side were black. The parietal pleura at the apex showed an exudate, but no adhesion to the visceral pleura.

The miscroscope showed that in all the above-mentioned positions there were no other changes present. In the glands the coloring matter occupied the paravascular spaces. In the lymph vessels between the supraclavicular glands and the parietal pleura of the apex there was a large number of leucocytes filled with coloring matter. • Free coloring matter was also present in this region. In the apex of the lung there were no signs of an inflammatory reaction. The coloring matter here seemed to be freely deposited within the connective tissue. In the above-mentioned exudate at the apex there was coloring matter in the leucocytes.

Third experiment: April 4. A small dog was placed under morphin narcosis and 5 c.c. of coloring matter injected into the tonsil. April 13th, the same experiment was performed on the opposite side.

May 10th, the autopsy, after exsanguination, showed a large amount of coloring matter free in the blood; the leucocytes, the tonsil and connective tissue, and the connective tissue of the neck on both sides along the larynx to the aperture of the thorax were colored symmetrically. The lymphatic glands along the large bloodvessels, as well as those in the supraclavicular region, were deeply stained. The coloring matter was also found within the lymphatic vessels and in the paravascular spaces. A fibrous exudate was found in the apices of both lungs, thus forming a bridge of inflammatory material from the parietal to the visceral pleura. The coloring matter was also present in the exudate. The microscopic appearance of the apices presented a light grayish coloration. The glands in the mediastinum were stained on the left side, as were also the bronchial glands. In the left lung there were three other small fibrinous exudates in which the coloring matter was present.

From these experiments Grober builds the hypothesis that "tuberculous infection of the apex of the lung may take place via the deep lymphatic chain, the supraclavicular glands, and thence to the parietal lymphatic vessels, where an inflammatory exudate is thrown across to the visceral pleura. The tubercle bacilli travel across this inflammatory bridge and enter the apex of the lung."

I may state that these experiments have only to do with foreign particles of inorganic matter. What inhibitory effect this lymphatic tract would have upon the passage of bacteria is problematical but likely far more marked.

From the experiments of Kayser, Goodale, Hendelsohn, Grober and others, the following conclusions have been drawn:

1. Minute particles of foreign matter such as dust, carmine and other pigments when locally applied are rapidly absorbed by the tonsils from their crypts and are found in sections of the tonsil removed as early as fifteen minutes after.

2. Bacteria do not pass so readily and are hard to discover in the tissue of the tonsil.

3. Ordinary organisms are probably absorbed less rapidly on account of the resistance of the mucous membrane, and if they enter the parenchyma they are promptly destroyed unless able to resist the phagocytic powers in the tonsil and even in the latter case their virulence is likely altered.

4. Virulent organisms can follow the same course as dust particles and may cause local lesions, lymphatic involvement and an infection of any part of the body.

5. Tubercle bacilli may lodge and remain indefinitely in the crypts of the tonsil ready to be absorbed at any time, though not necessarily involving the tonsil in actual disease.

A topic which concerns us mostly is the nature of enlarged cervical glands and the mode of their infection. We have been in the habit of calling such glands scrofulous or lymphatic, though through extensive investigation Schlenker and Kreuskmann, as described in Virchow's Archives, have shown that a large per cent of these glands are due to a tubercular process, the infection either proceeding in a retrograde manner from a tubercular focus in the lung or more likely from the tonsil. Following up these cases the tonsil was examined in certain instances; tubercle bacilli were found in the follicles where they had penetrated the epithelium, in others tubercles and giant cells were found in the subepithelial layer.

Case No. 5: Case of a child seen in the clinic for tonsillectomy. Tonsillar tuberculosis. The

tonsils were very much enlarged and the child had an adenoid. These were removed and the child was sent in for examination as to its general condition. The lungs and heart were perfectly normal, and the child was normal in every way. No sign of tuberculosis or any other organic disease, although the tonsils macerated with sand and, injected into guinea pigs showed, by characteristic tubercular infections, that these tonsils harbored tubercular foci.

Acute tonsillar tuberculosis hardly concerns us here, as it is found as a part of military tuberculosis or as a metastatic process in the last stage of pulmonary tuberculosis, it produces great destruction in the form of ulcers with yellow miliary nodules. In strong contrast to the acute form is the chronic which usually exists without marked symptoms. This infection might come about in two ways, either secondarily by contamination with the sputum, where the bacilli lodging upon the tonsil are forced into the crypts or primarily by inspired air, the tonsil being rendered more susceptible by having lost its epithelium through inflammation.

Orth, in Virchow's Archives, and Baumgarten have shown that the tubercle bacilli in food is a frequent cause. In their experiments they fed animals with tubercular tissue and demonstrated later tuberculosis of the cervical and bronchial glands.

A chronic tuberculous tonsil may remain as a local condition or as already described it may infect the cervical glands and pass directly to the main lymph channels, causing a general miliary tuberculosis or more likely to the pleura and a bronchial gland which could break down and empty its contents into a bronchus. The latter I believe to be more common than we imagine judging from the frequency of such an occurrence in the cervical chain.

I have devoted rather more space to the tonsil in its relation to tuberculosis than I had intended, but allow me a word more to explain my position. I am not attempting to show that the tonsil is the main channel of tuberculous infection, but it is one important means of contagion that is proven beyond a doubt.

As the tonsil is a portal which may convey tuberculous infection to the lymphatic circulation so it can transport by the same channel other infections. Rheumatic symptoms in the joints and muscles so frequently follow attacks of tonsillitis that it is useless to review or quote from the extensive literature upon the subject. Any of us, in our limited private practice, can state instances of the relations of the two and so strongly has it been impressed upon us that the salicylates, as a remedy for tonsillitis, have with many become almost a routine practice, whether it is apparently indicated or not.

Fletch Ingals states that 45% of acute tonsillitis has a rheumatic history. There is not as yet evidence to prove that the tonsil is the chief portal for entrance of the rheumatic poison; considering, however, that in all probobility acute articular rheumatism represents a mild type of septic hematogenic infection of the joints there is no reason why the tonsils with their notorious faculty for infection with pyogenic germs should not possibly, even frequently, assume the role of an infected wound leading to septic consequences of a systemic nature. The septic conditions vary in degree and location and rheumatism is one of the phenomena.

After considering the tonsils from a pathologic standpoint we are naturally led up to the therapeutic. Whether the condition is acute or chronic, whether the tonsil is acting as a mechanical obstruction in the throat or a portal whereby the system is the subject of general infection, must be considered.

The natural aversion of the laity to surgical interference leads us first to the application of local remedies or to drugs that may neutralize the toxins already in the blood. Little has been accomplished by this means. The exposed portions of the tonsilse continually bathed in secretion and in active motion are poor surfaces to retain for more than a moment any application. The general cleansing of this area by peroxid of hydrogen or an alkalin wash seems about all that can be accomplished by a gargle. The local application by a swab to the surface of the tonsil of tincture of iron, iodin, guiacol, the silver salts, etc., may possibly have some merit, though not marked. The deep crypts, though quite inaccessible, can be washed out by a small syringe with any antiseptic, such as pyoktanin, carbolic acid, formalin, peroxid, etc. The use of the actual cautery or various cauterizing reagents, with the idea of destroying part of the tonsil, are to be discouraged, for, where it is deemed that such treatment is necessary, the more radical procedure of removal is far more effective.

The question as to what are the indications for removal of a tonsil is a subject that can easily lead to discussion and many differences of opinion.

Since the advent of the so-called radical operation, where the tonsil is dissected from its attachments and removed entirely within its capsule, we have within our means a much more effective and wider range of action.

The much used tonsillotome can hardly be of service except to remove a large projecting mass, most of the tonsillar tissue being left behind. It certainly has its advantages in removing an obstruction, but there its usefulness ends. Many tonsils have been removed thus, with a satisfactory outcome, but they have all belonged to a simple hyperplastic type where the tonsil acted only as an impediment. Against a long list of tonsil troubles the tonsillotome and local applications have remained helpless.

Allow me to recite a clinical picture that we have likely all seen. A child ranging from ten to fifteen years of age, sallow complexion, poorly nourished and equally poor appetite, listless, subject to sore throats and colds and a hacky cough. We feel distinctly a chain of lymphatic glands in the neck running from the tonsil downward. In the throat are two small lobulated and boggy tonsils barely projecting beyond the pillars and adhesive to them in places. They look red and congested, as also the surrounding tissue. As to the possible systemic condition associated with this case we might mention a long list of which I have

already spoken earlier in this paper. We are satisfied that these tonsils have lost their vital resistance, and aside from their local effect are acting as a portal for some kind of infection. It is in such a case as this, with many similar varieties, that the complete extirpation of the tonsil is indicated.

The operation may be performed either during the administration of a general anesthesia, as in small children, or by local anesthesia, which is practicable in many larger children and adults.

By the first method the patient is placed in a prone position and ether vapor administered by a rubber tube passed through the rose into the pharynx. The assistant stands on one side and manipulates the mouth gag, tongue depressor and sponges. The surgeon stands on the other side, and, after drawing the tonsil outward with a tenaculum, dissects it from its attachments; i. e., plica supra tonsillaris above, the plica triangularis below and the anterior and posterior pillars, finishing by cutting or snaring it from its attachment to the superior constrictor muscle of the pharynx, through which pass its bloodvessels and lymphatic connections. By avoiding the vessels of the anterior and posterior pillars no serious bleeding need be anticipated.

Immediately after removing the tonsil from its base there is a sharp hemorrhage which is readily checked by pressure.

The removal of the tonsil by local anesthesia is altogether a more pleasing procedure. A solution of cocain carbolic acid is applied locally and cocain with adrenalin is injected into the deeper structures. The patient is in a sitting position and can frequently assist by holding his tongue down. The operation is quite bloodless on account of the deep injections of cocain and adrenalin and absolutely painless.

The post-operative treatment of these cases is a subject which I believe must be given careful attention. We have opened up numerous lymphatic channels in their exit from the tonsil, and until granulations have formed over them they can act as a ready means of absorption, producing many of the various forms of sepsis that were originally feared might emanate from the tonsil. Some time ago Dr. Leo Meininger was called to treat two cases which I had, several days previous, operated upon by the radical method. They impressed me deeply and I felt that rather than blame the operation of complete extirpation that the poison had entered through some fautly technic of surgical asepsis. Dr. Meininger has kindly supplied me with the following histories of the two cases:

Case No. 1: R. C., age 12 years old. Entered my service July 31st, 1908, complaining of pain and swelling of both wrist joints, ankle, on right side. She also complained of pain over the precordial region, all of which she had since July 29th, 1908. Denies having had measles, scarlet-fever, diphtheria and rheumatism. Has had chickenpox and also states that she has had quite a number of colds, sore throats, etc. She further stated that on July 25th she was operated upon by Dr. Deane for radical removal of the tonsil and that two days after operation commenced to have pain and swelling in wrist joints and then in ankle joints. Mother called in physician who found her "very sick" with considerable temperature and great pain. On examination found the above-mentioned joints painful and somewhat swollen and on examination of cardiac region found a systolic murmur at the apex transmitted to the left and an accentuated second pulmonic sound, the beats being irregular and rapid. Child had temperature of 104.2° per rectum and pulse 148. At the end of four weeks joint symptoms had entirely disappeared and defect in heart sounds hardly perceptible.

Case No. 2: E. A., age 9 years. Was called to see child Oct. 27th, 1908, with the following history: Was operated upon by Dr. Deane for removal of tonsils, complete operation on Oct. 22nd, 1908. On the evening of Oct. 26th mother noticed a rash on body and the child was suffering from a general malaise, loss of appetite and some temperature. On examination found on the inner side of both thighs and on the face an erythematous rash which itched considerably. Temperature by mouth of 101.6° and pulse 100. The child had been on a selected diet since operation of milk, eggs and gruels and had only been out of bed 24 hours before I saw her. The child was sick for about one week when the symptoms disappeared.

From a long series of cases that it has been my privilege to operate upon these two have been the only ones that have been followed by systemic infection. They constitute less than two per cent of the total number of operations in my experience; none the less they act as a warning and have tended to make me more thoughtful in the post operative treatment.

Previous to the operation the mouth, teeth and pharynx, also the nose and nasopharynx are cleansed by means of an alkalin antiseptic solution, use of the tooth brush and the throat swabbed with peroxid of hydrogen.

Following the romoval of the tonsil after all bleeding has been checked, the fossa tonsillaris is painted with a five to ten per cent solution of nitrate of silver. This not only acts as a caustic and antiseptic but also as a styptic. After the patient has sufficiently recovered from the anesthetic the mouth should be again and repeatedly cleansed with the alkalin solution, alternating with peroxid.

Perfect quiet in bed should be insisted upon, for aside from lessening the chances of a secondary hemorrhage it prevents the patient from exposing himself to infection and renders less likely the absorption of any septic material by the lymphatics. Only food that has been sterilized by cooking should be permitted, drinking water boiled. The usual practice of swallowing cracked ice or ice-cream, purchased in the neighborhood, should be prohibited.

A detailed consideration of the cases I have operated upon by the radical method in the last three years I will reserve for a future paper. My present opinion is that the operation is based upon sound surgical principles and the only remedy for many a diseased tonsil with general systemic involvement.

THE TESTS FOR INVOLVEMENT OF THE LABYRINTH IN SUPPURATIVE MIDDLE EAR PROCESSES.

By G. P. WINTERMUTE, M. D., Oakland.

Within the last two years Barany of Vienna, after much painstaking research work, has devised a series of tests by which the involvement of the labyrinth in suppurative middle ear and mastoid conditions may be ascertained. These tests are based upon the normal reflex reactions of the semicircular canals in producing nystagmus of the eyes: the findings may show the reactions normal, in which event involvement is ruled out; or that they are impaired, lost, heightened or abnormally produced, in which event the condition of the organ, considered with the other functional reactions of hearing and the objective symptoms shown, may be quite accurately ascertained.

Purkinje, in 1825, first discovered nystagmus, but as he observed it in cases of insanity, thought it only occurred in and was one of the symptoms of that condition. Flourens, about the same time, experimenting on pigeons, discovered that when one of their semicircular canals was destroyed, the bird reacted with somersaults in the plane of the destroyed canal, and this gave the first clew to the part played in orientation by this organ; Goltz, in 1870, elaborated and propounded the orientation theory. It was not, however, until 1892, when Ewald made some exact experiments, that a definite law of the production of the nystagmus of the semicircular canals was discovered. Ewald took pigeons and blocked the canals with wax at a point about opposite the ampulla. Then into the bony wall close to this blocking point, between it and the ampulla, he introduced a movable piston, the end of which played upon the endolymphaticum. By squeezing an air bulb attached to this piston he pressed it against the endolymphaticum and produced a movement of the endolymph in the direction of the ampulla and hair cells; by a suction movement of the piston backward a reverse movement of the endolymph took place. Ewald discovered that the nystagmus produced by these experiments was always in the direction contrary to the movement of the endolymph. The direction of the nystagmus is indicated by the direction of the short, quick movement (it being the first movement); the slow movement of recovery being, of course, in the opposite direction. Thus the law is: *The nystagmus is always in the direction opposite to the movement of the endolymph.*

Barany devised a series of tests whereby the movement of the endolymph is produced by turning the patient in a revolving chair. If the patient, sitting upright with his head erect, is revolved, let us say to the right, the horizontal semicircular canals lying in the plane which is acted upon by the centrifugal force, has a resulting movement of the endolymph. The endolymph of the anterior vertical and posterior vertical canals (lying at right angles to the plane of this force) is unaffected by it. The endolymph of the horizontal canals, when the patient is being turned, following the law of a body at rest, remains at rest unless acted upon by some external force, is contrary to the direction of turning and the nystagmus is in the direction of turning.

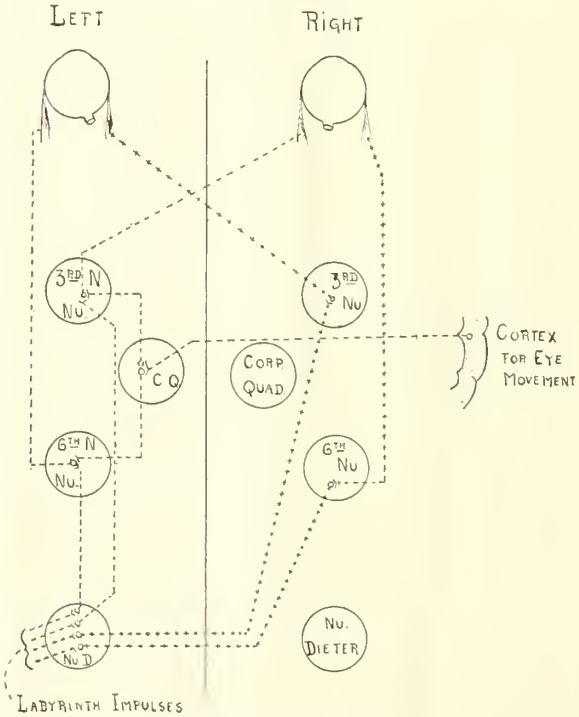
However, as it is impossible to measure the nystagmus while the patient is being revolved, it is disregarded. When the patient is brought to a stop after being turned ten times, the endolymph, following the law of a body in motion remaining in motion, is circulating in the direction of the revolving—to the right. The nystagmus is now to the left, and the patient being stationary the duration of the reflex movement is timed with a stop watch from the instant of stopping the revolutions to the time of cessation of the reflex movement. When the horizontal canal is tested the nystagmus resulting is a horizontal nystagmus; that is, the movements are horizontal. By bringing the patient's chin down, and flexing the head forward at right angles, the anterior vertical canals are brought into the plane of the centrifugal force, and the endolymphatic movements now take place in them; the horizontal and posterior vertical canals being unaffected. The nystagmus from the anterior vertical canal is rotary, corresponding to the wheel-like motion of the eye, and, in direction, follows the law of being contrary to the direction of endolymphatic movement. By bending the patient's head sharply over either shoulder and revolving him in a similar manner, the posterior vertical canals receive the centrifugal impact and the resulting reflex is a vertical, up and down nystagmus. By successively changing the position of the head in this way all the canals may be tested, and the results show that *each canal produces the movement in its own plane:* the horizontal canals, lying in a horizontal plane, produce a horizontal nystagmus; the anterior verticals, lying in a plane at once vertical and at right angles to the antero-posterior axis of the eye, produce a rotary or wheel-like nystagmus; the posterior vertical canals, lying in the sagittal plane, produce a vertical up and down nystagmus. This gives us our clew to the physiology of the movements. Standing erect, and revolving to the right on the long axis of our body, our eyes move quickly in a horizontal direction to the right and fix an object; the revolving movement of the entire body carries them soon beyond the fixing point. This corresponds to the slow reverse movement. The eyes then jump to the right again to fix, and thus the nystagmus-like movement keeps up. This movement is produced reflexly, when the revolution is rapid, by the movement of the endolymph in the horizontal, semicircular canals. A similar movement of the eyes takes place in an action like a somersault in a vertical direction, and is produced by endolymphatic movement in the posterior vertical canals which lie in the sagittal plane. The anterior vertical canals on being brought into play in an action corresponding to a boy turning a "cart-wheel," the resulting nystagmus is rotary, the reflex corresponding to wheel movements of the eyes when looking up, and to the right or left; and down and to the right or left (Donders listing), which is the position the eyes would assume in an attempt to fix in a movement of this kind.

Through these movements of the endolymph, too, we perceive our relative position in space, particularly in the dark, when the eyes furnish no added information. For example, in waking up at night in a sleeping-car berth, we know at once when the brakes are applied, or when the train is increasing its speed through this organ. In birds, with their sensitive orientation through the three dimensions of space, we find the canals relatively enormously larger and better developed. In man their function is retrogressive, and the part they play in orientation is comparatively insignificant.

If the eyes attempt to fix a revolving object a nystagmus results, which is designated as optical nystagmus. It is best seen, perhaps, in persons looking out of the window of a rapidly moving train. It is seen resulting from retinal irritation in albinos and in miners. It can be seen in the experiment of taking a cylinder which revolves on its long axis, and printing stripes on the curved surface running parallel with its long axis. The patient is told to look at the cylinder, and unconsciously fixes his regard on the stripes. When it is revolved slowly the optical nystagmus is seen. If the patient stands with the line of regard at right angles to the stripes the nystagmus is vertical; if it is parallel the nystagmus is horizontal. This nystagmus is stronger than that originating in the semicircular canals; and in testing the latter, the optical nystagmus is eliminated by placing opaque spectacles on the patient, and while he is being turned he is instructed to keep his gaze directly into the center of the opaque glasses, or "blind specks," as they are conveniently called. The normal duration of the nystagmus, after being turned ten times in one direction, with the same velocity, and with blind specks on the patient, varies from twenty-five seconds to two minutes; the average is about forty-five seconds for the horizontal and twenty-two seconds for the vertical and rotary. Without blind specks the nystagmus lasts only fifteen to twenty seconds. Rapid turning increases the duration. Patients of high nervous organizations have a longer reaction, and in neuresthenics we find a maximum duration. The practical point in the examination is the comparison of the duration of both sides. It has been found by repeated experiments that two-thirds of a nystagmus, let us say, to the right is produced by the right labyrinth, the remaining third coming from impulses from the left. Contrarywise two-thirds of the nystagmus to the left comes from the left labyrinth. If now we have a patient, who when turned to produce a right nystagmus, reacts with a shortened duration of it, let us say fifteen seconds, and when turned to produce a left nystagmus reacts with double the duration, or thirty seconds, we surmise a destruction of the right labyrinth; for both series of revolutions show the absence of impulses from the right side. This may be expressed graphically in the diagram:

Impulses from right labyrinth	= 1 1 1 1	Normal reaction
Impulses from left labyrinth	= 1 1 1 1 1 1	R. nystagmus.
Combined impulses	= 1 1 1 1 1 1 1 1 1 1	
Impulses from left side	= - - - -	Destruction
Impulses from right side	= 1 1 1 1 1 1	R. labyrinth
Combined impulses	= - - - 1 1 1 1 1 1	R. nystagmus.
Impulses from right side	= - - - - - 1	Destruction
Impulses from left side	= 1 1 1 1	R. labyrinth
Combined impulses	= - - - - - - 1 1 1 1	L. nystagmus.

The tract of the nerve impulses is from the canals through the vestibular nerve to Deiters nucleus. From here axones are sent to the nuclei of the eye muscles, from there they pass to the eye muscles direct. Those axones for the quick movement pass to the nuclei on the same side; those for the slow movement cross over to the nuclei of the opposite side. The motor ocular nuclei receive impulses via the corpora quadnigemina from the cortical eye centers on the opposite side. This is perhaps better explained by the diagram:



Scheme of tracts for horizontal nystagmus to the left side produced by the left ear.
— — — — tracts of quick movement.
+ + + + tracts of slow movement.

In testing a person who, by occupation, is constantly revolving in one direction, the normal reactions will not hold. Ballet dancers who whirl only in one direction, which is the rule, show great difference in the resulting nystagmus when turned to the right and left. When turned in the direction in which they are used to revolving the nystagmus is very small, as a consequence of their continual practice, and lessening of the reflex.

The cortical impulses from the opposite side, reinforce the quick movements and the result is that the nystagmus is always stronger when the patient is told to look in the direction of the quick movement—the direction of the nystagmus. It is in this position that the duration of the nystagmus is best tested.

If the patient has a spontaneous nystagmus in looking strongly to the right or left, a point in the arc of rotation is selected in which it is not present, and with the eye in this position the tests are made. Barany has devised an instrument to facilitate this, which consists merely of a head band with a movable ball-tipped rod, which can be swung and fixed to any point in the visual field. If the patient has a spontaneous nystagmus in looking strongly to the left, the rod is swung in the left field. The patient is told to regard the small ball at the tip as it is moved to the left. When a point is reached that produces the nystagmus, the arm is moved slightly back again to a point which does not elicit it, and the patient is observed carefully to see that no spontaneous nystagmus is present. He is then turned with the instrument in this position on his head, and as soon as the revolving ceases he is told to fix his regard upon the ball when the duration of nystagmus is noted.

As we have diverted to explain the physiology of the nystagmus, we will now return to the technic of the test. A revolving chair is used, which is best fitted with a stout iron rod running vertically up from the back of the revolving seat, six inches above the height of the average person's head, when he is sitting upright upon the chair. The surgeon is provided with a stop watch. If the light is not good he had better have his head mirror adjusted to throw an artificial light into the eye. The patient, for testing the horizontal canals, is told to sit erect with his head erect in the line of the axis of turning. The blind specs are adjusted, and he is told to look directly into them while being turned. He may hold the seat of the chair to steady himself. The iron rod is now grasped and the patient turned ten times, without accelerating or diminishing the speed. As soon as the turning is stopped the surgeon starts the stop watch. If he is being turned to the right, which produces on cessation of the movement, a nystagmus to left, the patient is told to look strongly to the left that the full duration and strengh of the nystagmus may be brought out. When the nystagmus ceases the surgeon stops the stop watch, and the duration is noted. The patient is then turned under the same conditions in the opposite direction; as the nystagmus will be opposite, he is told to look in the opposite direction when the revolving is finished, and the duration of this nystagmus is noted and compared with that of the previous test. It requires a little practice to say accurately when the nystagmus stops. This is because it gets slower, with longer intervals betwen the jerks as it fades away. With practice, however, the surgeon soon chooses the same relative time of cessation. By bending the head sharply ninety degrees forward the anterior vertical canals may be tested; or bending it ninety degrees over the shoulder the posterior vertical canals react. The reaction of one canal, usually the horizontal, is all that is practically required; as the finding in one holds for all three. The turning tests are used in conjunction with, or supplement another simpler method—the *caloric* nystagmus.

If you take any vessel containing a fluid, and chill one side of it, the fluid on the chilled side following the well-known physical law sinks and a current is established. Contrary-wise, if you heat one side a current in the opposite direction is established. This holds in the semicircular canals, the narrowness of which causes them to respond quicker than is the case in a relatively wider vessel. The anterior vertical canal lying just behind the promotory, and in the vertical plane allowing the rise and fall of the endolymph, responds to heat and cold even applied no closer than the membrana tympani. The results is, if cold is used upon the left side the endolymph sinks, a current to the left is established, and the nystagmus, contrary to the current, is to the right and rotary in character, as produced by this canal. The contrary holds if heat is applied. On the right side, cold produces a nystagmus to the left; heat to the right. A convenient formula to remember the reaction is: the nystagmus runs away from the cold to the opposite side.

The test is made by simply playing a small stream of cold water, or warm water, gently and slowly upon the drum, or into the middle ear for five minutes, with an irrigating syringe and a canula. If the labyrinth is normal the patient responds with a rotary nystagmus. If it is destroyed, no reaction is produced. The water must be colder than the temperature of the body. The ordinary tap water is usually the proper temperature to be used. If the patient has fever this must be remembered and a higher temperature of water used if hot water is employed. The warmest temperature of water that can be used in the ear is 48° C. It takes a little time for the nystagmus to be produced in this way—it usually commences about the termination of the syringing. The reaction takes place very promptly in patients who have had the radical mastoid operation performed, as the water is brought into immediate contact with the wall of the canal. If the drum is intact and is very thick, a longer period of chilling is necessary to get the reaction. In some cases, when a mass of cholesteatoma or polyps fill the middle ear, the caloric change may not reach the canal, and no reaction would result, in which event we would have to rely upon the turning tests alone. The rotary form of nystagmus is accompanied by much more nausea than the other forms. This

explains the fact which has fallen within the experience of all aurists that some patients become dizzy and nauseated when their ears are syringed out repeatedly—as for the removal of cerumen—and which always accompanied the hot air treatment for oto-sclerosis.

Quite a few cases have been observed in suppurative processes of the middle ear, when the bony wall of a canal has been disintegrated, but the endolymphaticum remains intact, and the labyrinth responds to the turning and caloric tests. This condition is diagnosed by the compression and rarefaction of air in the middle ear. A Politzer bag is used with a tip that fits accurately and tightly into the external auditory canal. When the bag is forcibly compressed the air is forced through the opening of the bony wall of the semicircular canal and against the lymphaticum, producing a current of the endolymph and the corresponding nystagmus. Rarefaction of the air produces nystagmus in the opposite direction. This is known as the *fistula test*. The direction and character of the nystagmus will of course depend upon the site of the opening. the canal involved.

It has been known for many years that the galvanic current with the poles on each ear, and a current as small as two to four milliampers, produced a nystagmus. This has been investigated, and it is found that with a current from fifteen to twenty-five milliampers and one pole held in the hand, the kathode on the right ear gives rotary nystagmus to the right; the anode on the right ear gives rotary nystagmus to the left. The effect of the current is on the nerve proper. It reacts to the galvanic tests when the labyrinth is destroyed. The normal tonus of each ear balances the other. The kathode heightens the excitability—katelectrotonus; the anode lessens it—anelectrotonus. Putting the kathode to the right ear heightens the excitability on that side, and gives us the corresponding rotary nystagmus to right; the anode lessens the normal tonus, swings the balance to the other ear and gives rotary nystagmus to the left. Inasmuch as the effect is upon the nerve proper, this test is not used in the practical surgical examination, but may be useful in locating a lesion.

Another phenomenon may be mentioned, although it is not employed practically on account of the intricate optical apparatus necessary for measuring it, is the tilting of the vertical meridian of the eyes in lateral movements of the head. If we look straight ahead, and tilt our heads to either side, the vertical meridian of the cornea remains upright during the movement. Barany found in patients with destroyed labyrinths 4 to 16 degrees tilting of the vertical meridian, when the head was rolled over 60 degrees; in deaf mutes the tilting was 1-8 degrees in the same tests.

Intracranial lesions affecting the nystagmus tract give rise to a spontaneous nystagmus. It is often seen in disseminated sclerosis, hereditary ataxia, meningitis and meningeal hemorrhage, cerebellar abscess and tumors, occasionally in sinus thrombosis, and a number of affections of the brain. Excepting in cerebellar abscess and in sinus thrombosis, there is not apt to be any coincident ear discharge to confuse the surgeon as to whether the nystagmus is central or labyrinthian in origin. The majority of cerebellar abscesses come from a suppurating labyrinth. The infection passing through the channel of the internal meatus and in these cases the labyrinth is, of course, involved. In a case of suspected cerebellar abscess, with a chronic suppuration of one ear, a nystagmus to the same side, the tests showing no irritability of the labyrinth on that side, we are safe in assuming that the nystagmus comes from cerebellar irritation, because the labyrinth producing it is destroyed. Intracranial nystagmus is continuous; that originating in the ear is intermittent. Sudden destruction of one labyrinth gives a continuous nystagmus to the opposite side, from the sudden removal of the balanced tonus. The nystagmus in this case diminishes, and after a time disappears. After a labyrinth operation the balance is regained in about four days; in pathological cases the disease keeps up the irritation and a much longer period is required, but the tendency of these cases of spontaneous nystagmus is to diminish, as distinguished from the intracranial variety. Cerebellar growths have no accompanying ear discharge as a rule, and the ataxic and other nerve symptoms enable the origin of the nystagmus to be placed. Nystagmus only results from sinus thrombosis late in the case, when abscesses of the brain or cerebellum have been produced, or a meningitis has set in. At this period it is of no practical value to ascertain the origin of the nystagmus, as the treatment would be unaffected by the findings. In the great run of cases, consequently, intracranial nystagmus will not lead to confusion in drawing conclusions.

The routine of making tests in a suspected case, when dizziness is complained of in a patient with ear symptoms—dizziness should always make us suspect labyrinth involvement—is first to use the cold water test. If a rotary nystagmus to the opposite side results we know that the labyrinth is functionating. In some cases when the membranous labyrinth is not involved the organ may functionate, but still have an opening in its bony wall. So we proceed to the fistula test. If compression of air gives a resulting nystagmus, an opening is present, or we have heightened irritability from lues. If there is a resulting nystagmus from the caloric test, and none from the fistula test, we conclude that the organ is intact and not involved in the suppurative process. If we have abnormal irritability from syphilis, the compression of air only gives a faint, small amount of nystagmus—with a fistula present there is a strong reaction to the test. If the cold water gives no responsive nystagmus, we conclude that the labyrinth is destroyed, or that some mass like cholesteatoma or polypi interfere with the test. We now try the turning tests. If the nystagmus resulting is shortened, and only half as long in duration in producing nystagmus to the affected side as that produced to the opposite side we must con-

clude that the labyrinth is destroyed; if the turning tests show a normal reaction, an intervening mass must have been present in the caloric test to prevent the action of the cold water on the canal. The destruction of the labyrinth would of course be confirmed by the functional tests of hearing. Caution must be exercised, however, to be sure that the good ear is safely cut out, for the ordinary method of sticking the finger in the meatus of the good ear does not prevent the bone conduction of sound from the normal side to it. Barany found that many ears which had been operated on, and the labyrinth absolutely destroyed, afterwards had apparently a little hearing on that side until he devised a special instrument, which successfully eliminated the good ear in testing the other, and he then corroborated what he expected to find: absolute deafness. He also found absolute deafness in destroyed labyrinths before operation, in which the tuning fork, speaking and speaking-tube tests would indicate a slight amount of function to be present.

The nystagmus is accompanied by a few symptoms, such as the apparent falling of objects, the patient's sensation of falling, his effort to maintain his equilibrium; nausea and sometimes vomiting. In highly sensitive patients we may have a sensation of color or darkness, pallor, sweating, trembling, and, rarely, loss of consciousness. These quickly pass off. The optical sensation of falling objects takes place during the slow movement of the nystagmus. If we take, for example, a rotary nystagmus to the right, the sensation occurring in the slow movement to the left, objects will rotate and fall to the right side. The sensation in regard to objects is stronger when the patient looks in the direction of the nystagmus, which increases the nystagmus. In some patients the optical sensation takes place in both the slow and rapid movement, and in these cases objects will oscillate instead of appearing to fall. The patient has the sensation himself of falling in the direction of the nystagmus; he throws himself in the contrary direction to balance himself, and thus actually falls in the opposite direction. The reaction of falling is in the same plane as the nystagmus and opposite to it; that is, in a horizontal nystagmus the patient falls or throws himself to the right or left, according to whether the nystagmus is left or right; in a vertical he goes forward or backward; and in the rotary he tends to sidewise rotation in the fall.

The number of cases of suppurative processes in the ear, in which the labyrinth is involved, is larger than we would at first suppose. The subject is too new for accurate statistics to be gathered and the percentage stated at present. In the Allgemeinen Krankenhaus in Vienna, the tests I have described are in the routine of the functional tests performed, and in that institution two or three labyrinth cases are continually in the wards. Some months ago they had a record of ninety cases. This in itself is sufficient to emphasize the fact that when searched for they are found more frequently than the aurist would suppose; and they explain the fact that every once in a while the aurist found a case in which after doing a radical mastoid operation, healing was long delayed; the labyrinth was involved and not drained.

In every case in which the labyrinth is involved in a suppurative middle ear process, it should be opened and drained at the time of the radical operation. If a fistula is found, the same operation is indicated, excepting in a case where the patient has very bad hearing in the other ear. In this event chances might be taken, in order to preserve his hearing, and, after searching for the opening in the canal wall, its edges may be curretted, and reliance placed upon it being sufficient for drainage. It is distinctly dangerous to do a mastoid operation when the labyrinth has recently become involved, without opening and draining the labyrinth. In these cases the inflammatory capsule is not sufficiently developed to prevent the exascerbation of the labyrinthitis by the trauma of the operation extending through the internal meatus and setting up a meningitis. Undoubtedly many cases of meningitis following mastoid operations were due to this process. Even in older cases of labyrinth involvement this danger is present, and consequently to obviate danger and to prevent a long drawn out process of healing, it should be radically treated at the time of the mastoid operation.

THE LEUKEMIAS AND ALLIED DISEASES.*

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It is my purpose to consider a group of diseases not very often encountered, but one of peculiar interest, both from the pathological and the clinical standpoint. The etiology of this group is still a matter of doubt, though more and more observers are granting the point that we are dealing with clinical malignancy and possibly pathological malignancy. To call a certain group of diseases malignant does not, of course, help in the ultimate solution of its etiology since the causes of cancer are still unknown; but to grant that they are malignant helps us at least in a classification, prognosis and treatment.

A list of the conditions referred to recalls at once malignant disease with gradual transitions to the ordinary sarcoma. This list comprises the following diseases: Lymphosarcoma, leukosarcoma, chronic lymphocytic leukemia, chloroma, Hodgkins' disease, and other forms of pseudo leukemia, chronic myelocytic leukemia, myeloma. I shall attempt to offer proof that they are essentially malignant. Some show in their course an increase of various white cells in the blood, and it is this impression of increased leukocytes that is dominant in the minds of most physicians. I shall attempt to show that the importance of the blood picture is over-accentuated. I shall also try to show that the ordinarily accepted blood picture is not absolutely

*Read before the Cooper College Science Club.

pathognomonic, but is rather that of a biological reaction.

I have deemed it wise to recall certain features of these diseases especially the rare ones by means of clinical histories. I shall first recall the disease "chloroma,"—a case of which was reported to me by Dr. Feheleisen. The patient, a boy of eleven years of age, was seen on May 2, 1907. At the upper outer quadrant of the right eye a nodule was felt resembling an ordinary dermoid cyst. On the following day this was incised and was found to be solid—of a decided grass color, adherent to the periosteum. The pathologist's diagnosis was chloroma. On May 7, 1907, the eye, periosteum of the orbit, and the portion of the bone where the tumor originated were removed. On August 10th, three months later, small nodules were seen in the operation scar. In September practically all the glands of the left side of the neck were found swollen. Patient died November 15th, six and one-half months after the operation.

A most interesting case of chloroma, and a comprehensive consideration is to be had by Port and Schultz.[5] A boy, sixteen years old, died with the disease one month after first being seen. Blood showed twenty per cent hemoglobin, 740,000 red cells and 44,000 white cells. Most of the leukocytes were of the problematic and many named variety ordinarily called the large mononuclears. The lymph glands of the trachea and bronchi were grass green, and also tuberculous. The marrow of the long bones and the affected glands showed many large mononuclear cells believed to be myeloid and they regarded the case as a chloromatous, acute myeloid leukemia. They are of the opinion that the term has been used to include various sarcomata and hyperplasia. The only common feature being the grass green pigmentation.

That marrow cells may show definite malignancy is seen in the disease myeloma. The symptoms being fragile bones, neuraligic pains, intermittent fever, albumosuria uria, the latter is not necessarily pathognomonic being seen also in sarcoma of bone. A typical case of myeloma will be mentioned—one is described by Pirmin.[10] A man of fifty-six years had sciatic pains for seven years and pains about the chest for one year and a half. When examined he showed slight sensitiveness along the lumbar regions. Death followed after diagnosis of spondylitis. On the second and third lumbar vertebræ and pushing against the cauda equina was a soft colored tumor the size of a hen's egg, proceeding from the bodies of the vertebræ and definitely invasive in character, growing up into the intra vertebral pads. On the inner side of the sixth and seventh ribs a pigeon egg size tumor destroying the bone. On the manubrium a similar tumor the size of a fist. The other portions of sternal marrow showed similar change of less degree. Blood vessels showed no leukemic blood. Microscopically these tumors were made of large non-granulated cells with round central nuclei identical to the myeloblasts, and so regarded. Metastases in the other organs were nowhere demonstrable. Here then is a systematic disease of the bone marrow showing itself in widely scattered parts never, however, beginning outside the osseous system. In this disease marrow cells show a capacity for malignancy, and the disease is quite comparable to lympho-sarcomatosis.

The nature of the leukemias has long been a vexed question, and the pith of the matter is this. Shall we consider the enormous production of new cells in the blood and the blood forming organs as a simple hyperplasis as for instance we see hyperplasia in infective granulomata, or shall we consider it as evidence of malignancy? The difficulty of the problem is increased histologically owing to the fact that we are dealing with the hemopoetic systems, the cells of which normally do not show a high grade of differentiation. Embryologically th myeloid and lymphatic tissues are developed separately, though the two tissues are found associated in organs such as lymph glands and spleen. In the leukemias one or the other of these two systems, not both, shows excessive growth. Physiologically this kind of dualism persists in the blood itself. Even in the leukocytosis of different diseases there is a sort of balancing by these cells of marrow and lymph gland origin. As the cells of marrow origin increase in the blood there is an actual decrease in lymphocytes, and as the polynuclears, and large mononuclears diminish there is an actual increase in lymphocytes until the normal cell equilibrium is again attained.[15] The disease is not limited to man, but has been seen to occur spontaneously in dogs, horses, pigs, cattle, cats, mice, and even in the hen.[4]

In this disease, leukemia, in the marrow, spleen, lymph glands, or wherever lymphatic tissue occurs, according to the form of the disease and the organ involved, one sees a great accumulation of different ripe and unripe cells, large mononuclear cells, myelocytes, eosinophiles, basophiles, polynuclear neutrophiles, and lymphocytes. This accumulation of cells has been variously construed. The older view still held by most observers is that this tissue represents a hyperplasia of the germinal cells of the blood-forming apparatus. In other words, those cells from which the myelocytes, polynuclears, and eosinophilic leukocytes are derived, the more or less primitive non-specialized cell tissues, show a hyperplasia. The cause of this hyperplasia is not known. Pappenheim [1] has lately described in one instance, structures within the leukocytes suggesting protozoa. Lowit described in 1898 what he thought was a sporozoa showing ameba-like motion, and believed he reproduced in rabbits a similar disease by inoculation. [18] Spirochetes as a cause of lymphatic leukemia and Hodgkins' disease has been claimed by White and Proscher. [19] The relation to trauma has been insisted on by Ebstein. [20]

Certainly a disease involving so many different organs and finally fatal is not the usual picture of hyperplasia. Even Pappenheim, who adheres to the older view of leukemia as a hyperplasia, acknowledges the existence of sarco-leukemia in which, with leukemic blood, aggressive and invasive growths occur actually malignant. In the early part of the present decade several observers ex-

pressed the view that the process was essentially malignant, and this view is gaining ground. Even in the present year Dietrich [11] has described in Hodgkins' disease a granuloma-like sarcoma of the lymph glands with definite growth in the surrounding connective tissue and veins. Chiari has likewise noticed the change of lymph gland hyperplasia, so called, to sarcoma. From a large mass of material it must be granted that a widespread sarcomatous change practically limited to the lymphatic system can occur, the more ordinary examples of which are the two conditions known as leuko-sarcoma and lympho-sarcoma.

The tendency is to regard the leukemias and pseudo-leukemias in much the same way; that is, as a sarcomatosis. In this connection I will mention the two interesting theories, of Banti and Rippert. Banti's [2] idea is that the leukemia and Hodgkins' disease are essentially malignant and sarcomatous, myeloid leukemia being a myeloid sarcomatosis of those parts, particularly the lymph glands and spleen. The changed blood picture is due in the case of the leukemias to the invasion of the blood channels of the blood-forming and lymphatic organs by the new cells, essentially tumor cells. Hodgkins' disease, according to this view, would be essentially the same as lymphatic leukemia, except that this invasion of new cells into the peripheral circulation has not occurred. That the blood picture of Hodgkins' disease may change to that of leukemia is well known. And we also know that in the case of an ordinary leukemia a recession may occur, during which period the blood approaches normal. The relation of Hodgkins' disease to the leukemia is easier understood by using this theory, for by thrombosis of the invaded blood vessel we can imagine the blood picture to change. The erosion of blood vessels by new-formed cells also explains the appearance of a leukemic blood in cases of lympho-sarcoma according to Pappenheim. [24] And such erosions or invasions have been often seen by many pathologists.

According to the second theory, that of Rippert, the etiology of the leukemia has to do with malignancy and the parasitism of human cells. A parasite need not of necessity come from outside the body. Cells of the body itself contributing nothing to the physiological needs of the organism, growing independently at the cost of surounding parts and capable of being transplanted and growing at their new site, are in reality parasitic. The less differentiated the cell the greater its possibility of growth. Carcinoma is thus a parasitic growth of displaced epithelial cells. Now the granular leukocyte and especially its progenitors, the less differentiated myelocytes, show many resemblances to single cells, parasites—protozoa, for instance. And under certain unknown conditions, these marrow cells taking on parasitic features, escaping the normal restraint of connective tissue and bone structure, grow lawlessly, enter the blood vessels, are carried into different organs and there multiply. Myelocytic leukemia is thus nothing more than a parasitic growth of marrow cells. Leukocytic leukemia, a parasitic growth in the germ cells of the lymphatic organs.

The question of malignancy or hyperplasia has largely to do with the three points. First, are atypical cells seen in the disease; second, are metasteses found; third, are invasive and aggressive growths observed. The first question can not be satisfactorily answered. In myelocytic leukemia, large cells of abnormal size sparsely and of unusual granulation are regarded as atypical. They are usually called non-granular myelocytes, myeloblasts, or plasma cells. In lymphatic leukemia, both acute and chronic large mononuclear cells in the blood has been so confusing that it was believed that mixed forms, myelocytic and lymphatic leukemias, occurred simultaneously. These large cells are now regarded as myeloblasts, or lymphoblasts. This atypical feature has been particularly noted by Sternberg [9] in his conception of the large cell lymphocytic leukemia, as leuko-sarcoma; others find this large cell present in all forms of leukemia, and under observation the small cell form may change to a large cell form, or the reverse may occur. The question still remains whether these myeloblasts, lympho-blasts or plasma cells are sufficiently foreign or atypical to be called tumor cells.

As to metasteses, we commonly observe in this group an involvement only of the hemopoetic tissues; naturally this growth of new cells, limited to only one tissue, does not agree with the commonly accepted views of metastatic growths. The question is made more difficult of solution by the widespread normal occurrence of lymphatic tissues in all the organs, so that we can not always be sure that certain leukemic tumors which develop in such organs as the liver, kidney, and skin, are not due to the growth of lymphatic tissue already present. In myelocytic leukemia, Banti cites the growth of myeloblasts in the parenchyma of the lungs which could not have developed from tissues normally present. While Rippert regards the enormous increase in the pulp of the spleen as transplanted myeloblasts multiplying as parasitic cells in the spleen pulp. That the large mononuclear cells, myeloblasts or lymphoblasts, do not show metastatic growths in the different tissues, may be theoretically explained as follows: Firstly, we are dealing wtih a sensitive, non-resistant fragile cell. Its susceptibility to chemicals and X-Ray as compared to the other more mature blood cells has been often proven. Secondly, that growths are observed only in previous existing hemopoetic tissue may be due to certain qualities alone possessed by these tissues and necessary to the large mononuclear cells' growth. In other words, in this tissue we may have a tissue of predilection. We see commonly how important this matter of predilection is in malignancy by the growing of metasteses from certain malignant tumors. Bone metasteses in cases of prostatic and thyroid cancer are notoriously common. Uterine carcinoma, for instance, shows bone metasteses in about 3½ per cent. Thyroid cancer, on the other hand, shows bone metasteses in about 20 to 25 per cent. [25] The tendency of melanotic tumors to develop in the liver is another instance of this predilection. Leukemic

tumors commonly observed in the liver, kidneys, and skin, are regarded by some as true metasteses.

As to the third feature, invasive and aggressive character of the cell growth in the leukemias, this can no longer be doubted. From the involved gland in lymphocytic leukemia and Hodgkins' disease, the growths often push through the capsule, invading neighboring fat, connective tissue, bone, muscle and blood vessels.

What a definite feature this is in Hodgkins' disease is shown in the study by H. W. Gibbons [14] of six autopsy cases, in all of which there was some invasion of the gland capsule, and in three invasion of adjacent structures, bone and veins. A similar finding is reported by Dietrich[11] in Hodgkins' disease. Such invasive growths have also been found in chronic leukocytic leukemia by Lehndorff and others. Lehndorff, [8] for instance, describes a lympho-sarcoma of the anterior-mediastinal lymph glands and thymus, invading the pericardium, left pleura and lung, showing lymphocytic blood. And it is this coincidence of leukemic blood and undoubted sarcomatous growths in the lymph glands, in which, however, the structure of lymph gland is still imitated, that justifies the conception of leuko-sarcoma.

Fabian, Naegle, and Schatiloff [6] do not write of lymphatic leukemia as malignant. But in the protocols of eight cases the capsules of the glands have been invaded in six. They acknowledge that there are forms of leukemia with partial lymphosarcomatous-like growths. The invasive character in the case of myelocytic leukemia is not so easy of demonstration, though this too has been claimed, for instance by Banti. And even though the capsule of the involved organ has not been invaded aggressively, the destruction of certain parts of the organ, such as the lymph follicles of the spleen, the thymus follicles, the fat of the marrow by myeloid cells, has been repeatedly noted.

There can be no doubt, then, from pathological evidence that all gradations occur between distinct sarcomatous growths, such as lympho-sarcomas, and the ordinary leukemic growth, the lymphomas. And the same gradations are seen between sarcomatous growths, such as leuko-sarcoma, and pseudo-leukemia. Between leukocytic leukemia and myelocytic leukemia, and between leukocytic leukemia and pseudo-leukemia, there are the same easy gradations. The unity of the group can hardly be questioned.

From the clinical standpoint the malignant nature of the leukemia is somewhat more apparent. We usually see a progressive and chronic cachexia of insidious onset, the cause of which is not known. Fatal in a few months or from three to five years. In this long course the cachexia, whether caused by toxemia or not, is certainly not accompanied by the symptom complex of fever. Nor is it accompanied by pus, nor caseous formations. In the later stages with pronounced anemia, fever commonly occurs; but for years the disease may progress slowly without fever.

Physical examination of the patient, or the history of the patient, gives no clue to infectious processes in organs outside the ones directly involved. This is in distinction to the ordinary infective granulatoma, i. e., actinomyocosis syphilis, and tuberculosis.

As if the very progress of the disease were proportionate to the growth-energy of the cell, the younger the patient the worse the prognosis. M[illegible] of the acute cases have been found in children. In forty-eight cases of lymphocytic leukemia, in Cabot's [1] series, not a single acute case occurred after the age of fifty-one. A patient of mine, now sixty-six years of age with myelocytic leukemia, has had the disease for over three and one-half years. A man who died at the age of fifty-six years of lymphocytic leukemia, observed by Fabian, had had the disease for eight years. [6]

The various therapeutic agents of value in the process have also been known to act favorably in cases of undoubted malignancy. It has long been known that after an intercurrent infection, from which the leukemic patient recovers, there is temporary improvement, commonly seen, for instance, after such acute diseases as influenza, follicular tonsilitis, acute laryngitis. Taking this cue from nature, the attempt has been made with more or less success to inject various toxins into the patient. This has been followed by only slightly encouraging results. Koch's old tuberculin in large doses, as much as eighty milligrams at one dose, with or without arsenic, has been used. [16] Larrabee [17] has used the mixed toxins of Coley (streptococci and prodogiosus) and also killed colon bacilli cultures. Nothing as effectual as the X-ray has, however, been found.

Now, the improvement of an infectious disease by the simultaneous occurrence of another infectious disease is a phenomenon unknown to us; on the contrary, we protect even our chronic infection cases as much as possible from other infections. It is true that the diphtheretic membrane in the throat has been smeared with products obtained from pyocyaneous cultures because of its desired digestive action, and yeast has been used in treating different pyogenic and gonorrheal infections; both of these, however, are instances of local action, and both organisms are ordinarily of low virulence. But in true cases of malignant disease, intercurrent infections, and also the introduction of toxins, have been known to work a beneficial change. Cancer has, for instance, been known to improve even to the point of spontaneous recovery after such infections. [23] Coley's mixed toxin has been known to help in the treatment of sarcoma.

In the X-ray we have the most potent agent in the treatment of leukemia. After its use one of my patients with myelocytic leukemia was practically well for thirteen months. Though doubted in some quarters, [27] it is generally accepted that this action is associated with the production within the patient's body of a leukolytic body or bodies. So that the serum from such a patient, injected into a patient not under X-ray treatment, will cause a drop in the number of white cells. Eventually, however, the patient receiving the injection, and also the patient

receiving the X-ray, seem to develop immunity, and the favorable action wears off.[21-28] On cancer, X-ray acts beneficially, superficial epitheliomas, it causes to disappear in about 66 per cent. Deeper lying cancers are not nearly so often favorably influenced, but ulcerations are healed, pain reduced, and the tumor lessened in size. Sarcoma and even lympho-sarcoma of the deeper parts have been similarly cured or alleviated. Indeed it is in such rich cellular tissue with lessened stroma and rapidly growing, that we would anticipate a favorable action from X-ray.[22]

Rather as a corollary, one considers the blood picture in this group of diseases; ordinarily malignancy runs without leukemic blood findings, so that the blood picture which we see in leukemia rather influences us in believing that we are dealing with different phenomena. One does well, however, to believe with Lehndorff,[8] who states that too much importance has been attached to the blood findings. He states that a symptomatic leukemic blood may occur besides the ordinary form, for it is undoubted that sarcomatous cases have been observed with leukemic blood (leukemia sarcomatosa; lympho-sarcomatosis-leukemica). The blood changes are rather accidental, clinically interesting and important. Two great pathologic groups occur associated with lymphocytosis, pure hyperplastic leukemia and leuko-sarcomatosis. His case, already cited in speaking of invasive growth, is in strong contrast with Gibbons' cases, without leukemic blood.

The question of how much importance to attach to the blood picture particularly concerns acute leukemia; for neither the clinical picture of this disease nor the pathological findings in many reported cases resemble malignancy. And the effort to explain leukemias as malignant diseases, is somewhat weakened if we attempt to explain the acute cases on the same basis. Undoubtedly some of the reported cases represent terminal and secondary infections occurring in the course of chronic leukemia; many, for instance, have shown endocarditis or pleurisy.

Cases of acute leukemia running a typhoidal temperature, with little if any enlargement of lymph glands or spleen, with severe inflammation of the mouth and pharynx, oftentimes of a few days to a few weeks' duration, always under nine weeks according to Ebstein's arbitrary limit these cases do not resemble closely the ordinary chronic leukemia, but resemble rather an infectious disease of the bone marrow, as noted by Emerson.[12] This view of acute leukemia, that acute leukemia is a different disease from the chronic form, and that one is not justified as regarding them as the same, because of the leukemic blood found in both, is held by several writers, Bradford, Barlow, Osler, indicating the fact that the blood picture is not necessarily pathognomonic.

Then, too, in many cases the blood picture changes; in the presence of a severe, acute, complicating infection the leukocytes rapidly fall. In one case of myelocytic leukemia ending with miliary tuberculosis, we observed a drop from 300,000 to 6,000 cells in five weeks. Seen during the latter period, the exact diagnosis from the blood alone is impossible from aplastic anemia or Hodgkins' disease. Other reasons also can be given which rather detract from the importance of the blood picture in this group of diseases. Certain cases have been described in which, with leukemic blood, leukemia was certainly not present. Simon,[29] for instance, found such blood with multiple fracture of the leg, and as these fractures healed, the blood picture became normal and stayed so. As early as 1868 Mursick[30] described a case of leukemia developing five days after amputation at the knees following gunshot wound. Section showed osteo-myelitis. We are inclined to think that some of the cases attributed by Ebstein to trauma can be explained on this basis. In fact, myelocytes may enter the blood in numbers in various conditions accompanied with myeloid change in the marrow, lymph glands or spleen, thus giving a high leukocyte count and resembling myelocytic leukemia. This picture may be obtained in some cases of diphtheria and scarlet fever, or in very severe anemias from any cause.

The blood picture of chronic lymphocytic leukemia is seen in pertusses in which the leukocytes may vary from 20,000 to 40,000, the main increase being in the lymphocytes. Congenital syphilis has been known to imitate very closely the same picture. Finally, it must be granted that ordinary sarcoma may be accompanied by the blood picture of leukemia, even when the bone marrow is shown to be normal.

All in all, then, we feel like accenting the statement that the ordinary blood picture of the chronic leukemias as we now understand it has been observed in other conditions, and the converse is likewise too; for leukemia has been repeatedly proven at the bedside and autopsy table minus the usual blood picture.

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Discussion.

Dr. Henry Walter Gibbons: In connection with the paper of Dr. Harris, I will show three slides from cases of Hodgkin's disease, of which I made a study several years ago. At this time an important article appeared by Dr. Reed, which seemed to prove conclusively that Hodgkin's disease, tuberculosis and syphilis of the lymph glands are distinct diseases. But Dr. Reed took the view that the lesions of Hodgkin's disease are due to a reaction in the tissues in the nature of a chronic inflammatory process. This view was held by Longcope and Simmons who wrote articles confirming Reed's views. Our study led to the view that Hodgkin's disease is to be classed with malignant tumors. I have brought several slides which illustrate some of the points which lead to the conclusion that this is a malignant process. In this slide taken from one enlarged gland note the picture presented, structure of lymph gland destroyed, proliferation of connective tissue, proliferation and enlargement of the endothelial cells, the large size of the lymphocytes, and the peculiar giant cells. A picture that resembles a sarcoma much more than any of the inflammatory granulomata. This slide shows infiltration of the gland capsule by the cellular mass within, which is seen breaking through the capsule in one place. Here is seen a metastatic nodule in the periportal tissue of the liver. It is infiltrating the wall of a vein and extending into its lumen. This condition was observed by Reed and Simmons. Another section shows a metastatic nodule in the lung, of the same characteristics, and existing where no normal lymphadenoid tissue has ever been found. Since Dr. Reed's paper the pendulum has been swinging and more and more Hodgkin's disease is being regarded as a malignant disease. Coley, with his vast study of sarcomas, has come to believe this way. Banti and Dock are adherents. The recent text books are more conservative with the exception of Adami, who admits of no grounds for considering Hodgkin's disease other than an inflammatory process. The cases which we studied are clinically and histiologically Hodgkin's disease, while two had tumors of a decided malignant nature. This led to the conclusion that Hodgkin's disease and lymphosarcoma are allied, if not stages of the same process. My work did not extend to all the diseases discussed by Dr. Harris, but it is interesting to note the tendency in the classification of these diseases. Dr. Harris is to be commended upon the great amount of work he has done and the great number of authorities he has consulted in prefacing his interesting paper, and his conclusions are evidently derived from the latest and best work done upon the subject.

Dr. Hanson: I remember seeing lately that Forchheimer has written an article with regard to the treatment of this disease, which would follow out the lines under discussion. He uses four or five or six different remedies, including iron and arsenic and particularly X-ray, giving the foremost place to the X-ray treatment. In connection with this matter, he states that it has never been within his knowledge that a case of leukemia has been cured.

Dr. Harris (closing): The fact that leukemia is such a hopeless disease in itself, so far as treatment goes, is another analogous point to the malignant diseases. The other diseases are not included because they seem to be different. Pernicious anemia, both with its blood picture and changes in the marrow, has been experimentally reproduced by injections of ricin and there is a great deal to make us believe that it is an auto-intoxication. There is no essential production of new cells. The great heaping up of cells in the tissue such as we see in the spleen in leukemia is not seen in pernicious anemia. Leukanemia seems to be an atypical form of leukemia, so this classification would include them all.

THE INFLUENCE OF CLIMATE UPON TUBERCULOSIS; WITH REMARKS ON THE CLIMATE OF COLFAX, CALIFORNIA.*

By ROBERT A. PEERS, M. D., Colfax.

Mr. Chairman and Gentlemen: Your Chairman of the Committee of Arrangements, Dr. Phillip King Brown, suggested that, in addressing you on the subject of tuberculosis, I refer to our Colfax climate in such cases. It had been my intention to write upon "The Early Diagnosis of Tuberculosis," or upon "The Study and Prevention of Tuberculosis"; but after receiving his suggestion I thought perhaps it might be of interest to the members of this Association to present to them not only a few facts relative to Colfax and its climate, the inducements it presents, and also the disadvantages it offers to the tuberculous, but also to make mention of a few observations made by me during the time that I have been paying particular attention to the study of tuberculosis and the treatment of the tuberculous.

But before speaking of the climate of Colfax and vicinity, I would like to say a few words as to the part climate plays in the treatment of tuberculosis. For centuries certain localities were supposed to possess almost specific curative powers for the tuberculous and from very early times patients with consumption were sent to such localities; and even to-day among the laity, and also a large part of the medical profession, the first thought when it is discovered that a patient has tuberculosis is, "Where shall he be sent?" On the contrary, there are many men who would go to the other extreme and claim that a tuberculous patient will do as well in one locality as in another. It is but another case of the pendulum having swung too far in the other direction. Most men, however, who have studied the question of climate in its relation to the treatment of tuberculosis are agreed, I think, that, while climate plays an important part, it is really secondary to other considerations, and that its value should not be allowed to overshadow other and more important factors, as, for example, a well-regulated daily routine and competent medical supervision. Speaking on this subject, Knopf[1] of New York says: "I do not deny the beneficial influence of certain climatic conditions on the various forms of phthisis, but I do not believe that there exists any climate with a specific curative quality for any kind

* Read before the Pacific Association of Railway Surgeons.

of pulmonary tuberculosis. Climate can be considered only a more or less valuable adjuvant in the treatment of consumption, but not a specific."

Sir Hermann Weber,[2] in an address before the Tuberculosis Congress at Berlin in 1899, after giving numerous indications as to choice of climate for pulmonary invalids, remarked: "The cure of tuberculosis during the early stages is possible in all climates. But climate itself, without careful medical supervision, is generally insufficient. The patient's blind reliance on the climate often leads to errors, to aggravation of the disease, and to death."

Dr. Lawrason Brown, of Saranac Lake, quotes Sandwich,[3] who says: "Every man who lives in a health resort becomes early inoculated with the microbe—I do not know its Latin name—but it means the microbe of universal belief in the place in which he lives." Lawrason Brown [4] himself says: "There is no specific climate for pulmonary tuberculosis, and a good climate alone is of no avail. . . . Without doubt many of the effects attributed to climate can be ascribed to change of climate. Change from a 'good' to a 'bad' climate often produces excellent results." He also says: "The ideal place for a patient with pulmonary tuberculosis should possess purity of air, a dry, porous, salubrious soil, good potable water in sufficient quantities, good sewage disposal, relative protection from winds, and such a temperature that a patient can spend hours out of doors without discomfort. Abundant sunshine, infrequence of fogs, the peristence of snow, if it occur throughout the winter, are all of value."

Burton Fanning,[5] in his work on "The Open Air Treatment of Pulmonary Tuberculosis," writes: "The exact regulation of the patient's daily life is the essential point in treatment, and the precise climatic conditions under which the proper life is led are a consideration of secondary importance." He is led to make the above remarks after telling that "the most diverse climatic conditions are recommended for the same form of the disease, and the curious spectacle is witnessed of the patient from the East being sent to the West, and the dweller in the West being ordered to the East."

Latham,[6] in his work on "Diagnosis and Modern Treatment of Pulmonary Consumption," quotes Osler, who points out that "in the Blood Indian Reserve of the Canadian Northwest Territories there were, excluding diseases of infancy, 127 deaths —or 23 per cent of the total rate—from pulmonary consumption during six years in a population of about 2,000, and that in a tribe living in one of the finest climates of the world—at the foothills of the Rocky Mountains." If your time and patience would permit I might quote you many others who agree with those already quoted that climate, while a valuable adjunct, must not be allowed to usurp the place rightly held by hygiene, diet, teaching and supervision.

But while granting other measures their proper place, we must not deny that climate, or change of climate, if you will, does have a marked effect upon tuberculous patients. "To the observer in the health resort," says Minor,[7] "the evidences of the beneficial effects of climate are so many and so apparently irrefutable; he so constantly has occasion to see them and to be convinced of their reality, that he has difficulty in understanding how they can be doubted." And again, speaking of the effect of climate on advanced cases and those with mixed infections, he says: "They far surpass the very best results obtainable in similar advanced cases in our cities on porches or roof gardens, and the rapid relapses which in such advanced cases follow their return to ordinary climates are only another testimony in the same direction." That the above remarks are true has been proven to me many times by cases coming under my personal supervision. It is a not infrequent occurrence to see a patient who, at home with good medical attention, was going down hill steadily, come to the foothills and commence at once to gain both appetite and weight; while the manner in which the cough and expectoration lessen, the night sweats cease, and the patient takes on a feeling of general wellbeing seems at times almost marvelous. Only too many of them, however, either against advice or without it, return to their old environment and climate only to relapse sooner or later.

Granting, then, that although certain climates exert a favorable influence upon the course of tuberculosis, they are really of secondary importance, we will proceed to discuss some of the favorable and unfavorable features of Colfax as seen by me. I intend to discuss the unfavorable features, because no climate or location is ideal, and I think that a fairminded portrayal of the climatic conditions (so far as one can do so) is the only course open to any member of the profession, and it is only by giving you complete details that you are enabled to decide whether or not you wish to send your tuberculous patients to such a climate and location.

Colfax is a town of about 500 or 600 inhabitants, situated in the foothills of the Sierras, in Placer county, on the main line of the Southern Pacific Railroad, 144 miles east of San Francisco, and is a junction town, being one of the termini of the Nevada County Narrow Gauge Railroad to Grass Valley and Nevada City. It has a postoffice, express, telegraph and long distance telephone stations, and has as good railroad facilities as any town between Sacramento and Reno, all trains being required to stop for inspection. It has a good public school of nine grades with three teachers. There are two churches, Roman Catholic and Methodist Episcopal, a bank, three general stores, two dry goods stores, a good butcher shop, and a first class drug store. There are three good hotels, all lighted by electricity, where rooms can be obtained with baths, hot and cold water, call bells, and all serving good wholesome meals at reasonable rates. The charges range from $8.00 to $17.00 per week. I make mention of the telephone, telegraph, express and railroad facilities, together with facts relative to bank, churches, and schools because they all have their bearing upon the subject. They may seem but small details but it is the attention to the small

details and the little conveniences that frequently makes the difference between success and failure in the treatment of tuberculosis. The importance of good stores, butcher shop, and drug store is obvious. I mention the hotels because it is necessary that the tuberculous patient and his friends should have somewhere to stay while looking for more permanent quarters. As permanent quarters for the tuberculous, hotels, as a general rule, are unsatisfactory, there being too much noise, too many temptations to relax on discipline, and an inability to supervise the menu to the extent possible in private houses. Hotels are primarily for the well and for these Colfax possesses first-class accommodations.

The elevation of Colfax is 2422 feet, practically the same as Tucson, Arizona, and Liberty, N. Y. It is high enough to escape fogs, there being very few days in the year that are foggy, so that nearly every day when rain is not falling is a day of sunshine. It is also below the snow line, very little snow falling during the year. This, of course, is not so important as the absence of fog.

The climate itself is such that one can live the out-door life during the entire year without discomfort. That, in my mind, is of more importance than exactly how warm or how cold the weather is, or the presence of fog, snow, rain or sunshine. While there is no doubt that patients can spend the entire day out of doors even during the rigorous Eastern winters, the many discomforts attached thereto and the precautions to be taken render such a life one requiring much self-denial. The climate, which allows the maximum number of hours in the open air, with the least physical discomfort approaches, I think, all other things being equal, more nearly the ideal than any other. In order to be able to speak positively on the matter I have prepared a table showing the average temperature of Colfax at 2 p. m. during a period of seven years, and also the average temperature for 7 a. m., and 9 p. m. for a period of three years. These tables are based on calculations made from records taken by Mr. Morris Lobner, Southern Pacific agent at Colfax, being collected by him for the State of California. Glancing at the table we see that the average temperature for the three years was at 7 a. m. 54.6° F.; for seven years at 2 p. m. it was 69.1°, and for three years at 9 p. m. it was 57.6°. Lack of time prevented me from making all calculations for a period of seven years.

Table No. 2 shows the relative humidity calculated from readings in the dry and wet bulbs at 2 p. m. for a period of one year. Owing to the great amount of labor involved in personally figuring out the relative humidity by aid of Glaisher's table and the table of Tensions I can give you the humidity for only one year and for one reading only during the day. According to the table presented the average relative humidity was 47.7%. I have here also table No. 3, which gives the rainfall during a period of seven years and shows the annual precipitation to be 47.062 inches.

Any place where invalids are sent to recuperate should have plenty of good water for domestic and other purposes. Being situated in the Sierras with two large ditches bringing water from the mountains, and with a number of local companies supplying water, obtained from tunnels which tap a mountain behind the town, Colfax has plenty of water for domestic purposes. There is in contemplation at the present time, the construction by the South Yuba Company, of a large reservoir behind and above the town which when completed will give Colfax a most abundant supply of water for all purposes.

Every climate and location has its disadvantages and Colfax is no exception. Those that I would mention are four in number: first Colfax is not an incorporated town. This, of course, is a disadvantage in the matter of enforcing health laws; but we have carried on such a campaign of education in the matter of tuberculosis that any patient suffering from that disease seen expectorating in forbidden places would very soon be enlightened as to his duty toward his fellow men. As to the activity of our health officer along other lines I can refer you to Dr. N. K. Foster.

Second: Colfax has no town sewer system. This is to be regretted but it is expected that with incorporation, which we look forward to within the next year, that we will also have proper sewerage.

Third: We have no herd of tuberculin-tested cows. This will come as a result of further education of the people on these matters and with the passage of State laws. However, I will say the cattle are in the open air practically all of the time, that the dairies are well kept, and the milk supplied is of excellent quality.

Fourth: There is no boarding-house under the care of a person experienced in cooking for and caring for tuberculous patients. We need more people to cater to the wants of the tuberculous who understand thoroughly and practice daily the gospel of fresh air, hygiene, proper diet, rest, and other essentials for the cure of tuberculosis. To overcome this difficulty I have secured permission from the owner of a tract of fifteen acres, to erect cottages which can be leased to patients for $10.00 per month. The location of these grounds is on the edge of the town, protected on the north by a high mountain and commanding a beautiful view of magnificent mountain scenery. For any one who has a nurse, or relative, to cook for and wait on him, and who is willing to place himself under direct medical supervision, the owner of the land will build a model cottage according to plans furnished by me and copied from similar buildings observed by me at Saranac Lake, Gravenhurst, and other places. We have two such cottages at present and we expect to add more in the near future.

Before closing I would like to make a statement regarding the freedom of the townspeople from tuberculosis. In the past twenty-two years there have been but three deaths from tuberculosis among the regular inhabitants of Colfax. This I gained from the records of the undertaking establishment. You may say that many deaths may have been wrongly registered but I can state positively that

in the nine years in which I have lived in Colfax there has been but one death from tuberculosis among those who were permanent residents, and had lived in Colfax for five years prior to death.

In closing I would like to enumerate a few points that have been forced upon me during my residence in Colfax.

First: With proper care as to hygiene, diet, rest, and supervision, patients with incipient tuberculosis will, in the majority of cases, recover in almost any climate. Such a case will, however, make more rapid recovery if sent to some health resort, where the above-mentioned care can be obtained, and not a little of the benefit thus derived is due to the change of surroundings, instead of to the climate itself.

Second: You had better keep your tuberculous patient at home, under your own care, no matter how unsatisfactory the climate, rather than send him to the best climate in the world and allow him to shift for himself. Every tuberculous patient requires medical care as much as a case of typhoid fever. Many cases of typhoid would recover without a physician, but that is no argument in favor of neglecting to furnish a typhoid patient medical attendance. The same holds good for tuberculosis. That the patient is without means to employ a physician is no excuse, because any doctor will take care of such an one free of charge if he has but a word from the family physician.

Third: Never send a patient to a health resort who has not sufficient means to support himself without work or worry for several months. Your patient would be better at home in a trying climate with the little luxuries and comforts that could perhaps be purchased, than to be sent to an ideal climate and not have sufficient means to live comfortably.

Fourth: Never send a tuberculous patient to the mountains with advice to "Get out in the open air and rough it." That advice is daily given to such patients and is daily killing them.

Fifth: Never send your tuberculous patient away with the idea that he has stomach trouble, bronchitis, throat trouble, or even weak lungs. Tell him he has tuberculosis of the lungs, that it is a preventable disease, and frequently curable if taken early and proper measures adopted. If you do that you will not scare your patient to death and you will prevent his hating you when he finds out the real trouble. It will also increase his chances of recovery fifty per cent.

Sixth: Never send a patient with fever to a resort without sending a nurse or attendant with him, because a fever patient should be in bed the same as a patient with pneumonia or any other febrile disease. Better still, keep your patient in bed at home until his temperature drops before sending him away. I have at the present time two patients with tuberculosis, one of whom has been in bed four months, and the other three months. They were both advanced cases with persistent fever. The temperature of one is now normal and he is taking carefully regulated exercise. The temperature of the other still persists and I shall keep him in bed till Christmas if necessary or until there seems to be no hope of recovery. These, of course, are extreme cases, and the temperature usually drops in from one to four weeks.

Seventh: Patients with the disease so far advanced as to be practically hopeless should not be sent away at all. Many cases are sent from home to whom the railroad journey and the separation from friends and home is a positive cruelty and only hastens the end. On the other hand, many advanced cases and cases with mixed infection find the trip to a health resort a means of prolonging their lives several years and enabling them to live in comparative comfort.

Eighth: If you have a patient who will not conform to discipline, or who is too lightminded to understand the serious nature of the disease and the necessity of a carefully regulated life, do not send him to an open health resort, but to a sanatorium where he will have to do as he is told, whether he wishes to or not, and whether or not he realizes the necessity of proper living.

And finally, I would say that in the fight against the great white plague, one of the most potent—perhaps I would not be far wrong if I said the most potent—of all factors is money. The old saying that "A rich man may recover from consumption, a poor man never," is no longer true, thanks to better means of diagnosis, better methods of treatment, and the aid of many State and charitable institutions; but, nevertheless, what is needed most is money—money for sanatoria and dispensaries for the poor, money for educational purposes, and money for the individual patient to carry him over the period of forced inactivity, and without which climate or the other aids will be of little avail.

References.

1. Knopf, Twentieth Century Practice of Medicine, p. 330, Vol. XX.

2. Weber, quoted by Knopf, Twentieth Century Practice of Medicine, p. 331, Vol. XX.

3. Sandwich, Lawrason Brown—Osler's Modern Medicine, Vol. III, p. 391.

4. Lawrason Brown—Osler's Modern Medicine, Vol. III, p. 392.

5. Burton Fanning—The Open Air Treatment of Pulmonary Tuberculosis, p. 159.

6. Latham—Diagnosis and Modern Treatment of Pulmonary Consumption, p. 167.

7. Report of the Committee on the Influence of Climate in Pulmonary Tuberculosis—before the National Association for the study and prevention of Tuberculosis, Washington, D. C., 1905.

Average daily temperature of Colfax, California.

Taken at 7 a. m. and 9 p. m. for a period of 3 years.

Taken at 2 p. m. for a period of 7 years.

Month	7 a. m.	2 p. m.	9 p. m.
Jan	42.5	52.7	45.9
Feb.	41.7	51.9	43.2
March	44.3	55.7	46.8
April	48.6	64.0	53.5
May	59.4	72.6	58.1
June	67.8	82.6	68.6
July	72.4	89.7	75.9
Aug.	71.8	89.2	74.1
Sept.	62.2	82.9	66.9
Oct.	55.0	73.9	59.5
Nov.	45.6	59.8	48.9
Dec.	42.3	53.9	45.2
Average	54.5	69.1	57.6

From readings taken each day at 2 p. m. from the dry and wet bulbs, calculated by aid of Glaisher's Table and Table of Tensions.

Mean Relative Humidity by Months for Colfax.

	Per ct.
January	60.4
February	67.8
March	61.1
April	51.8
May	53.1
June	32.3
July	28.4
August	24.9
September	30.9
October	34.4
November	57.4
December	69.5
Average	47.7

Rainfall during year, 44.425 inches.—Average, 47.062

From records in possession of Mr. Morris Lobner, S. P. Co.'s agent at Colfax.

Mean Temperature of Colfax, Taken at 2 p. m., for Months and Years.

Month.	1870	1871	1872	1873	1874	1875	1876	Avr.
Jan. ..	not obt'n'ble	55.6	54.0	57.9	49.9	51.9	47.1	52.7
Feb. ..	52.2	50.7	53.0	46.8	49.6	57.5	53.9	51.9
Mar. ..	52.3	56.5	58.4	63.6	48.6	56.5	54.3	55.7
Apr. ..	64.1	66.6	59.6	64.1	62.6	68.6	62.6	64.0
May ..	70.2	69.9	76.6	74.1	70.9	74.8	71.5	72.6
June ..	79.8	86.2	81.6	83.6	79.7	79.8	87.5	82.6
July ..	89.3	90.0	89.7	91.2	90.3	91.1	86.0	89.7
Aug. ..	87.1	94.9	92.1	89.7	85.3	89.5	85.9	89.2
Sept. ..	79.4	85.0	82.4	85.7	84.0	84.9	79.5	82.9
Oct. ..	71.5	76.5	75.9	75.1	67.5	82.6	67.9	73.9
Nov. ..	61.5	58.2	60.8	66.5	56.2	55.7	not obt'n'ble	59.8
Dec. ..	52.4	55.0	56.6	46.9	55.6	57.0	not obt'n'ble	53.9

Average daily temp. at 2 p. m. for 7 years, 69.1.
Highest temp. in 7 years, 107.5—July, (2 p. m.)
Lowest temp. in 7 years, 32—Dec. (2 p. m.)
Number of times temp. reached 100 or over—26 times or 3.7 each year.
(From records in possession of Mr. M. Lobner, Colfax.)

Precipitation in Colfax.

Month	1870	1871	1872	1873	1874	1875	1876	Total	Average
Jan.	11.646	14.670	20.520	2.870	10.630	12.320	8.870	81.526	11.646
Feb.	8.450	3.145	13.680	9.620	5.720	0.190	6.800	47.605	6.801
Mar.	5.410	4.305	4.590	1.240	8.990	3.030	12.990	39.685	5.669
Apr.	5.100	4.030	3.400	1.810	3.430	0.600	3.230	21.600	3.086
May	.250	2.855	0.610	2.040	1.310	1.220	1.020	9.305	1.329
June	0.020	0.130	0.400	0.000	0.000	1.900	0.000	2.450	0.364
July	0.000	0.000	0.000	0.070	0.000	0.000	0.460	0.460	0.066
Aug.	0.010	0.000	0.010	0.000	0.000	0.000	0.000	0.020	0.003
Sept.	0.000	0.000	0.000	0.000	0.000	0.050	0.980	7.980	1.140
Oct.	1.210	0.620	0.520	0.380	3.360	0.950	1.207	8.147	1.207
Nov.	3.790	4.870	3.990	2.270	13.790	14.840	7.258	50.808	7.258
Dec.	7.435	9.800	10.460	15.640	1.120	7.100	8.592	60.147	8.592
Average ..	13.321	44.425	58.280	36.070	18.280	41.540	57.507	329.433	47.062

(From records in possession of Mr. Morris Lobner, S. P. Co.'s Agent at Colfax.)

Discussion.

Dr. Keys. There have been two points of which I want to speak, and one is the matter of not sending a patient to a resort with the idea of having him rough it, and the other thing is the matter of absolute rest for these tuberculous patients. I have just received a letter from a patient, unfortunately taken with tuberculosis, now in Switzerland, and he writes that the patients there are put to bed after a thorough examination, and are told that their clothing is locked up and that they will not be allowed to see it until their temperatures are within one-half a degree of normal. The main features of the treatment are food in plenty, an absolute out-of-doors life although in bed, and absolute rest. These things are essential to the tuberculous patient.

Dr. Peers, closing: In conclusion, I will cite one case, showing how some patients are wrongly sent to health resorts. A young fellow last fall came to my office with an advanced tuberculosis. He said that he had been sent from Pennsylvania, that he had no money except a few dollars, and that he had been sent away from Pennsylvania, where he could have been lodged in a free sanatorium and have been kept by the state, and where he could have recovered his health. He lived in my neighborhood a few weeks, when I told him that he would do just as well with his sister, where he could go to bed and have some attention. If this had been done in the first place it might have been sufficient. It shows you how some people place a blind reliance on climate and location, where really the change with the idea of roughing it and working their way, really means their death.

WAXED SILK AS A SUTURE.*

By C. E. THOMPSON, M. D., Dunsmuir.

I wish very briefly to present for your consideration a method of preparing silk which in my hands has proven highly satisfactory.

The value of waxed silk for suture purposes, was first brought to my attention about ten years ago by a brief statement in a medical journal, so I do not claim originality in this method; but as I have not found any other surgeon using such sutures as a routine nor have I heard the subject brought up in a society, I thought a few remarks regarding it might prove of interest and bring to your attention a very useful preparation in suture work.

The technic of waxing the silk is not of very great importance so long as the silk is perfectly sterile and is thoroughly saturated with sterile wax, the melting point of which is considerably above the temperature of the body.

My usual procedure is to drop the card of silk into boiling water to sterilize both the silk and card; they are then taken out, lightly dried on a towel and then dropped into a boiling mixture of equal parts of white wax and paraffin, containing one per cent each of carbolic acid and salicylic acid. I do not know that the acids are combined in the best proportions or that they are of any great importance in the wax but theoretically they ought to inhibit the development of any germs that might be in the silk or wax or in the tissues with which they are in contact.

In a perfectly sterile field of operation the wax alone might be less irritating, but in very few cases do we find ideal conditions and I have always added the acids on this account.

After boiling a few moments all the moisture contained in the silk and card are driven off and replaced by the wax, the card is then removed and, when cold, is placed in an envelope where it remains until wanted.

* Read before the Pacific Association of Railway Surgeons.

I have preferred to use the prepared silk on glass spools and kept in alcohol. The latter is poured off, and after the spools have thoroughly boiled in the wax they are replaced in the bottle as before except that they are kept dry; in this way it is more convenient to handle and less liable to contamination.

I have experimented with different proportions of wax and paraffin and think when combined in about equal parts the best result is obtained. If too much pariffin is used the thread fibre does not cohere sufficiently to prevent capillary attraction, and the thread is not so pliable nor does the first knot seem to hold so well in tying. If too great a proportion of wax is used the thread fiber retains too much wax and the thread is apparently made larger and troublesome in drawing through the eye of the needle; I think also that the wax alone is more liable to be affected either by chemical or physiological processes, than when it is combined with pariffin in considerable proportion.

The temperature of the mixture when boiling is about 350 degrees and I think it is safe to assume that any germ or spore that might escape such a temperature would be too weak to burrow out of the wax and paraffin after they had been incorporated with the thread fiber.

I use the twisted thread in preference to braided, for when dipped in hot water before threading a needle, and by rolling it between the finger and thumb the thread is made quite small and can be twisted to a fine point; it is then very easily threaded into a much finer needle than could otherwise be used; this advantage alone is worth the trouble of waxing to the general practitioner, who has to do much emergency work and is called upon to use sutures under all kinds of unfavorable surroundings; the fine needle rendering the operation decidedly less difficult to perform besides being less painful and making smaller stitch holes, all of which are deserving of consideration by the surgeon and appreciated by the patient.

Prepared in this way I believe silk to be superior to any other material we possess where a non-absorbable suture can be used. When they are buried I believe they are less likely to cause trouble than plan silk or poorly prepared catgut, and in the cases where I have so used them there has been no after trouble. It has most all of the advantages of silver wire, horsehair and silkworm gut with none of their disadvantages.

Waxed silk is especially valuable for use in closing wounds about the face and hands; it is often impossible entirely to prevent infection in such injuries and I have frequently removed the sutures from an infected wound and found the stitch holes not infected while the wound is bathed with pus, seeming to prove both the absence of capillarity and an inhibitory influence on germ development.

Another advantage over plain silk is that blood, pus, secretions or dressings do not easily adhere to the waxed thread and so you are not liable to tear out your sutures when you take off the dressings.

To sum up then, the advantages claimed for waxed silk are:

Its sterility and the ease of keeping it sterile.

The absence of capillary attraction.

It does not irritate the tissues.

Does not adhere to the tissues, dressings or secretions.

It is easily removed.

Easily prepared.

Convenient to carry, easy to thread and in tying it the knot does not slip so easily as plain silk.

Discussion.

Dr. Teass: This proposition of suturing to me has become a very simple matter. I can remember a few years back in doing surgery when I carried a grip around with me with every material necessary in it. As my experience progressed this has become much more simplified and to-day is a very simple matter. I simply take a few tubes of sterile catgut of various sizes and silkworm gut. I put them in a wide-mouthed bottle and fill it with tincture of iodine. I take it out and place it in hot lysol. The proposition of sterilizing silk is something I never attempt. I do not use the silk gut at all even as a buried suture. I have resorted altogether to catgut within the past few years. I can remember when I first attempted suturing with silk I had many cases of stitch hole abscesses but within the last few years I cannot recall a single case of stitch hole abscess even in those cases where there had been no previous preparation at all and I have had many scalp wounds and dirty wounds which are hurriedly cleaned out and a suture put in with very clean results.

SIMPLIFICATION OF THE TECHNIC OF THE SERUM DIAGNOSIS OF SYPHILIS.

By J. N. FORCE, M. D., Berkeley.

In the article which he has devoted in this journal to the technic of the different procedures employed for the serum diagnosis of syphilis, M. Fornet concludes that (the execution of the method of Wassermann presenting some difficulties), he desired that the examinations be practiced with all the guaranties of exactness by State laboratories, which would centralize them, and would put their results freely at the disposal of practitioners. It cannot be denied that the method of Wassermann is neither easy to learn or to apply, and its author himself declared, recently, before the Medical Society of Berlin that its technic was complicated. For these reasons, since the publication of the work of Wassermann, I have sought for, and finally found a method simpler and more rational. I explained its general principles some months ago, and its practical value has now been verified by numerous applications made by me and other workers. It is the technic of this method that I am going to explain for the first time, with all the necessary details, so that, simplified, as I have made it, the serum diagnosis of syphilis can now be carried out without any difficulty by all physicians desirous of using the latest gifts of science.

In order to practice serum diagnosis of syphilis, one needs fresh guinea pig serum, a five per cent suspension of sheep corpuscles, normal human serum, extract of an organ, and serum of the patient.

Fresh guinea pig serum. It is obtained by bleeding from the carotid or femoral. If only a small quantity is needed it can be taken from the heart with a small exploring needle, without killing the animal. Detach the clot which forms in the vessel and draw off the serum with a pipette. This serum

(Translated from La Semaine Medicale.)

does not keep more than a day, unless frozen. In this case liquefy, at the moment of using, with a little tepid water. This can only be done once. In using the serum dilute to 1-10 with normal salt solution.

Five per cent suspension of sheep corpuscles. Procure some fresh sheep's blood that is received in a bottle containing iron filings, to prevent clotting, and shaken for ten minutes. At the laboratory decant through a sieve into the tube of a centrifuge, note the height; then centrifuge. Draw off the serum with a pipette and refill to the mark with normal salt solution, shake and again centrifuge; repeat twice and finally fill with normal salt solution to the mark. This diluted to five per cent can be kept on ice several days.

Normal human serum. This can be obtained by puncture of a vein. I prefer placental blood. Heat in a water bath for a half hour at a temperature of 51 to 56 degrees to destroy the complement.

Organic extract. Rub together in a mortar 100 c. c. of alcohol at 96 degrees and 10 gms. of the liver of a syphilitic fetus (I have employed with equal success extract of the heart of a guinea pig prepared in the same way); this mixture is left all night in the shaking machine, and then centrifuged. The decanted liquid remains clear and serves as a mother solution which can be kept on ice. To prepare for the reaction, place in a series of test tubes 0.25, 0.15, 0.10, 0.05, 0.025, 0.015 c. c. of the mother solution, and normal salt solution to make 1 c. c. in each tube. Control with a tube containing 1 c. c. of normal salt solution. To each of these seven tubes add 1 c. c. of 1-10 guinea pig serum, then 0.2 c. c. of inactive human serum. Place the tubes in the incubator at 37 degrees for thirty minutes, and at the end of that time add to each tube 1 c. c. of the suspension of sheep corpuscles and replace in the incubator for two hours. As each tube contains 1 c. c. it is only necessary to see in which tubes the contents are dissolved, to know the correct dilution of the organic extract: 1-4, 1-7, 1-10, 1-20, 1-40, 1-70. The liquid ought to remain clear in the control tube; if not the guinea pig serum is not fresh, or the human serum contains fats. Let us suppose that in the preceding experiment the contents of the three first tubes were not dissolved. The necessary dilution for serum diagnosis would be 1 c. c. of 1-20. The test should be then repeated with 1-10, 1-20, 1-30, and the serums of several subjects healthy and syphilitic to be certain of the correct dilution.

Serum of the patient. This is obtained by bleeding or with a hollow needle from the forearm, after constricting the upper arm with a band. Separate the clot, centrifuge, draw off the serum, and inactivate.

The reagents being prepared we now take four test tubes and fill in the following manner:

1. Tube principal.

Serum of patient	0.2 c. c.
Organic extract (standard)	1.0
Serum of guinea pig	1.0

2. Tube for control.

Serum of patient	0.2 c. c.
Normal salt solution	1.0
Serum of guinea pig	1.0

3 Tube principal for comparison.

Normal serum	0.2 c. c.
Organic extract (standard)	1.0
Serum of guinea pig	1.0

4 Tube to control comparison.

Normal serum	0.2 c. c.
Normal salt solution	1.0
Serum of guinea pig	1.0

After shaking the four tubes place for a half hour in the incubator at 37 degrees, then add 1 c. c. of the suspension of sheep corpuscles to each tube, and observe the course of the reaction in the incubator. Generally the contents of tubes 2 and 4 dissolve within thirty minutes and the liquid becomes clear. Hemolysis appears soon in tube 3. When the blood of tube 1 dissolves almost in the same time as that of tube 3 the patient is healthy. If the contents of tube 1 do not dissolve, the patient is syphilitic. Some deviations from the normal course of the reaction may occur: (1) The contents of tube 1 may dissolve imperfectly. In this case repeat with tubes 1 and 2 with 0.15, 0.10 and 0.05 c. c. of the patient's serum seeking a combination so that the contents of tube 1 remain intact, and those of tube 2 dissolve entirely. (2) If this does not occur add to tubes 1 and 2, 0.1 to 0.2 c. c. of normal human serum. This is done at the same time that sheep corpuscles are added, but it can be done a quarter or a half hour after, and so it can be added when one is sure that the contents of tube 2 do not dissolve. In general we begin first with the addition of 0.1 c. c. of normal serum whose dissolving power is proved by the hemolysis established in tubes 3 and 4; if the dissolution is not perfect, try again with 0.2 c. c.. (3) The addition of 0.2 c. c. of normal human serum, and even of a larger amount is necessary when examining the serum of infants less than six months old.

In conclusion: Tubes 3 and 4 serve to prove, (a) that the presence of organic extract does not prevent the dissolution of corpuscles in the mixture; (b) that the serum of the guinea pig is not altered. Tube 2 serves to show, on one hand that the serum of the patient does not contain substances preventing the dissolution of sheep corpuscles and, on the other hand, that it contains sensitizing substances. It is essential to find for tube 2 the dose of normal human serum exactly dissolving; this ought always to be the same as that of tube 1.

(Dr. J. Bauer, Asst. in the pediatric clinic of the Academy of Medical Practice in Dusseldorf.)

COUNTY SOCIETIES

BUTTE COUNTY.

The regular monthly meeting of Butte County Medical Society met Tuesday evening, January 12, at the offices of Dr. P. E. Bullington; following members present: Drs. N. T. Enloe, P. F. Bullington, H. Morel, M. P. Stansbury, Ella F. Gatchell of Chico, and Dr. L. L. Thompson of Gridley.

Drs. H. Morel, Hal. M. Parker of Chico, and S. Iglick and Samuel A. Goldman of Orland, were admitted to membership.

A paper on pneumonia by Dr. P. F. Bullington was read by Dr. Thompson; the discussion was opened by Dr. M. Stansbury and participated in by other doctors.

Voted that the Society petition the Governor to reappoint Dr. N. K. Foster as Secretary of State Board of Health, and Dr. M. Stansbury was appointed a committee to obtain signatures to the petition.

ELLA F. GATCHELL, Secretary.

SACRAMENTO COUNTY.

The regular monthly meeting of the Sacramento Society was held on the evening of December 15, 1908, Dr. E. C. Turner being the host. Dr. D. A. Kellogg of Sacramento was unanimously elected a member. The society instructed its Secretary to write Dr. Grant Selfridge of San Francisco to attend its next meeting. The report of the Hospital Investigation Committee was received, and at a special meeting held one week later, was adopted. This report advised the employment of a pharmacist at the County Hospital, accommodations for more nurses and better accommodations and food for tubercular patients and a change from the present system to that of a resident superintendent with a visiting staff. A paper on "Typhoid Fever" was

read by Dr. Turner and discussed by members of the Society, lead by Drs. Twitchell and Jones, after which the meeting adjourned.

E. C. TURNER, Secretary.

SAN BERNARDINO COUNTY.

The San Bernardino County Medical Society at its regular meeting in December elected the following officers: W. P. Burke, President; Hoell Tyler, Vice-President; T. M. Blythe, Second Vice-President; Gayle G. Moseley, Secretary, and Wm. A. Taltaval, Treasurer.

The Society has taken up the post graduate course as outlined by the American Medical Association and is now meeting weekly instead of monthly as heretofore. The first meeting was well attended and the members very enthusiastic in regard to the course. The subject of the evening was Anatomy and Physiology of the Heart, which subjects were well presented by Drs. Power and Hill.

G. G. MOSELEY, Secretary.

SAN JOAQUIN COUNTY.

The regular monthly meeting of the San Joaquin County Medical Society met at the parlors of the Imperial Hotel as the guest of Dr. Hull, Friday evening, January 29, 1909, with the president, Dr. J. P. Hull, in the chair and the following members present: Drs. Nelson, Tower, Smythe, Tully, Latta, Gibbons, Hammond, Hull, Walker, Harry, Hoisholt, Taylor, Goodman, Knight, Friedberger, F. P. Clarke, A. E. Arthur, Blackman, Hopkins and M. Smyth.

The minutes of the previous meeting were read and approved. The committee on admissions reported favorably on the application of Dr. Wm. Friedberger, and he was declared elected. The name of Dr. S. N. Cross was proposed for membership and the application was referred to the committee on admission.

The question of life insurance examinations again came before the society and was followed by general discussion. The following motion was made and seconded, that Dr. I. B. Ladd be notified to appear at the next meeting of the society and prove to the society that he is complying with the rules of the society in charging $5 for all old line insurance examination, and in the event of his not doing so he is thereby expelled from the society. Carried.

A letter from the San Joaquin County Subdivision of the California Branch of the American National Red Cross Association was read, asking advice as to the best way of expending the $1000 they possessed in the crusade against tuberculosis. It was moved and carried that the chair appoint a committee to reply to same. The chair appointed Drs. Hoisholt, Latta and Harry.

A general discussion regarding the entertaining the coming meeting of the San Joaquin Valley Medical Society was entered into, and it was moved and seconded that the chair appoint a committee on entertainment, reception and banquet. Carried. The following committees were appointed:

Committee on Entertainment—Drs. Fred Clark, Hoisholt, Harry, Powell, Knight, H. Smyth and E. A. Arthur.

Committee on Banquet—Drs. Hammond, Powell, F. R. Clark, Walker and Langdon.

Committee on Reception—Drs. Ray, Harbert, Taggart, Powell, Johnson and Blackman.

Dr. Kerr was unable to reach the city, and his place was taken by Professor Fait, who gave a demonstration and explained the action of suggestion, which proved to be very interesting.

After refreshments served by Dr. Hull, the society adjourned.

SONOMA COUNTY.

The Sonoma County Medical Society met in Dr. Seawell's court-rooms, Dr. W. J. Kerr presiding. A short debate on "Fer Don," who is able to keep a troupe of negro minstrels and hire the biggest hall in the city, skating rink, for some two weeks or more. The question was, should we interfere. We finally concluded it would do no good.

We changed our regular meeting night to first Friday at 8 p. m. Dr. L. Lain, who has been treasurer several years, gave her report that the society had on hand $59.42. All bills were paid for 1908. The secretary, Dr. Mallory, reported an addition of five new members during 1908; two deaths; suspension for non-payment of dues, two; two transfers given, leaving 47 members. One of the members, who is aged, was made an honorary member. We love wisdom, and who is more useful to a medical society than a man who has spent a half century studying how to relieve and prevent suffering? An application for membership was made.

Dr. W. J. Kerr gave the paper of the evening—subject, "Typhoid Fever, Symptoms and Treatment." He gave the usual clinical and bacterial tests. The doctor has had eighteen cases of typhoid since July; no casualties. Treatment, if children, followed in a measure. Woodbridge believed in intestinal antiseptics, especially castor oil, enema of cold water at 75°, two to four quarts once or twice daily. His paper was a practical one and the speaker was highly complimented on this admirable paper.

Dr. W. C. Shipley always gave calomel and salines; believed in antiseptics; had had many cases in the mines; used sulphocarbolates. Dr. F. O. Pryor thought the routine of the great hospitals—no antiseptics, hydrotherapy, nourishing diet, good nursing—would be the best.

Dr. C. H. Thompson told us how prevalent was typhoid in Philadelphia in the sixties and spoke of the then treatment. He favored hydrotherapy.

Dr. Mallory favored initial dose of calomel followed by salt, antiseptics, Brant's Bath, high injection, castor oil, good feeding, digestives.

We adjourned to Campi Restaurant for a banquet. The next meeting will be held in Cloverdale, February 20, at 8 p. m.

Dr. H. J. Trachman will give the paper, "Diseases and Treatment of the Larynx." On discussion, W. C. Shipley, F. E. Sohler and S. Z. Peoples.

Citrus Fair at Cloverdale, February 19, 20, 22.

G. W. MALLORY, Secretary.

PUBLICATIONS.

Handbook of Diseases of the Skin. By Geo. Thos. Jackson.

This is the sixth edition of this interesting and convenient book. The subjects are arranged alphabetically and the important points of all skin diseases are well brought out. Very little notice is given to radio-therapy and photo-therapy, but in a book of this size a detailed description of electricity and the modern therapeutic lights would be out of place. Dr. Jackson has recently been made Professor of Dermatology at the College of Physicians and Surgeons, New York. We are glad to see that Dr. Jackson has the interest and enthusiasm to keep his book thoroughly revised, and it can be recommended as the most useful book on skin diseases for the busy physician. H. M.

The Practitioners' Visiting List for 1909. An invaluable pocket-sized book containing memoranda and data important for every physician, and ruled blanks for recording every detail of practice. The Weekly, Monthly and 30-Patient Perpetual contain 32 pages of data and 160 pages of classified blanks. The 60-Patient Perpetual consists of 256 pages of blanks alone. Each in one wallet-shaped book, bound in flexible leather, with flap and pocket, pencil and rubber, and calendar for two years. Price by mail, postpaid, to any address, $1.25. Thumb-letter index, 25 cents extra. De-

scriptive circular showing the several styles sent on request. Lea & Febiger, Publishers, Philadelphia and New York.

A Manual of Obstetrical Technic as Applied to Private Practice, With a Chapter on Abortion, Premature Labor, and Curettage. By Joseph Brown Cooke, M. D., Adjunct Professor of Obstetrics in the New York Polyclinic Medical School and Hospital; Lecturer on Obstetrics to the New York City Training School for Nurses; Surgeon to the New York Maternity Hospital, etc. Illustrated. Sixth Edition, Enlarged and Fully Revised. J. B. Lippincott Company, Philadelphia and London. 1908.

While the success of this little book certainly shows evidence on the part of many practitioners of a keener appreciation of the importance of technical perfection to success in obstetrical practice, yet it is notorious that even now the mass of medical men engaged in general practice have been slow to avail themselves of the bacteriological principles underlying the prevention of infectious diseases. After all, the successful issue will depend in the majority of instances upon the efficiency of an aseptic technic in essence little differing from that employed by modern surgeons. It is, indeed, a sad commentary on the moral standards and intelligence of the majority of those engaged in the practice of obstetrics that they should show so few scruples so far as the fulfilment of their obligations to their patients and the medical profession is concerned. It is probably true that very many of these physicians have scarcely evolved beyond the midwife class, and it is also probably true that the number who have reached the standard of a modern well trained obstetrical nurse is still lamentably restricted, notwithstanding the very considerable amount of missionary work which has been done through the medium of medical and other periodicals. So far as this volume is concerned we have little to say except that after reading it we have put it aside cheerful in the belief of the soundness of its mission. A. J. L.

CHANGE OF ADDRESS.

Holt, Wm. L., Aiken Blk., Santa Barbara.

Driscoll, Edw. P., from 1122 Turk St. to 2027 Polk St., S. F.

Doty, L. L., 620 N. Boyle Ave., Los Angeles, Cal.

Chaffee, F., from Parlier, Cal., to Yountville, Cal.

Lennon, Milton B., 135 Stockton St.

Day-Bew, L. B., from 1424 Gough St. to Phelan Bldg., S. F.

Pitcher, Josephine, Miramontz, Half Moon Bay, Cal.

Quinan, Clarence, from 2521 Broadway to 391 Sutter St.

Waggoner, Eugene L., from Fay Bldg., Los Angeles, to Wright & Callender Bldg., L. A.

Johnston, Wm. R., from 107½ Main St., Los Angeles, to 119 West 49th St., L. A.

Avery, Ralph W., from South Pasadena, Cal., to Oxnard, Cal.

Cox, J. Emit, from Los Angeles, Cal., to Taylor Block, South Pasadena, Cal.

Cook, Christina A., from 901 Devisadero St. to 421 Baker St., S. F.

Banks, Wm. H., from Stirling City, Cal., to 136 Lexington Ave., New York (temporary).

Rosenthal, Adolph G., from 1107 Franklin St. to 162 Post St., S. F.

Wortmann, Heinrich, from German Hospital, S. F., to 1480 Church St., S. F.

Abrahamson, Milton, 240 Stockton St.

Bruman, Arthur Karr, German Hospital, S. F.

de Faria, J. B., from 1096 Clay St., S. F., to —?

McEnery, W. A., from 2100 Broadway to 86 Post (Ortman Bldg.), S. F.

Newman, H. P., from Los Angeles, Cal., to Grant Blk., San Diego, Cal.

Ross, A. Bartlett, from German Hospital to 1009 Devisadero St.

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Boericke, Wm., from 1812 Washington St. to 391 Sutter (Galen Bldg.), S. F. Cal.

Manning, Guy E., from 3675 Clay St. to 391 Sutter (Galen Bldg.), S. F., Cal.

Taylor, A. Miles, from 1178 Eddy St. to Phelan Bldg., S. F. Cal.

Smith, Robert Bremner, Cor. Faxon and Demonfort Aves., Ingleside (S. F.), Cal.

Dodge, Clarence W., from Oakland, Cal., to Madera, Cal.

Wilkes, Farrington, from Oakland to Lakebay, Washington.

Pawlicki, Casimir F., from San Francisco to Bakersfield, Cal.

Rude, Anna E., 1301 Leavenworth St., S. F.

Bates, C. B., from Santa Barbara, Cal., to —?

Wight, Thos. H., from Santa Barbara, Cal., to —?

Campbell, E. O., from Goleta, Cal., to Alaska.

Carter, P. B., from Guadalupe, Cal., to —?

Paulding, Ormond P., from Santa Maria, Cal., —?

Herrington, Howard, from 2053 Sutter St. to 1529 Sutter St.

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Percival, Francis R., from 2635 W. Pico St. to H. W. Hellman Bldg., Los Angeles.

Soiland, Albert, from Johnson Bldg., Los Angeles, to Wright & Callender Bldg., L. A.

Sunde, P. H., from Johnson Bldg., Los Angeles, to Wright & Callender Bldg., Los Angeles.

Johnson, Milbank, from O. T. Johnson Bldg., Los Angeles, to Wright & Callender Bldg., L. A.

Whitlock, Thos. S., from 631—21st St., San Diego, to 1027—5th St., San Diego, Cal.

Oldham, Jno. Y., from Ocean Park, Cal., to Grant Bldg., Los Angeles, Cal.

Whitlock, W. G., from Berkeley, Cal., to Sisters' Hospital, Los Angeles.

Wislocki, Eugene John, from 550 E St., San Jose, to 1st and Fountain Sts., San Jose.

Bowen, Amy G., Monte Vida Sanitarium, Alum Rock, San Jose, Cal.

Thomas, Benj., Porter Bldg., San Jose, Cal.

Allen, Frances M., from San Diego to Stirling City, Butte Co., Cal.

New Members.

Dodsworth, Robert M., 2730 Derby St., Berkeley Cal.

Kellogg, Donald A., Sacramento, Cal.

Morel, Henry A., Chico, Cal.

Parker, Hal M., Chico, Cal.

Iglick, Samuel, Orland, Cal.

Goldman, Sam'l. A., Orland, Cal.

Liverman, J. R., San Bernardino, Cal.

Root, R. R., Corona, Cal.

Tyler, Jno. A., Smith River, Del Norte Co., Cal.

Webster, I. Daniel, Granger Blk., San Diego, Cal.

Newman, H. P., Grant Blk., San Diego, Cal.

DEATHS.

Whitworth, Geo. F., Berkeley, Cal.

Shinnick, Chas. C., Santa Cruz, Cal.

Newman, Samuel, Santa Barbara.

Reinstated.

McLaren, Jay L., 642 East 28th St., Oakland, Cal.

Resigned.

Purlenky, Geo. P., San Francisco.

Henry, Joseph W., San Francisco.

Retired.

Spaulding, J. E., Carpenteria, Cal.

California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

PHILIP MILLS JONES, M. D., Secretary and Editor

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VOL. VII APR., 1909. No. 4

ANNUAL MEETING

HOTEL VENDOME, SAN JOSE,

APRIL 20, 21 AND 22, 1909.

The 39th Annual Meeting of the Medical Society of the State of California will be held at the Hotel Vendome, San Jose, April 20, 21 and 22. On Monday, April 19, the Public Health Association will hold its annual meeting at the same place.

Reservations should be made at once; write directly to the Hotel Vendome.

The railroads have made the usual rate of *one fare and a third* for the round trip. Pay your full fare for the going trip and *be sure to get a receipt certificate* from the agent. Have the receipt certificate signed by the Secretary of the Society, when you return present it to the agent at San Jose, and your return ticket will be sold you for one-third fare.

Tickets will be on sale April 10th to 22nd, and the certificates will be honored April 20th to 24th.

For those south of and including Santa Barbara and Bakersfield the receipt certificates will be honored *if presented at San Jose* on or before May 3rd, 1909, thus giving a chance to those from Southern California to visit San Francisco after the meeting, if they so desire.

A very fine program has been provided (see elsewhere in this issue), and every member should make an earnest effort to attend this meeting. In addition to the scientific program, various features of a social nature will be provided by the committee of arrangements.

There will be automobile rides about the surrounding country, an afternoon tea and an evening reception for the ladies, and trips to Mt. Hamilton may be arranged at reduced rates.

A "stag" dinner will be given at the Hotel St. James on the evening of Thursday, April 22nd, and it is expected that the attendance will be large. The price per plate is not yet determined, but it will probably be $2.50.

Every effort is being made by the Committee of Arrangements to make the San Jose meeting a notable one in every way.

Come and meet your friends. Come and learn something or teach something. Come and enjoy the hospitality of the Santa Clara Valley. In any event, come.

ADJOURNED, THANK GOD.

Let us give voice to those feelings of relief and gratification which surge through the manly bosom by saying, with heartfelt emphasis, *Thank God! The legislature has adjourned!!* For some possibly unaccountable reason, the attacks upon the medical and dental laws were unusually fierce and numerous this session. Bills of all sorts, introduced by all sorts of impossible people, intended to do all sorts of things to the medical law, were introduced; and at least one bad bill came pretty near to passing. In fact, Assembly Bill No. 1331, fathered by Mr. Silver, of Pleasanton, who seems to think he knows more about medical legislation than any other semi-living human being on earth or in the Heavens above it, passed the Senate by a vote of 21 to 15 on the night of March 20th. On the afternoon of Monday, the 22d, it was, however, reconsidered and refused passage by a vote of 22 to 14. Heroic work was done during those hours between Saturday night and Monday afternoon. At the present writing there is not sufficient time to analyse the various proposed measures and give the status of our various representatives—or misrepresentatives—on the questions.

It is particularly to be noted that this bill was backed energetically by two factions: the Los Angeles School of Osteopathy, whose representatives admitted in a committee meeting that their students could not pass the examinations of the present board of examiners, and by at least one member of the faculty of the College of Physicians and Surgeons of San Francisco. Can we imagine that Dr. Geo. L. Eaton, of the College of Physicians and Surgeons, San Francisco, spent all those many days in Sacramento at his own expense, and simply because he was infatuated with the honorable idea of lowering the standards of medical education in California? And, while we are in the mood for asking questions, do you not think it would be interesting to know just how many and what lawyers in Senate and Assembly were "retained" as legal representatives of these and other interests at work to defeat the purpose of the medical law—the protection of the public against ignorance and quackery? We will discuss this more at length subsequently.

GENIUS DEBAUCHED.

It is indeed a sad and a pitiful thing to see ability gone astray; talent squandered upon phrase-making; genius thrown into the lap of the harlot. The more potentially able a man is, the more unpleasant is the spectacle of his alliance with the undesirable portion of the community. Dr. G. Frank Lydston, of Chicago, has gone out of his way to effect an alliance with the nostrum interests and to use his ability as a writer to help bolster up their failing cause of unrighteousness. The many "undesirable citizens" who have amassed fortunes out of the medical profession by the simple means of promoting nostrums, have fought in vain against the slow but sure work of the Council on Pharmacy and Chemistry of the American Medical Association. They have done everything in their power to create discord in the House of Delegates of that body. They have even had their own paid representatives elected as delegates with the deliberate object of creating dissension. But it has all been unavailing. The widely published attacks upon the Association (they have cost a lot of money; did the Porprietary Association put it up?) have done but little except to bring into closer harmony the great big majority of the A. M. A. This they have fully appreciated and so it has occurred to them as the last possible chance of creating discord, to attack the Secretary of the A. M. A., who is also the editor of the much hated *Journal* of the Association. And poor old Lydston had to go back a quarter of a century to find anything material upon which to base an attack that might have been bitter, were it not spoiled by his childish desire to turn a "cute" phrase and express his own unbounded admiration for himself. What a man has done—his record—means nothing in a partisan fight like this attack on Dr. Simmons. It means nothing to these throwers of manufactured mud that the *Journal* of the Association has come to be, in the last ten years, and under Dr. Simmons' management, the foremost medical publication in the world. It means nothing to these gentlemen (Heaven save the word!) that the Association has grown and thrived beyond the fondest dreams of those who helped its reorganization less than a decade ago. But it does mean much to this coterie that, with growth and prosperity, has come an ability to attack fraud and dishonesty and trickery, and to put out of business many a fake nostrum and many a fraudulent proprietary whose only worth was in the value of its advertising. And it is with the ranks of the fakes and the frauds that Lydston joins in attacking the Association, through its Secretary and Editor. The downfall of a possibly great man is a pitiable thing; there is no antagonism against Dr. Simmons raised by such obvious attacks; only pity for Dr. Lydtson.

NOTABLE ADVANCE.

Time will probably convince the most skeptical, if there be any with grave doubts, that the amalgamation of the Medical School of the University of Southern California (a sectarian institution) with the University of California is a notable step forward, not alone for the Southern medical school, but also for medical education in the state and for the State University. A graduate from Berkeley, now studying law at Harvard, writes a personal letter on the subject from which we can not resist the desire to quote a few sentences:

> "We have a pretty long coast line within which to concentrate public interest on any one institution. . . . People do not feel a great interest in something five hundred miles away whose influence can not touch them. But there is no better effect than knowing that the finest and most up-to-date institution near them is a living part of a larger organization which stands as an activity of the whole state. We needed something in Southern California very much, which would remind people of the underlying unity in higher and professional education. It will tend in the long run to make the Tehachapi less of a barrier to those who feel that the interests of both sides can not remain in common. I feel that all who are interested in the progress of either or both will extend mutual congratulations for an important step."

We understand that the present senior class will receive diplomas from the University of Southern California, but that subsequent classes will receive the diploma from the state institution at Berkeley. Just how the many details will work out, of course no one can say. But that both the medical department in the North and the one in the South will benefit, seems a very strong probability. Interest in the state institution is now brought close home to the legislators from the South—and the Southern delegation has always been a very strong one in our legislature. Surely, one can scarcely imagine a more satisfactory way for the expenditure of general funds than the upbuilding of the state's machinery for higher education and for the benefit of the entire people of the state. Probably there will be a falling off of students in the Southern medical school, for two or three years, or until the newly created standards requiring two years to be spent in general university courses of a pre-medical nature, but after that period the school should take on a new lease of life and its classes and its work should materially increase and improve. One word of suggestion—probably unnecessary—we would give to those in control of the Southern school; hunt out well prepared young men and work them into the school. There are plenty such only waiting for an opportunity; let them have it.

WE STILL PROGRESS.

Under date of February, 1909, Leland Stanford Junior University puts out a preliminary announcement of its Department of Medicine, founded as Cooper Medical College. The taking over of Cooper Medical College by Stanford University, is a notable event for our state and for medical education in general. The plan adopted by most, if not all university medical departments, is here to be followed, and at least three years of

university work of a pre-medical character are required before the student enters upon his purely medical work, which will take another four years, thus making a seven-year course. It has been said that the day of the proprietary medical school is over; whether or not this is actually true, is not a fixed matter of fact but is still open for discussion and subsequent events to demonstrate. True it is, however, that the day has gone when a medical school can be operated as a matter of profit for the owners or the faculty and comply with the legal requirements of the licensing boards of the various states. Much less than a generation ago, there were practically no laws governing the practice of medicine that required a medical school to teach real medicine, and at the best schools the course was not over three years; now, as we see from this announcement of the Medical Department of Stanford, a seven-year course has become the order of the day. The question arises, what is to become of the class of individuals who can not afford to give seven years to the study of medicine? Is there not room for the proprietary school, taking applicants with fairly good preliminary education—say high school graduates—and giving them a fairly good four-year medical course that will meet all reasonable requirements? There are many men who believe that this is the case and that proprietary schools of this character, a few of them at least, will not only survive, but will be a necessity. There is no doubt, though, that the day is gone for the school that does not attempt to live up to the minimum of required standards; examining boards in the various states have quite effectually killed off this pernicious parasite. With the amalgamation of the Southern school with the State University, and of Cooper College with Stanford University, medical education in California has made a tremendously important advance in the last few months. Truly, the world do move; hard work does pay.

BENZOATE OF SODA.

Dr. Harvey W. Wiley, in charge of the administration of the Pure Food and Drug Law, ruled, some time ago, that benzoate of soda was harmful and should not be used as a preservative of foodstuffs. Immediately there was a tremendous howl from a large number of canners and packers. Not that benzoate of soda is necessary to the preservation of good, wholesome foodstuffs, properly treated; but that it is necessary for the preservation of semi-decayed fruit and vegetables, and some canners derive great profit from the sale of just this sort of raw material which, with the addition of a chemical preservative may be canned, but without it will not keep. All the honest manufacturers who do not fear honest competition, were with Dr. Wiley in his ruling; they welcomed it as a relief from dishonest competition. But the kickers won the day and a special commission was appointed to study the matter and report to the Secretary of Agriculture, who is Dr. Wiley's chief. That special commission has just reported and their findings completely reverse Dr. Wiley's. This is a very great misfortune; not that it should appear that benzoate of soda is harmless, but that dishonest manufacturers should be given the opportunity to use a lot of rotten or half rotten stuff and get it on the market and so into people's stomachs by the use of benzoate of soda. But, fortunately, such manufacturers must print upon the label the fact that the goods are preserved with benzoate of soda, and the quantity; and we suspect that a good many people will, in time if not at once, learn to look for the label on the package and will discard the goods of such doubtful quality that they need a chemical preservative. And furthermore, the honest manufacturers will make, indeed they already are making, use of the facts as good advertising; they are forcing attention to the fact that by using good material and proper and cleanly methods, they are putting out articles that do not contain benzoate of soda or any other doubtful chemical substance. Of course the opposition is gleefully making every possible use of this decision in its renewed attempts to discredit Dr. Wiley. But we are of the opinion that Dr. Wiley, having the support of every right thinking person, will survive this opposition and will continue to administer the law in an honest and sane manner. All success to him.

DEMONSTRATIONS ON HEALTH.

A car has been fitted up and is to be taken from place to place by the railroads, for the purpose of giving demonstrations to the people, at close range, of some of the fundamental and more important facts relating to public health matters. The credit for this enterprise is largely due to Dr. Colby Rucker, of the U. S. P. H. & M. H. S., who has been stationed in San Francisco for some time past as Dr. Blue's executive officer in the anti-plague work, and to Dr. N. K. Foster, Secretary of the State Board of Health. Of course the car will be accompanied by lecturers and demonstrators who will explain the various exhibits and give practical and helpful lectures anent them. This should be only the beginning of a campaign, definitely planned and consistently executed, to bring common sense to the people and in a way that they will be compelled to understand. The general lack of knowledge pertaining to the most absurdly commonplace facts of sanitation, is shocking. In these opening years of the twentieth century, it is worse than a disgrace to see the legislators of a great state like California, calmly passing a law doing away with the people's only safeguard against epidemic smallpox—the compulsory vaccination law. But they are ignorant of the facts. The people also are ignorant of the facts, for it is probably safe to presume that the general average of intelligence of the legislators is at least as high as, if not higher than, that of the general people. They all need instruction and advice, and while it would be easy to give this, could one secure the audience, it remains difficult for the reason that it is hard to

secure the audience. This traveling car scheme goes far toward securing the audience. Many people will come out of curiosity; but what matters it what the motive of their coming is, so long as they come—and learn something? Public lectures and meetings under the auspices of the various county medical societies will also do much, in the course of time, to awaken the public to the danger of its apathy. In some sections these public lectures have been undertaken by county societies; in others, the passage of this school car may awaken the county society to the importance of the work and thus do additional good. The plan is certainly one to be commended in the highest terms and all credit should be given to those who have worked so hard to secure the consummation of their ideas. The railroads, quickly seeing the import of everything that will make for the general improvement in public health conditions, have cheerfully given the car and will as cheerfully haul it about the state.

THE WISE DOCTOR?

To comment upon all the ways in which some of the smooth-tongued "detail men" administer foolish powders to physicians, is quite impossible, though for several years the JOURNAL has been devoting more or less space to the interesting subject. In San Francisco, and doubtless in other parts of the state, there has recently been exhibited some activity on the part of the agents of a concern that might well be known as "The Company for the Exploitation of the Foolishness of Physicians." The stuff is called "pinoleum," and it is recommended as a bland and healing oil, containing some essential oils; it comes in a nice package containing the oil-atomizer and a bottle of the "stuff." The credulous physician is urged to order the package just as it is put out, as thus the patient gets his atomizer and his oil at the same time, which is convenient. But the agent who visits the physician making this excellent (?) suggestion, and who gives the physician an order on the pharmacist for a package free, does not refer to the extremely edifying circular that is considerately placed in the box by the manufacturer. By the time your patient, now become the happy possessor of a "pinoleum" outfit, has finished the careful reading of this circular of information, he knows more about what is the matter with him and how it should be treated than you do. Also, he knows just what "pinoleum" is good for (and that is almost everything above the neck), and he goes happily upon his way prescribing for all his friends who will listen to him. We are waiting with interest for the appearance of the progressive manufacturer who will dispense in the package with a bottle of castor oil, a Complete Treatise on Home Medication, or Everyone His Own Physician.

LENGTHENING HUMAN LIFE.

Prof. Irving Fisher, of Yale, President of the Committee of One Hundred on National Health, has presented to the heads of various insurance companies a definite statement as to the relation of tuberculosis to insurance companies, based on the purely commercial proposition of lengthening human life and thus making money for the companies. "The Prudential Company pays out annually $800,000 for death claims on account of tuberculosis, a disease which is known to be preventable." That puts it in a very definite way; nearly a million dollars paid by one company alone for lives that might have been materially lengthened. The proposition has been put up to the insurance companies to subscribe large sums of money (but a fraction of a percent of their insurance) in the campaign for the prevention of tuberculosis. How they will respond to this demand is as yet not known, though it is commonly reported that many of them are strongly impressed with the showing made by Prof. Fisher and have under advisement the definite prosecution of such work. It would seem to be an obvious means of saving many dollars to the companies and, therefore, to the policy holders; for when the companies make more money the insured participate to a certain degree in the benefit. Two cents a year per $1,000 of insurance is suggested as sufficient to raise a very large fund and one that would be used to the great profit of the companies.

WHY NOT?

Why do physicians allow laymen to do a not inconsiderable portion of the practice of medicine? Dr. Laertus Connor, of Michigan, has asked this question a number of times and has given much of his energy to its discussion. Take, for example, the matter of fitting glasses. Itinerant peddlers of glasses exist in every part of the country. In small towns the local jeweler is the optician. Now, it is not argued for a moment that every physician should or could be a first-class oculist; but where is the physician who, with a little time given to a study of the elemental principles, could not become in a short time a better fitter of glasses than the average itinerant or town jeweler? And furthermore, the physician doing this work would be an added protection to the public, for he would recognize complications of a serious import more quickly and more surely and thus send the patient to an oculist at an earlier date, than would be the case with the entirely uneducated town jeweler. There really seems to be no good and sufficient reason why physicians scattered about the country in small towns or isolated villages and hamlets should not take up this, devote a little time and study to the simpler portion of the art of refracting, and thus return into the domain of medicine a very large amount of work that has fallen into the hands of charlatans and simple merchants. Why not increase your income and improve your position, if you are located in the country, by taking up this line of professional work?

PROGRAM

THIRTY-NINTH ANNUAL MEETING MEDICAL SOCIETY, STATE OF CALIFORNIA.

Below is given the program for the scientific sessions of the State Medical Society at its 39th meeting in San Jose on the 20th, 21st and 22d of April. While the scientific exhibit will probably be somewhat larger than indicated, no material change will occur either in the way of an increase in the number of papers to be presented, or in a change of position of the various papers in the different sessions. This program is complete with the exception of six papers which have been arranged for, but the exact titles of which are still lacking. These with the names of their authors will be inserted into the program obtainable at the meeting.

The attention of members and contributors to the program is respectfully called to the following points. The various sessions will begin promptly at the hours specified. In the interests of a rapidly moving and good program, the reading of all papers is restricted to ten minutes. Discussions are limited to five minutes for each member taking the floor. Authors who fail to be present at the time set for the reading of their papers are not promised an opportunity to present them at a later session. Absent members may have their papers read for them if they will mail them early to any member of the Scientific Program Committee.

As the scientific exhibit will be open throughout the session, the contributors to the exhibit are asked to have their material ready for public inspection not later than the evening preceding the first day's session of the Society. Ample room and exhibit tables will be available at the hotel for these exhibits, but the exhibitors are asked to bring with them or send with their exhibits all necessary accessories.

So far as possible, errors in the following program will be corrected before that to be used at the San Jose meeting is issued if prompt word is sent to the Chairman of the Scientific Program Committee, Dr. Martin H. Fischer, Union Savings Bank Building, Oakland.

FIRST DAY.

April 20, 1909.

Morning Session.

9:30 A. M.

101. The Address of Welcome.
Dr. William Simpson (San Jose).
102. The President's Address.
Dr. W. W. Beckett (Los Angeles).
103. Report of the Committee on Public Policy and Legislation.
Dr. F. B. Carpenter (San Francisco).
103a. Report of the Committee on Medical Education.
Dr. F. Dudley Tait (San Francisco).
104. Report of the Committee on Tuberculosis.
Dr. George H. Evans (San Francisco).
105. Report of the Committee on Public Health.
Dr. Fitch Mattison (Pasadena).
106. Report of the Committee on Cancer.
Dr. W. Francis B. Wakefield (San Francisco).
107. Report of the Committee on the Venereal Peril.
Dr. A. B. Grosse (San Francisco).
108. Leprosy (with Demonstration).
Dr. W. A. Clark (San Leandro).
109. The Relation of Rat Leprosy to Human Leprosy (with Demonstration).
Dr. William B. Wherry (San Francisco).
110. Filariasis (with Demonstration).
Dr. Herbert Gunn (San Francisco).
111. Amoebic Dysentery.
Dr. John D. Long
(United States Public Health and Marine Hospital Service).

Afternoon Session.

2:00 P. M.

The sessions of the Eye, Ear, Nose and Throat Section and the Genito-Urinary Section occur at the same hour. The place of meeting of each of these sections will be posted.

The Genito-Urinary Section.

This will be a joint meeting with the Pacific Coast Branch of the American Urological Association.

201. The Radical Treatment of Urinary Tuberculosis.
Dr. Geo. S. Whiteside (Portland).
202. The Conservative Treatment of Urinary Tuberculosis.
Dr. E. G. McConnell (San Francisco).
203. The Tuberculin Treatment of Urinary Tuberculosis.
Dr. F. M. Pottenger (Monrovia).

Discussion to be opened by Dr. Herbert C. Moffitt (San Francisco).

204. The Uses of Bacterial Vaccines in Urinary Diseases.
Dr. Granville MacGowan (Los Angeles).

Discussion to be opened by Drs. George H. Evans (San Francisco) and George F. Reinhardt (Berkeley).

205. Chyluria with a Vesical Sinus.
Dr. Saxton Temple Pope (Watsonville).
206. Two Cases of Leukoplakia (with Demonstration).
Dr. A. B. Grosse (San Francisco).

The Eye, Ear, Nose and Throat Section.

301. Chronic Suppurative Otitis Media from a Medical Standpoint.
Dr. H. C. Moffitt (San Francisco).

Discussion to be opened by Dr. Dudley Fulton (Los Angeles).

302. The Predisposing Causes of Chronic Suppuration of the Middle Ear.
Dr. G. P. Wintermute (Oakland).

Discussion to be opened by Dr. D. H. Trowbridge (Fresno).

303. The Pathology of Chronic Suppuration of the Middle Ear.
Dr. W. E. Hibbard (Los Angeles).

Discussion to be opened by Dr. Barton J. Powell (Stockton).

304. The Treatment of Chronic Suppuration of the Middle Ear.
Dr. M. W. Fredericks (San Francisco).

Discussion to be opened by Dr. H. G. Thomas (Oakland).

305. Cerebral Complications Due to Chronic Suppuration of the Middle Ear.
Dr. Louis C. Deane (San Francisco).

Discussion to be opened by Dr. A. Galbraith (Oakland).

306. Eye Symptoms in Cerebral Complications Due to Chronic Suppuration of the Middle Ear.
Dr. Vard Hulen (San Francisco).
Discussion to be opened by Dr. John Harold Philip (San Francisco).

307. Indications for Operative Interference in Chronic Suppuration of the Middle Ear.
Dr. E. C. Sewell (San Francisco).
Discussion to be opened by Dr. Hill Hastings (Los Angeles).

308. The Different Operations for Chronic Suppuration, of the Middle Ear.
Dr. H. Bert. Ellis (Los Angeles).
Discussion to be opened by Dr. Redmond Payne (San Francisco).

309. An Analysis of Ninety-five Radical Mastoid Operations.
Dr. Cullen F. Welty (San Francisco).
Discussion to be opened by Dr. Kaspar Pischel (San Francisco).

310. A Case of Transient Cycloplegia Due to Glycosuria.
Dr. W. H. Roberts (Pasadena).

311. Visible Movement of Blood in the Retina.
Dr. C. S. G. Nagel (San Francisco).

SECOND DAY.

April 21, 1909.

Morning Session.

9:00 A. M.

401. Congenital Dislocation of the Hip. A Report up to the present of the results of the reduction through an incision.
Dr. Harry M. Sherman and **Dr. Geo. J. McChesney** (San Francisco).

402. Experimental Data. (Electric Sleep and Electric Analgesia.)
Drs. F. Dudley Tait and **Raymond Russ** (San Francisco).

403. Passive Motion.
Dr. S. J. Hunkin (San Francisco).

404. The Correction of Flat and Pronated Feet.
Dr. George A. Harker (Oakland).

405. Surgical Treatment of Tic Douloureux.
Dr. C. D. Lockwood (Pasadena).

406. The Incidence of Malignant Disease in Childhood.
Dr. William A. Edwards (Los Angeles).

407. Surgical Operations in Infancy with Report of Cases.
Dr. William W. Richardson (Los Angeles).

408. Post-operative Phlebitis, its Etiology, Pathology and Frequency.
Dr. C. G. Levison (San Francisco).

409. Roentgenographic Findings in Fracture About the Elbow Joint.
Dr. Albert Soiland (Los Angeles).

410. The Open Treatment of Fractures of the Femur.
Dr. Le Moyne Wills (Los Angeles).

411. Gonorrhea and Pregnancy.
Dr. Alfred Baker Spalding (San Francisco).

412. The Diagnosis of Solid Tumors of the Ovary.
Dr. August Jerome Lartigau (San Francisco).

413. Some Special Surgery of the Uterus and Broad Ligaments.
Dr. H. P. Newman (San Diego).
Discussion to be opened by Dr. W. F. B. Wakefield (San Francisco).

414. Persistent Thyroglassal Duct.
Dr. J. Henry Barbat (San Francisco).

415. Some Conservative Surgical Procedures for Protecting and Preserving Pelvic Organs.
Dr. J. H. Sampson (San Jose).

416. The Surgical Treatment of Stone in the Lower Third of the Ureter.
Dr. Harold Brunn (San Francisco).

417. Two Huge Calcified Cysts of the Urachus in the Same Woman. Operation; Recovery; Specimens.
Dr. D. A. Beattie (San Jose).

Afternoon Session.

2:00 P. M.

The Scientific Exhibit.

While the scientific exhibit will be open throughout the three days' sessions of the Society, special demonstrations will be made on this afternoon. Those responsible for the various exhibits will be present throughout the afternoon to explain them to interested visitors. As most of the exhibits cannot be demonstrated advantageously to the whole Society at one time, the demonstrations will be repeated before small groups not only throughout this afternoon but at other hours that may be arranged with those in charge of the exhibits.

500. **Exhibit of the Public Health Commission of the Medical Society, State of California.**

501. **The Hendryx Laboratory of the University of Southern California Medical Department.** Dr. Black (Los Angeles).
Pathological specimens.

502. **The Pathological Laboratory of the University of California.** Dr. A. F. Gillihan (Berkeley).
Microscopic pathological specimens.

The commoner pathological lesions of the human body will be demonstrated in this exhibit. The following is an outline of the specimens that may be seen under the microscopes.

First Day.

Afternoon: Inflammation, degeneration and other morbid processes.

Evening: Lesions of the kidney.

Second Day.

Morning: Lesions of the liver.

Afternoon: Lesions of the respiratory and circulatory systems.

Evening: Lesions of the alimentary tract and the pathological changes observed in the blood, in tuberculosis and in syphilis.

Third Day.

Morning: Tumors.

503. **The Pathological Laboratory of the Oakland College of Medicine.** Dr. Gertrude Moore (Oakland) and Mr. Finley Eastman (Berkeley).
Common gross pathological specimens.

504. Dr. William B. Wherry (San Francisco).
Specimens of rat leprosy.

505. Dr. Herbert Gunn (San Francisco).
Specimens of filaria.

506. Dr. Ray Lyman Wilbur (Palo Alto).
Pathological specimens and X-ray plates.

507. **Cooper Medical College.** Drs. Charles Miner Cooper and George Painter (San Francisco).
Diapositives, illustrating the value of the X-ray in diagnosis.

508. Dr. George Martyn (Los Angeles).
X-ray photographs of tuberculous lungs.

509. Dr. Le Moyne Wills (Los Angeles).
X-ray plates of fractures.

510. Dr. Carl R. Krone (Oakland).
X-ray plates.

511. Dr. Dorus Brumwell (Kings City).
Dissection.

512. Dr. A. W. Lee (San Francisco).
Plaster casts of various pathological states.

513. Dr. George A. Harker (Oakland).
Plaster casts of feet and orthopedic plates.

514. **Drs. H. A. L. Ryfkogel** and **H. Edward Castle.**
Demonstration of arterial suturing.

515. **Dr. H. R. Oliver** (San Francisco).
Demonstration of the spirochete and the Wasserman reaction.

516. **Dr. Jesse M. Burlew** (Santa Ana).
Demonstration of the sporothrix, Schenckii, and patholgical specimens.

517. **State Hygienic Laboratory. Dr. A. R. Ward** and **Miss Elsie Cole** (Berkeley).
General exhibit.

THIRD DAY.
April 22, 1909.

Morning Session.
9:00 A. M.

601. The Value of Plaster Casts in Pathologic Study (with Illustrative Specimens).
Dr. A. W. Lee (San Francisco).

602. Local Anasthesia.
Dr. V. G. Clark (San Diego).

603. Dosimetric General Anesthesia.
Dr. Carl R. Krone (Oakland).

604. Psycho-therapy.
Dr. W. Jarvis Barlow (Los Angeles).

605. Psycho-therapy in Nervous Diseases.
Dr. Philip King Brown (San Francisco).

606. Psycho-therapy.
Dr. F. M. Thomas (Claremont).

607. Therapeutics.
Dr. J. L. Avey (Redlands).

608. Alcoholism.
Dr. F. R. Burnham (San Diego).

609. Results of Seven Years' Work in the Treatment of Alcoholism and Drug Habits.
Dr. R. E. Bering (Tulare).

610. Obstruction of the Common Duct in Chronic Cholecystitis without Stone.
Dr. Andrew Stewart Lobingier (Los Angeles).

611. Diphtheria at the Patton State Hospital.
Dr. J. H. Evans (Highlands).

612. The Toxaemic Factor in Rheumatoid Anthritis.
Dr. Carl C. Warden (Los Angeles).

613. Headache—A Symptom and Its Significance.
Dr. Frank W. Miller (Los Angeles).

614. Professional Work as it Connects with the Medical Society and the General Public.
Dr. William Taylor Barry (Santa Barbara).

Afternoon Session.
2:00 P. M.

701. The Treatment of Acute Infections with Bacterial Vaccines.
Dr. James J. Hogan (Vallejo).

702. Colitis.
Dr. Dudley Fulton (Los Angeles).

Discussion to be opened by Dr. E. Schmoll (San Francisco).

703. The Treatment of Muco-membranous Colitis from the Standpoint of its Bacterial Origin.
Dr. Ray Lyman Wilbur (Palo Alto).

704. A Phase of Irregular Inspiratory Murmur.
Dr. T. C. Edwards (Salinas City).

705. Reverse Peristalsis.
Dr. Rexwald Brown (Santa Barbara).

706. The Physiological Action of Strophanthus and Digitalis, (a) Experimental (b) Clinical).
Drs. Walter E. Garrey and **Emil Schmoll** (San Francisco).

707. Galactotoxismus.
Dr. W. W. Roblee (Riverside).

708. Meningismus.
Dr. Langley Porter (San Francisco).

709. Pulmonary Actinomycosis.
Dr. Geo. L. Cole (Los Angeles).

710. Mercury for the Treatment of Tuberculosis.
Dr. G. G. Moseley (Redlands).

Discussion to be opened by Dr. Hoell Tyler (Redlands).

711. Pulmonary Tuberculosis as Affected by Some Concomitant Conditions.
Dr. J. C. King (Banning).

712. Latent Tuberculosis, its Symptoms, Treatment and Prognosis.
Dr. Max Rothschild (San Francisco).

713. Mixed Infections in Pulmonary Tuberculosis; their Vaccine Therapy.
Dr. G. Martyn (Los Angeles).

ARTERIOSCLEROSIS.*

For three decades and more the work of Gull and Sutton has dominated our conception of disease of the peripheral vascular system. But modern investigations of the peripheral circulation have made necessary a revision of the older views, not only regarding the significance of the clinical symptoms of arterial disease but also of our ideas of the pathogenesis of arterial lesions in general. This new knowledge has been gained, on the one hand, from the use at the bedside of improved mechanical appliances for the measurement and registration of blood pressure, and on the other hand, from experimental researches in the laboratory. With these advances new points of view have been gained which suggest possibilities heretofore little suspected. It is from this vantage ground that the author presents this small volume of 165 pages. In no sense an original contribution, modest in proportion and simple in style, the book contains a lucid, although brief description of the pathology of arteriosclerosis with its clinical manifestations.

A clear conception of the various pathological processes that may affect the arterial wall has been much hampered and obscured by the terminological confusion which has arisen in connection with the presentation and comparison of morphological and clinical phenomena of vascular disease. Heretofore, and to a limited extent, at the present time, the distinctions between atheroma and arteriosclerosis have been imperfectly maintained. In the light, however, of the comparatively recent work of Russell, Savill and others, the meaning of these terms may be clearly defined. The term atheroma should be restricted to a purely local affection of the arterial wall, characterized by a discrete, patchy, fibrous hyperplasia of the subendothelial connective tissue, with the production of localized thickenings of the tunica intima and prone to degeneration. The aorta, the larger systemic and cerebral and coronary vessels are the ones most commonly affected. On the other hand, arteriosclerosis consists of a more or less uniform thickening of the entire circumference of

* Arteriosclerosis: Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis, and Treatment. By Louis M. Warfield, A. B., M. D. Instructor in Medicine, Washington University Medical Department; Physician to the Protestant Hospital, etc. With an introduction by W. S. Thayer, M. D., Professor of Clinical Medicine, Johns Hopkins University. C. V. Mosby Medical Book Co., St. Louis, Mo., 1908.

the vessel wall. The middle muscular coat is hypertrophied, the subendothelial connective tissue is thickened, and sometimes there is hyperplasia of the outer coat of the vessel. In contradistinction to atheroma this lesion is encountered in the middle size and smaller arteries and there is little, if any, tendency towards degeneration.

While the pathological distinctions between atheroma and arteriosclerosis are clear enough their mode of origin is not so evident. Since Josue in 1903 published the results of experimental work on the production of arterial degeneration with adrenalin, numerous investigators—Zeigler, Erb, Stanton and Pearce, Fischer and others—have studied the subject with not altogether uniform results on certain important points. But it has been clearly demonstrated that more or less extensive degeneration of the blood-vessels may follow the intravenous injection of digalen, nicotin, phloridzin, adrenalin and some other substances. The degenerative changes are chiefly confined to the thoracic aorta, although they have occasionally been observed in the renal, mesenteric and other vessels. The lesions consist of small depressed areas, circular in outline, the floor of which may show aneurysmal bulging or distinct aneurysm. Microscopically, as had been shown by Zeigler, Erb and Stanton and Pearce, there is primarily a degeneration of the muscle fibres in the media, the intervening elastic fibres losing their wavy outline but otherwise undergoing no change. Lime salts are rapidly deposited in the area of muscle degeneration, the resulting rigidity of the vessel wall leading to transverse fracture of the elastic fibres. This process is thus confined primarily to the muscle fibre, the elastic tissue being secondarily involved. The adventitia and the intima are not involved, except in the process of repair, when, as has been demonstrated by Stanton and Pearce, the defect in the wall is obliterated by the cells arising from the intima.'

The rapidity with which changes follow the injection of these various substances is, in some cases, quite remarkable. For example, Braun observed microscopic changes of the arterial wall following two injections, while Rzentkowski reports calcification as early as the fifth day. It would seem from the observations of Pic and Bonnamour, and Stanton and Pearce, that the age of the animals plays a part in the experimental results, for these observers found it was more difficult to produce arterial degenerations in young animals than in older ones.

Brilliant as have been the experimental studies in some directions, the mode of origin in man of both arteriosclerosis and atheroma yet remains an interesting speculation. The older view of Thoma who regarded the sclerosis as compensatory to the slowing of the blood stream from a primary dilatation of the vessels has been found inadequate. Russell in his recent work on "Arterial Hypertonus, Sclerosis and Blood Pressure" asserts that there is a generalized increase of the muscular layer and thickening of the intima due to the irritating effects of substances in the blood. However interesting these speculations may be, it is certain that the processes at work in the production of arteriosclerosis in man still remain problems for further investigation.

Apart from a consideration of the results of recent studies of the whole subject of arterial degeneration in their practical applications, Dr. Warfield has dwelt upon some aspects of the question which can not fail to interest the conscientious physician. Not least among them is the problem of diagnosis. Are we not all, in the face of a symptom or symptom complex, only too ready to ascribe it to arteriosclerosis, when from a more searching and analytical study of the case another and truer explanation will be revealed? Is not the word itself too alluring and self-satisfying? The dangers, which in this direction, beset all to a variable, and the beginner to a harmful extent, are so admirably set forth by Professor Thayer in the Introduction, that the reviewer can not close without quoting some of its most pertinent parts.

"There is a despotism to which the greater part of mankind is enslaved, a despotism as absolute in the republic as in the autocracy—the tyranny of words. The thought or fancy unexpressed may have its passing influence; expressed, the mere sound of our own voice exercises upon us a subtile influence which, as it were, drives home the idea, while repetition fastens upon us an impression which, before we are aware of it, has become a conviction —a part of ourselves.

"A term which strikes the popular ear becomes soon associated, in the mind of the average individual, with an idea or picture which may vary greatly from that of his neighbor, and more yet from the truth. Nevertheless, time and repetition fix the idea until 'tis difficult to realize that the word has not to everyone the same constant and sharply defined signification.

"The prevalence of such words and expressions in medicine is familiar to all. These vary greatly in character and origin. Those of older years were usually expressions intended to describe groups of clinical symptoms and were based largely on purely hypothetical considerations. These terms must, of necessity, have been rather indefinite and uncertain in their application even among the medical profession, and much more so among the general public. Such is the commonest and most detestable of words which means everything to everybody and nothing under the sun in itself, 'Biliousness.' Such has been the term 'Malaria' in its popular sense. Such is often enough, the all too popular word 'Rheumatism.' In more modern times, with the development of knowledge of pathological anatomy and physiology, more accurate terms have come into medicine, some based on anatomical, some on physiological changes. Many of these terms have also passed over into popular usage. And while, originally, they designated specific anatomical conditions or physiological processes, the uninstructed public associate them naturally with groups of symptoms, and form many and varied ideas as to their significance. But to each individual the words mean something.

"All this has too often its repercussion on the

physician who, in order to satisfy his patients who demand a name for the symptoms from which they suffer, is led, almost unconsciously, to use a specific term in a general way to cover a variety of conditions in which perhaps the exact diagnosis may not be wholly clear, until, by force of habit and repetition, he finds a certain satisfaction in hiding behind an empty term, and becomes himself a victim of the tyranny of words. What an array of pathological processes have been dismissed under the specific diagnosis of 'gastritis' or 'neuritis'!

"The study of those changes in the bloodvessels, hyperplastic, degenerative, or inflammatory which are the inheritance of advancing years and have been so aptly called the 'rust of life,' is not new. The term 'arteriosclerosis' was used anatomically by Lobstin three quarters of a century ago, and the relations of arterial change to visceral disease have long been a fertile field for speculation and study. But the popularization of the term arteriosclerosis from a clinical standpoint is relatively recent. In later years, however, it has definitely caught the popular ear; it figures in the newspapers as a 'new disease'; it means something to each member of the public; it is a diagnosis satisfying the anxious friends of the patient. And too often the general diagnosis 'Arteriosclerosis' has come to satisfy the physician himself, who without finding a definite explanation of the obscure symptoms of the patient rests on his oars, with the constatation of the tortuous temporal or the palpable radial of the sufferer. The term 'arteriosclerosis' is fast coming to take a place near the throne once occupied by 'Malaria'; it is becoming a dangerous word." A. J. L.

VALUE OF THE MORO SKIN-REACTION AS COMPARED WITH OTHER METHODS OF USING TUBERCULIN FOR DIAGNOSIS IN TUBERCULOSIS.*

By MAX ROTHSCHILD, M. D., San Francisco.

An exact and early diagnosis of any tubercular process is of the greatest importance for the patient as well as for the treating physician, and any method which can be of help in this respect deserves consideration.

Following up Doctor Alderson's paper it might be interesting to compare the different methods of tuberculin reactions in regard to their respective values, on which we depend for diagnostic and to some extent prognostic purposes.

The oldest and, I may state right here from a purely diagnostic standpoint, safest method is still the injection of tuberculin, either subcutaneously or intravenously. To 100 tuberculous patients I have given tuberculin injections for this reason and to get correct statistics I have given to 50 of these patients first a subcutaneous injection of tuberculin and after a couple of weeks, an intravenous injection, and to exclude the possible error in comparing these two methods, that a patient who has had one tuberculin injection may react quicker and to smaller amounts at a second injection, I have given to the other 50 patients, first an intravenous and after two weeks, a subcutaneous injection of tuberculin. The conclusion of these tests shows:

1. The injection of a reasonably large amount of tuberculin gives positive diagnostic values. In two far-advanced cases, the patients did not react with a rise of temperature, but only with a general malaise that was also a positive proof for the presence of a tuberculous process.

2. About one-third of the amount of tuberculin, which was used subcutaneously, was sufficient to produce the same reaction if used intravenously.

3. The reaction after an intravenous injection of an amount that would correspond with about three times as strong an amount subcutaneously, appeared in the average about 8 to 16 hours sooner, and also disappeared much quicker; the negative phase was decidedly shorter, the positive decidedly longer after an intravenous injection, when corresponding amounts of tuberculin were used.

4. The intravenous injection is entirely painless. The local reaction after a subcutaneous injection—(I have used Koch's old tuberculin exclusively for these tests)—is always disagreeable, in some instances extremely annoying.

5. After a subcutaneous injection has once been given, the site of the injection often swells again and becomes painful at a second injection, may this be given again subcutaneously or intravenously.

6. An out-spoken general reaction after a subcutaneous, as well as after an intravenous injection, is always most disagreeable for the patient. To avoid such a reaction I use as small an amount of tuberculin as possible for the first injection. This has the disadvantage that in some obscure cases several injections with increasing amounts will have to be made, before a definite diagnosis can be obtained, and sometimes much valuable time is lost. In some cases it is impossible to avoid this.

Doctor Fehleisen sent a case to me with the probable diagnosis of tuberculous tendovaginitis of the right hand. The patient, about 60 years old, had a bronchitis and was hoarse, but he had been in this condition for several years without any alarming symptoms,—loss in weight, night-sweats or otherwise. Several sputum examinations showed no tubercle bacilli. Pirquet's and Moro's reactions negative. I injected first 1-10 of a mgm., 1 week afterwards 1-6, 1 week later 1-3 of a mgm. tuberculin intravenously with negative results. A week later I injected 1-2 mgm. intravenously, and the patient had a typical reaction and with it a large number of tubercle bacilli appeared in the sputum.

In 100 cases Calmette's instillation has been used, but besides my own tests I have taken into consideration the different publications of a great many writers on this subject, especially those of Wolff-Eisner. This reaction loses in value for different reasons.

1. The reaction, after the first instillation is often negative in absolute cases of tuberculosis not only of the third stage, as has been claimed by some writers on this subject, but also in cases of the first and second stages.

* Read before San Francisco County Medical Society, November 10, 1908.

2. The number of cases that do not show any symptoms of tuberculosis clinically, and that react also negatively to several injections of tuberculin, and react positively to the instillations, was surprisingly large. A low estimate gives, in about 1-5 of all cases that show no symptoms of tuberculosis, a positive reaction.

3. The greatest disadvantage of Calmette's instillation is the extreme sensitiveness which most tuberculous patients show at a second instillation. And this oversensitiveness appears also in cases of tuberculosis, that did not react at all after the first instillation. The fact alone that some patients show, after the first instillation, most disagreeable symptoms for a long time, sometimes for 2 to 3 months, as strong conjunctivitis with pus and blood, and chemosis,—is sufficient to discredit this method. Some cases,—about 12,—are published in which a chronic phlyctenular conjunctivitis was the result of one instillation. But the real danger of the method lies in the possibility, that a second physician might give a second instillation for diagnostic purposes, not knowing that an instillation had been made before. This happened to one of my cases. I had made an instillation with negative result and had warned the patient,—who was evidently tuberculous,—that these tests were not entirely harmless. For some reason the patient went south a couple of days afterwards and was given there a second instillation into the same eye. A phlyctenular conjunctivitis set in of which she is still suffering to-day,—pretty nearly three months after the second instillation.

In 50 cases I have used Pirquet's scarification. This method is not dangerous, but it is not reliable, especially not with adults, and I have had the same experience with Lautier's method, which, however, I prefer to Pirquet's method, as it does not need any scarification. Lautier soaks a little cotton with a few drops of a 1% tuberculin solution, applies it to the arm of the patient and covers it with oil silk and a light bandage. The cotton is removed after 24 to 48 hours and in tuberculous patients one notices a more or less outspoken reaction, a diffuse redness which disappears quickly if one exposes the skin to the air. The patients naturally prefer this method to Pirquet's scarification, but it has one thing in common with Pirquet's method; according to my experiments it is not as reliable as it ought to be. Certainly not as reliable as the method which Doctor Alderson has described in his paper, and which I would like to discuss now,—Moro's percutaneous method.

I used this method for diagnostic purposes in 100 cases and I have come to the conclusion that, if used with proper discrimination, it can be well recommended for practical use. The ointment, if kept in a dark and cool place can be used up to six weeks. In cases that are not too far advanced, the method is, as far as I can see, reliable, and in those advanced cases the diagnosis can be made easily without the help of a sensitive test. In three cases of latent tuberculosis, where there were no evident symptoms at all, the positive reaction decided the therapeutic use of tuberculin, and the quick and excellent result proved the exactness of the diagnosis. In quite a number of cases that had no clinical symptoms of tuberculosis and did not appear suspicious, the tuberculin ointment was used by Doctor Alderson as well as by myself, and there did not appear any reaction.

Besides being reliable, the method has the great advantage of the absolute lack of general or disturbing local symptoms, of the absence of any danger to the patient, and of the quickness in its appearance. It did not take longer than 48 hours in any of the cases to get a reaction,—the great majority of the cases reacted in 12 to 24 hours. Sometimes the patient complained of a light itching. The reaction shows well from 2 to 8 days, then it disappears slowly.

Doctor Dudley Tait called our attention to the fact that other bacilli or vaccine-ointments, might give similar reactions in respective infections, and so Doctor Alderson and I tried different ointments in some of my tuberculous patients that had mixed infections. We used streptococci, pneumococci, or gonococci ointments on one arm and tuberculin ointment on the other arm of the patients. While we got each time a positive reaction with the tuberculin ointment, we did not once get a reaction with any of the different other ointments. Some of the cases were quite interesting. One of them was a young sailor who had been under treatment for incipient tuberculosis of the left upper lobe about 15 months ago. Six months ago discharged, as there were no more clinical symptoms present. He went to sea again and was in good health when he returned about 6 weeks ago. Then he got a gonorrhea. We rubbed one arm with gonococci ointment with negative result and the other arm with tuberculin ointment with positive result. Two weeks later he sent for me on account of an outspoken gonococci arthritis. A second ointment test gave the same result as the first test, in spite of the fact that the gonococci infection had become general.

Another interesting case is that of a dentist who had been treated for about one year and a half on account of tuberculosis of the lungs in the second stage. Several sputum examinations had been made by Doctor Bixby. At the beginning of the treatment the patient's sputum was full of tubercle bacilli. After one year and a half treatment the patient's general condition was excellent. He had gained considerably in weight, had no more night sweats or shortness of breath, very little cough and very little sputum. This was examined again by Doctor Bixby, Doctor Abrahamson and myself and no tubercle bacilli could be found. A few days ago I had the sputum examined by Doctor Ophuls whose report reads, "Numerous diplococci and short streptococci; no tubercle bacilli in spite of careful search with mechanical stage." Then I rubbed the patient again with tuberculin ointment with a positive result and the rubbing with the other respective ointments gave negative results. In these cases, as well as in many other tuberculous patients that had been treated and were clinically free from any

symptoms of tuberculosis, a positive reaction followed after Moro's test. Some cases came under treatment that did not have any sputum at all, but other symptoms, as cough, night sweats, fever, loss in weight or hemoptosis. Moro's test was positive and decided the treatment. It is important that the ointment is prepared properly, otherwise the result will be doubtful.

As an illustration I would like to mention a case that Doctor Redmond Payne referred to me. A young woman with cough, expectoration and considerable loss in weight had been operated on by Doctor Payne on account of hypertrophied tonsils. The microscopical examination by Doctor Ophuls showed a tuberculosis of the tonsils. Several examinations of the sputum showed no tubercle bacilli. Doctor Payne tried the Moro test with negative result. He sent the patient to me for examination and I found a suspicious spot in the right upper lobe. I used the ointment and got a decided and quick reaction. The different results were due to the preparation of the ointments.

I have the decided impression that an outspoken reaction is a favorable sign in regard to prognosis. Most patients with far-advanced cases react very lightly or not at all. I cannot say the same of the Calmette reaction. Some writers, for instance Stadelman and Wolff-Eisner believe that a negative Calmette reaction, in definite cases of tuberculosis, is a bad prognostic sign. This cannot be accepted as a general rule. In about 50% of my cases of tuberculosis of the 3rd stage I have seen a negative reaction. Some of these cases grew worse rapidly and died, but some of them showed no ophthalmic reaction and got better. Others show an outspoken reaction and die quickly. The same can be said of the ophthalmic reaction in cases of the second stage. In the cases of the first stage I could not convince myself at all of any prognostic value of the Calmette instillation.

The Pirquet reaction seems to be more valuable in regard to the prognosis, but it is important to use weak solutions. I prefer a 1% solution of Koch's tuberculin in 0.9% normal salt solution, always make a control scratch and then scarify at another place through a drop of the tuberculin solution. If the reaction is outspoken and appears quickly, it seems to be a good prognostic sign and is in this regard similar to the Moro test.

In conclusion of this paper, I would like to state that it seems advisable to use in all cases that appear suspicious of tuberculosis, first the Moro ointment for diagnostic purposes, because it is quick, free from any disagreeable general symptoms, free from any danger, and reliable. If, in a suspicious case, the reaction should be negative, it is advisable to use an injection of tuberculin, either subcutaneously or intravenously,—1-10 of a mgm. intravenously, or 1-3 of a mgm. subcutaneously are sufficient in the majority of cases. The intravenous method is preferable for the reasons stated in the beginning of this paper.

TREATMENT OF BURNS.*

By CHESTER J. TEASS, M. D., Kennett.

My excuse, if any is necessary, for bringing to your attention the treatment of so common a condition as that of burns is due to the very fact of their importance through their frequency. Moreover, the literature upon this subject has been meager during my time of practice and I have yet to hear a paper read or a discussion of this subject before a body of medical men. Furthermore, I know of no condition in the whole category of surgical or medical nomenclature for which the lay public have such an inherent, fiendish abhorrence as for that of "burns." This may be due to that still lingering spark of superstition in the breast of humanity so firmly implanted by the clerical teachings of past ages. This wildly hysterical and fearful mental dread only adds to the physical shock when such accidents are encountered, and in this day of perfected surgical technic, is entirely unwarranted, because the vast majority of this class of patients can be rendered speedily and permanently comfortable.

Having been connected with smelter and railroad work for the past ten years, I have had a rather varied and interesting experience with "Treatment of Burns," and for my own part would much rather have a patient brought into the hospital quite severely burnt than one suffering from pneumonia, typhoid fever, etc.

The indications for treatment are:

1st. To relieve the pain and overcome the shock.

2nd. To prevent infection and thus prolonged sloughing.

3rd. To guard against congestion and inflammation of the internal organs.

Pain is relieved by any of the safe systemic methods at our command for the alleviation of pain and additionally by such local treatment as presently to be described. The first and foremost thing to keep in mind in the local treatment of burns is, that it is at all times essentially a surgical condition; hence it is of paramount importance to see that everything coming into contact with the wound is sterile.

Like gunshot wounds, the first dressings are the all-important ones, and for this reason we keep gallon bottles filled with a 4 per cent aquo-alcoholic solution of picric acid distributed in parts of the smelter where men are most exposed to the danger of burns and have all foremen instructed that when a man is burnt to cover his burnt areas and the clothing in their vicinity with the picric acid or yellow solution and then send him to the hospital without any further dressings being applied to the burnt surface.

We have the picric acid solution used first because it not only relieves the physical and thus the mental suffering, but because it is about the most penetrating and efficient surgical dressing we possess. I have never seen a case of infection follow its first application to burns, neither have I seen a case of poisoning follow its free and prolonged use,

* Read before the Pacific Association of Railway Surgeons, 1908.

although I can conceive that some patients may have an idiosyncrasy for the acid as well as for any drug. If there is a granulating surface it is of little value; but there is another thing you can surely depend upon, and that is, when you have a wound covered with a moist picric acid dressing you need never fear an erysipelatous infection of that wound, for picric acid is a specific for the erysipelatous bacillus. Its only drawback is its property of staining yellow everything with which it comes in contact. In a measure, this objection can be overcome by the attendants wearing rubber gloves, but as the color cannot be detected by artificial light, extra precaution should be taken when using it at night. However, the yellowish discoloration of the skin may be removed by washing with alcohol or with a solution of carbonated lithium, or better still, a solution of ammonia.

Hence, it seems to me that as we possess such an all around, efficient and desirable remedy as picric acid for the first aid in such conditions, that it is our duty to have it in convenient shape for immediate application in all places where humanity congregates and where there is any likelihood to such accidents, for it prevents the kind friends from covering the burnt surfaces with such things as carron oil, lubricating oil or any other kind of oil or grease, or "Denver mud" and the like, which substances only hold the dirt there and thus interfere with the proper surgical cleansing of the wound, as well as being the cause of unnecessary pain.

When the patient is seriously burnt, as soon as he is covered with the picric acid solution, he has a woolen blanket thrown around him and is given a very hot drink, which will equalize the circulation to some extent before reaching the hospital. Here the wound is carefully freed from all foreign substances and the vesications are carefully drained, as their serum plus fibrin-ferment on coagulation forms an excellent culture medium. When large blebs form, the skin is left intact for protection, their lower margin being slightly punctured and their serus contents gently pressed out with a sterile gauze sponge. In the meantime the patient is being treated for shock by such cardinal principles as laid down by Crile of Cleveland. Now, if the burns are very extensive both as to degree and area, he is put into a warm bath where the temperature is aimed to be kept at about 100° F. during the shock and later never allowed to drop below 98½° F. The bath may have 4% boric acid or 1% sodium chloride added to it. According to Rose, the first record found in literature of treatment of burns by the continuous warm water bath is that by Passavant, who treated extensive burns by this method in the year 1857 (first published in 1858); but Hebra in 1861 wrote as follows: "The continuous full bath given for therapeutic purposes and kept up for days, weeks or months, has, as far as I am aware, never been tried or carried out by any one. The action of the continuous bath is manifold. It gives immediate and almost complete relief from pain and can be considered as a most excellent anodyne. Another advantage is that the water penetrates the burnt tissues, in consequence of which they remain moist and soft, they detach themselves easily and are washed away after having become detached. Thus the wound is constantly kept clean and you do away with the awful dread to the patient of changing dressings."

Langenbeck, who in the year 1850 introduced continuous immersion as a method of treating surgical wounds, characterized it as the mildest method, not requiring dressings, securing clean wounds in a way which could not be surpassed in any other method. There are certainly many cases which would prove fatal without the advantage of this means. We know the serious effect of extensive burns on the nervous system, and here the continuous warm bath must be considered as the best of all remedies. When a part of the body is placed in warm water the nerve ends of the skin become irritated. This irritation is transmitted to the vasomotor nerves and is followed by dilatation of the blood vessels and, consequently, by acceleration of the circulation. This accelerated blood circulation facilitates the elimination of the products of inflammation. These warm baths are a means to stimulate metabolism, the principal desideratum when we have to deal with severe injuries needing great recuperative power.

In burns that are less desperate in character we take pads of several thicknesses of plain sterile gauze and wring them out of hot boric acid, acetate of aluminum or normal saline solution, and cover the burns in such a way that only sections of the dressings need be removed at a time. Thus the patient is protected over the greater area of his body all the time. The gauze pads are kept constantly warm and moist by being replaced with new ones at frequent intervals. These moist gauze pads are covered by thick dry pads, made by wrapping absorbent cotton in sterile gauze, and over this is placed a layer of oil silk.

After the stage of shock has been passed and you are assured that none of the internal complications will supervene, the "open air method of treatment" will at times give the speediest and most satisfactory results. Of course, this necessitates a trained nurse in constant attendance, but any severe case of burn should receive such attention. The exudation of serum should be constantly sponged away by means of the sterile gauze sponges and the raw surfaces dusted with stearate of zinc. Again the great advantage of this treatment is that you save the patient the pain and the dread of removing dressings.

Where there has been charring with resulting deep destruction of tissues, it is advisable to dissect out such dead tissue as soon as it is consistent in order to prevent the drain on the system of the slow process of sloughing, as in this way you convert it into a clean surgical wound which can then be treated accordingly; that is, by such methods as the transposing of a flap or resorting to early "skin or egg grafting."

When the papillary layer is involved it can be best protected by rubber tissue in overlapping strips from half an inch to one inch wide, thus allowing

the escape from the wound of discharges which are immediately taken up by the overlying layers of gauze that are nowhere in contact with the wounded surface. The rubber tissue dressing, with its thick covering of sterilized material, acts as a substitute for the destroyed integument. If now the wound has really escaped being infected (which can be prevented by soaking the rubber tissue strips in a saturated solution of gum camphor in phenol), it will rapidly become covered by a renewed epithelial substance. When it is changed there is practically no pain and no hemorrhage whatever. It also prevents exhaustion, and probably eliminates this as a cause of death. Furthermore, there is a small amount of contracture. Where burns of other than an hospital nature are met with, especially of those where self-medication has resulted in inflamed margins, dirty grayish white bases and pouty, flabby red granulations with increased pain, we find that a pad of plain, sterile gauze saturated with a perfectly saturated solution of gum camphor in phenol gives almost magical results. The first dressing will cause some additional burning for about two to five minutes, and then the phenol acts as an anesthetic while the caustic properties are neutralized by the camphor. With this dressing it is surprising how comfortable a patient can remain with relatively large burnt areas while continuing at work. Upon change of dressings the wounds will be found to be surprisingly clean and drying over with considerable degree of rapidity. Especially is the treatment applicable to burns around the ankle and over all bony projections, as with burns in such locations it is more difficult for patients to keep at work.

I have not as yet reached that place in practical surgical results where I have completely discarded all ointments; for instance, where a patient has a rather large superficial burnt area and comes to the office for dressings. A piece of lint covered with sterile zinc ointment will be found one of the most convenient as well as satisfactory drying dressings we possess. Again where there has been numerous small deep burns, and where the edges remain thick and indolent we find the following stimulating ointment to be of value, viz:

℞

Acidi Borici .....℥ i
Iodoform .....℥ iss
Ichthyol .....℥ ii
Zinc Oxide Ointment.....℥ ii

M. ft. Ung.

When the area burned is so extensive that the subsequent suppuration might prove too great a drain upon the patient's strength, and for any reason they could not be advantageously dissected out, or when the area occupies such a position that even if perfect healing should take place, the remaining cicatrix would be constantly exposed to ulceration through the effects of abrasion or would seriously interfere with the use of the limb, it would be advisable to resort to an early amputation.

So far I have spoken of external treatment only, but no article on treatment of burns would be complete without some consideration to internal treatment. In fact, I can conceive of no condition of things that would warrant the neglect of the general consideration and management of every patient as an individual. So in burns of even moderate degree or numerous small burnt areas, the patient's secretory and excretory functions should be carefully watched, the circulation should be kept active in all parts of the body, the diet should be carefully regulated, the bowels should be thoroughly evacuated with repeated doses of calomel and tympany constantly kept down by repeated turpentine emulsion enemas; and for the first few days the patient should be put at absolute rest until the time for dangerous complications shall have passed, such as ulceration of the stomach and bowels (especially the duodenum), nephritis, meningitis, congestion of the lungs, and thrombosis. So we cannot too strongly accentuate the great importance of constitutional treatment.

It has taken some of us a long time to find out that everything that happens to a patient is not solely due to that which is done for him, but also as to the way in which it is done.

I wish to report briefly two cases only as they will illustrate what can be done in some apparently hopeless conditions:

In July, 1900, while in charge of the Iron Mountain Copper Company's Hospital at Keswick, Mr. P. M. was brought into the hospital with his left leg and foot fairly cooked from having endeavored to walk over the crust of a slag pot filled beneath with molten slag, the crust not having cooled sufficiently to sustain his weight, gave way precipitating his foot to the bottom with the result as stated. After the usual preliminary treatment in such cases, and when the foot and leg had become covered with healthy granulations, I curetted down to a healthy base and applied Thiersch's skin grafts, but as the weather was unusually hot I could not get the skin grafts to take, so I resolved to try the so-called egg-grafting, which is as follows, viz: Take a perfectly fresh egg and soak it in bichloride 1-1000 for three hours, then rinse in sterile water, open the shell under aseptic conditions, removing the lining membrane and placing it in normal saline solution. Now apply in the same identical way as the Thiersch graft with its inner and smooth surface next the clean base of the wound. In this case I was amazed at the rapidity with which new, healthy epithelial granulations formed around the islands of egg grafts, for within two weeks the patient's raw area was covered with a healthy epithelial covering, and this when I had seriously considered amputation.

Case No. 2. In December, 1906, Mr. C. C. F., while stooping directly under a blast furnace spout at Mammoth Smelter, at Kennett, had about fifty pounds of molten metal splash over on his head and back, setting his clothes on fire. He ran away from every one, and finally, after being caught, the remnants of his burnt clothes fairly dropped off his body. Upon arrival at the house I found the back of his head, ears and side of face, entire circumference of neck, shoulders and entire area of back and both elbows fairly seared white from the excessively hot metal. There were also numerous small and large areas of superficial burns of chest, abdomen, hands, legs and feet; so all in all, there was fully two-thirds of the entire area of his body burnt. At that time not having the conveniences of a hospital, it was out of the question to resort to the continuous warm water bath, so resorted to the hot boric acid pads of gauze. Our greatest difficulty was keeping him in a com-

fortable bed, as it was out of the question for him to lie on his back and with considerable difficulty on his abdomen; so we took large rolls of cotton batting and built the bed up high and narrow in its center. Thus by keeping two such beds freshly made up and changing him from one to the other once to twice in twenty-four hours, he was kept fairly comfortable. The first four days we had great trouble with his bowels and stomach; tympany became at times alarming and was constantly being fought by the high turpentine emulsion enemas, but after the fifth day we had very little trouble with him. By constantly changing the hot boric acid gauze pads the wounds were kept perfectly clean, a little of the white, dead epithelial tissue coming away with each change of dressing, and the remarkable thing was the great rapidity with which the burnt area was replaced by normal epithelial covering, and this without having to resort to any skin grafting, for within a little less than four weeks the patient was walking around with only more or less red areas of skin, a little thinning of the ears, and a rather thick, red skin over both elbows to show for his frightful burns.

Discussion.

Dr. Morton, San Francisco: I have been very much interested in this paper. It is one of the best papers I have ever heard on the subject of burns and the technic. With regard to the picric acid I have been using it constantly for a number of years and have always felt afraid of poisoning. I remember one case in the City and County Hospital years ago which developed symptoms of poisoning. I am very glad to know that the doctor has had no trouble with his large burns.

Dr. Teass, closing: The length of time allotted to the reading of the paper would not permit me to touch upon the pathology of the subject, but to the clear understanding of the application of at least part of the treatment, it is essential that we think of the changes that take place in some of the tissues following extensive superficial burns. Notwithstanding the enormous progress made by our modern laboratory investigations, it is most interesting to note that, at least in this instance, they have served only to corroborate ideas arrived at from the accurate deductions of clinical observation. For instance, Long, a well-known English surgeon, as far back as 1840 stated that clinically, as from their complicated effect on the internal organs, burns closely resemble acute febrile diseases involving the skin. Most text books attribute death to thrombosis, but thrombosis occurs at times only in the capillaries and veins of the internal organs. According to the best article I was able to obtain on the subject, viz: "A Study of the Visceral Changes in Extensive Superficial Burns," by Charles R. Bardeen (from the Pathological Laboratory of the Johns Hopkins University and Hospital), there has come into view the idea that after burns there come into existence and circulate in the blood toxic substances which give rise to the constitutional symptoms. The blood is markedly altered; its specific gravity is slightly raised, the erythrosites are in part injured morphologically and functionally, and there is marked leukocytosis, chiefly of polymorphonuclear cells. Fragments of red blood corpuscles are collected in cells of the spleen, bone marrow and lymphatic glands; blood pigment is seen in the epithelium of the kidneys. The chief gross morbid changes are cloudy swelling of kidneys and liver, softened, enlarged spleen, and above all, swelling of the lymph glands and of the entire gastro-intestinal lymph follicles. Calvert found that a small arteriole runs to the center of each follicle in the lymph gland and here breaks up into capillaries which radiate out from the center and are collected into veins at the periphery of the follicle. The edematous swelling of the follicles is probably due to the plasma escaping with much more than the normal rapidity from the capillaries radiating from the central terminal artery. The violent necrosis of the lymphocytes may be ascribed to toxic substances in the plasma. These lesions of the lymphatic tissue are essentially like those found in the lymphatic glands of children whose death has resulted from diphtheria. Personally I have had very little opportunity of studying the visceral changes following extensive superficial burns, for I am happy to state that of all the varied cases of burns that have come under my personal care I have to record but one fatality, and that was during my first year of practice. A little tot some two years of age had fallen into a tub of hot water and was quite severely burned. I knew nothing of the treatment of burns then, so used the old carron oil treatment. The child died of toxemia. I feel quite confident that if I had a similar case to handle to-day it would in all probability recover.

DECAPSULATION OF KIDNEYS—CASE REPORT.*

By REXWALD BROWN, M. D., Santa Barbara, Cal.

Let me first place before you the case history:

Patient: Mrs. S. B. H., housewife, age 57. Kindly referred by Dr. H. L. Stambach, of Santa Barbara, in January of this year. Family history: Negative.

Personal history: a. Menstrual life ceased at 50 years of age; was always normal. b. No children; no miscarriages.

Previous illnesses: a. Scarlet fever, diphtheria and measles in childhood. b. Had attacks of migraine—headaches which vomiting relieved—from girlhood to the climacteric—they ceased at close of this period. c. When patient was 35 years of age, in 1886, she had attacks of severe crampy pain in left kidney region, often accompanied by vomiting. d. During the following year there were at intervals dull pains in left lumbar region and pain on urination—she often passed numbers of small stones—urine contained much pus. e. She was quite free from pain after this for two or three years; during this time she suffered a sunstroke, which compelled quiet for several months. f. In 1890 lumbar pains reappeared, and patient became a semi-invalid from continuous ache and soreness about left kidney. g. When 40 years old in the latter part of 1891, patient again suffered a very severe left lumbar colic, attended with vomiting, fever and collapse. She was confined to bed from December until the following March. Perinephritic abscesses developed, extending into loin and into left iliac fossa. A fistula opened through loin, discharging many stones; it healed in a couple of weeks. Following closure of first fistula, another opened above left iliac brim and discharged stones as large as peas, remaining open several weeks. Patient was told she could not live without operation, which she refused. In April and May patient began to get about on crutches.

Since 1892 there has not been a colic in left kidney region, though at no time has patient been free of a dull, dragging pain. Pus has appeared in urine at varying intervals.

Present trouble: In May of 1906, having undergone a severe strain for a year previous—illness of husband—patient consulted a Los Angeles surgeon because she had severe pain in left kidney, severe headaches had recently appeared, she had lost consciousness at times, and spots were appearing before eyes.

The right kidney was cut down on at that time and a letter from the surgeon said a modified Edebohl's operation had been done. Patient felt somewhat better after operation. The headaches were not so severe; spots before eyes grew more pronounced, however. In June, 1907, in Los Angeles, urine analysis showed—1000 c. c. examined:

* Read before the Southern California Medical Society, Santa Ana, Dec., 1908.

1. Deficient total solids.
2. Deficient urea, .06 per cent.
3. Albumin trace.
4. Hyaline granular and epithelial casts.

In April, 1907, there was swelling in the right lumbar region which receded in a week's time—there was little pain with the swelling, but urine contained much blood and pus—there was also increased pain in left kidney at this time. From May, 1907, until February, 1908, conditions progressively grew worse. Eyesight failed markedly; patient could not read or write, and outlines of large objects were very dim. Headaches of a type altogether different from those she had suffered years before appeared—in December and January they occurred every two weeks or ten days, lasting two and three days, and were almost unbearable—vomiting, which accompanied them at times, gave no relief. Patient would be stupid and dull following the headaches. The left kidney region was the seat of constant pain and aching.

Examination revealed: Pulse of high tension—wirelike. Heart hypertrophied; valvular sounds pure. No superficial arterio-sclerosis. No edemas. Right kidney not palpable. Left kidney region tender. Eyes—by Dr. E. A. Dial—albuminuric retinitis. Urine analysis, 24-hour specimen: a. Amount, 1700 c. c.; b. color, turbid; c. Sp. G., 1010; d. total solids, much decreased; e. urea, .04 per cent; f. albumin present; g. no sugar; h. microscopical, 1. much pus; 2. granular and hyaline casts.

With the above facts to guide us we diagnosed chronic uremia on the base of a chronic interstitial nephritis; subsidiary to the main picture a pyelitis or a pyelo-nephritis, pointing to the left kidney because of the pain and tenderness, and yet not improbable in the right kidney because of the occurrence of swelling and hemorrhage a few months back.

A very sick and worn out patient exacted from us relief; death was preferable to her than life freighted with unendurable headaches, loss of sight and incessant pain in the back. The resources of medical treatment had achieved little in the amelioration of symptoms.

The gravity of her condition was fully explained to the patient. She was told that no known method of treatment could possibly obviate the certain death which awaited her, it might be very soon, at any rate not far distant. The facts concerning the surgical treatment of nephritis were given her for consideration; nothing was promised did she submit to surgical measures; however, from the statistics we could assure her of a limited degree of hope; we might be able to partially restore her vision and relieve the headaches and pain. The patient cheerfully welcomed the surgical chance and requested operation, not so much for hope of relief, but as her friends knew, more with the trust that the operative shock might relieve her of burdens through death.

Our justification for cutting down on the kidneys followed what we considered to be the true conditions existent, i. e., the anatomical changes and altered functions. We were reasonably certain of our conclusions, but yet not oblivious to Cabot's observations that the clinical features are not always the index to the lesion.

A short review of the case from the above history brings to the fore protracted inflammatory irritation to the left kidney—evidenced by the constant lumbar pain and irregular pyuria. The original calculous pyclitis instituted changes, which maintained, had insidiously developed a primary renal cirrhosis—we should not be surprised to find stones remaining and much scar contraction.

The absence of edemas in any area, the albuminuric retinitis, the uremic manifestations, i. e., the headache and vomiting, the urine analysis, the absence of hardened arteries and but moderately enlarged and perfectly compensating heart made fairly certain the diagnosis of a primary sclerosis in the right kidney also—the pathogenesis was not so obvious. Yet certain factors could have been at work:

1st. The kidney was subject to ascending infection from the bladder, a pus reservoir at intervals; this undoubtedly produced a pyelitis in April, 1907.

2nd. The general blood stream could have carried mild toxic products absorbed from the left pyelitis, which, during the long period of twenty years, might have in their exit from the right kidney gradually produced indurative conditions, and

3rd. In long standing nephritis it is well known both kidneys are usually pathologically similar.

Primary sclerotic kidneys then being the basic condition, they interfered with free circulation of blood through them, and because of degeneration and pressure atrophy of the Malpighian bodies urea and other toxic products of perhaps equal or greater importance were deprived of filters and consequently retained in the blood stream. Headache we assumed resulted from brain irritation in two ways—through direct contact with toxic material, and through increased intra-cranial blood pressure, part of the general increased blood pressure. Theoretically, increased blood pressure in primary cirrhosis of the kidneys is due to increased resistance in the kidneys, compensating hypertrophy and work of the heart, and perhaps generalized angio-spasm from circulating toxins. Loss of vision seems possible of explanation on the theory of degenerative changes in the retinal blood vessels from the toxins.

The kidneys therefore were properly organs for operative interference: 1st. To increase their circulation and nutrition, thereby assuring relief of kidney and general tension, and also making possible renewal of parenchymatous activity, with attendant increased output of deleterious toxines; and 2nd, to find and make inactive the long continued irritation to the kidneys, and in so doing, relieve the nephralgia.

On February 17, 1908, patient was anesthetized at St. Francis Hospital. I cut down on the right kidney first and decapsulated it, and then did likewise on the left kidney. I also removed some fifteen or twenty small stones from the pelvis of left kidney and closed wound about a tube, which drained pus and urine for several days. The capsule of the right kidney bled very freely when incised.

The pathological findings were: Right kidney was of about normal size with a firm adherent capsule; much fat lay about the kidney and was particularly adherent to the non-peritoneal surface; the previous operation was perhaps a capsulotomy; pelvis appeared normal. Left kidney was very much contracted, the lower pole being entirely a cicatrix; the upper pole appeared to be secreting tissue; in the walls of the pelvis stones were imbedded and a small quantity of pus and urine escaped when the stones were removed; kidney lay in much fat and capsule was dense and very adherent.

The patient made an uneventful recovery from the operation and left hospital in three weeks. Within a month she was able to again read newspapers and write letters; vision returned to a remarkable degree, practically to normal. Headaches ceased altogether and did not reappear at any time during the remaining months of her life. Urine was free of pus in six weeks and remained so. Several examinations showed increased sp. g., increased total solids and increased urea, one time being 1.3 per cent; traces of albumin were always present, and, too, granular and hyaline casts.

Nephralgia did not altogether disappear and one day, some six months after operation, patient passed a couple of very small stones, giving us information that nephrolithiasis still existed. General arterial tension was markedly decreased, and did not again rise.

On October 15th, eight months after operation,

Mrs. H. died, death directly due to a weakened heart. Compensation signally failed in the last couple of months, transudates and edemas became permanent, and cardiac asthma became the prominent feature in the symptom-complex.

Autopsy practically confirmed the operative findings. Both kidneys were enveloped in a great amount of fat and capsules seemed reformed, but much thinner. Throughout the scar tissue of the left kidney were small cysts containing fine stones. Heart was hypertrophied; there was no general arteriosclerosis; aorta was somewhat thickened.

Decapsulation of the kidney as a therapeutic measure in Bright's disease has had few adherents in the past two or three years, and in the main the opposition is well grounded. It does not cure the disease, whose pathology is far from limited to kidney change. The above case is recited only to add to others similar in the literature, which speak for operation in well-selected cases, not with the expectation of cure, but as a palliative when all other means have failed. Can it do in even a percentage of cases what it did for this patient then truly decapsulation is a measure of much merit. So great was our patient's relief, that despite the asthma and edema, she longed to live, whereas before the operation death was greatly desired.

Uremic symptoms and retinitis in chronic nephritis foretell death. They are assumed to bespeak the failure of the kidneys to eliminate excrementitious products whose retention causes these symptoms. These effete products are chemically unknown; modern investigation does not believe urea to be the one deleterious agent; its decreased output, however, seems to be expressive of decreased output of the unknown poisons. If, therefore, by decapsulation urea output can be made to approach normal again, it seems rational to advocate this measure in cases in which the heart action is still good, little arteriosclerosis is present, and there is reason for a person living a few months longer, or having his eyesight preserved for some special purpose. By removal of the capsule there is renewed parenchymatous activity, partially perhaps by increased vascularization through the fatty capsule. Unfortunately a new capsule forms in a few months with resultant onward march of the disease.

Cushing and Bordley have lately advocated decompressive craniectomy in chronic nephritis with uremia and failing vision on the basis that local edemas exist in the brain and about the optic discs to explain the symptoms. This is undoubtedly true in many cases and the operation can be of value. In the cases where degenerative changes in the blood vessels from circulating toxines rather than edemas seem responsible, the proper field for operative attention is the kidneys.

In conclusion, surgical interference in Bright's disease should not be altogether discarded. It will be found of value in cases well chosen, not to cure, but to inhibit certain symptoms at least for a time.

TYPHOID FEVER.*

By E. C. TURNER, M. D., Sacramento.

While the subject of this paper is typhoid fever, do not expect even a description of the disease, for I would be practically "carrying coals to Newcastle" if I were to even attempt to give the symptoms of an infection that you have all unquestionably seen many more times than myself. Fortunately my position as host gives me a sort of mild dictatorship and allows me to dwell on only the points that I may care to. Consequently this essay will deal more with theories than facts, with debatable ground rather than well-defined paths; and, it is hoped by the author, will lead to a great deal of valuable discussion rather than be in itself a thing of value. Trusting that you will pardon its lack of sequence and necessary brevity, I will proceed.

Etiology. In looking over the voluminous literature on the subject, I have been struck with the many ways that one may be exposed to the infection. Perhaps one of the most startling because seldom considered causes was taken up by Barringer (*Med. Record*—Dec. 19, 1903; p. 971) in a short article on the spread of typhoid by railroad coaches. In the day coaches, the discharges of the passengers (many of them convalescing from the fever and many more of them, judging from recent investigations, true "typhoid carriers") are dropped on the side of the track; in the Pullmans this is varied by adding water so that the excrements may soak further into the soil, or fall easier into the small stream or large river that the train may be passing over.

Since the baccilus typhosus has been known to live 17 days on cloth soiled by feces, months on the dry cloth, and none know how long it may live in the soil where conditions are favorable for its propagation, why are not track laborers more exposed to typhoid fever than any other class, and trainmen and travelers next?

Are we not subjected to danger every time we ride? In summer our train is sucking up quantities of mingled dust and feces from the dry road bed, and we are drinking out of dust contaminated cups, leaning against dirty cushions, and eating without trying to give the bacteria on our hands more than the customary "lick and promise"? That is a problem for our railroad brothers to answer.

In the early spring of 1905 the levee at Freeport gave way and the surrounding country was under water for several months. During the summer that followed, the County Hospital constantly had from ten to twenty-five typhoid cases, and in almost every case, the patient came from that portion of the country. Undoubtedly the wells in that low land were infected and just as undoubtedly, in my mind, the marked increase of cases in Sacramento during that summer was due either to milk contaminated by the enteric bacillus as in the case of Palo Alto in 1903 (Fish-Mosler-Snow), or from vegetables carefully washed before being sent to market.

Typhoid bacilli have been known, experimentally, to live at least 5 months in well water. Could it be possible that some of our wells in that district, recently closed by order of the Board of Health, could have resulted from that inundation? They also live from three to eight months in ice and snow, as some of the doctors here to-night can testify. How many of our cases of unexplained source of infection come from "natural ice" taken off the small ponds, camping places for invalids and health seekers in summer, and at all times close to the railroad? Remember that all ice is not necessarily sterile, and that our so-called "natural ice" contains quantities of "frozen snow" and dirt.

Pathology. How and where the germs get past the body's first defenses is still unsettled. Certainly in all other diseases of a like nature, the invading

* Read before the Sacramento County Medical Society December 15, 1908.

organism must first find some breach or crack in the wall, and whether this exists in those susceptible or is manufactured by some toxin or mode of growth of the typhoid bacillus, is on the same debatable ground as whether the infection first gains access through the tonsil or through the intestine.

Nor is it necessary to have any visible lesions of the intestine in those having the disease as is sometimes supposed. (Thos. McCrae (Osler's Mod. Med.) reports four cases out of 105 with no intestinal lesions.) Also, ulcerations and other well marked destruction of tissues occur in many other parts of the body. (For example, Baer found ulcers of the larynx in 20 per cent of his cases.) In other words, typhoid fever is a general septicemia almost like diphtheria with a predisposition for certain distinct tracts of the body more than others. But let us briefly study the poisons of those two organisms and note their differences.

Living Klebs-Loffler bacilli throw off a poison or toxin which the body rapidly combats by forming an antitoxin. Living typhoid bacilli throw off little or no toxin in comparison, and it is not till their bodies are dead and broken up that a toxin of a proteid nature is given off, and this according to Vaughan (*Am. Jr. of Med. Scien.*, Sept., 1908) is in combination with a residue which, in small quantities, stimulates proteolysis (or the splitting up of the proteid poison into simpler bodies), but in larger quantities increases the susceptibility of the host.

So the incubation period of typhoid is really one in which the bacilli are not only multiplying, but in which the blood and organs are developing more complement for this bacteriolytic action to take place and the fever which follows signifies that a destruction of bacilli in quantities is certainly occurring.

The bacilli multiply in the body in places where the blood stream is quietest. (McCrae Osler Mod. Med.), and as a result, our typhoid complications resemble nearly any other kind of septicemia.

Regarding the intestinal lesions and especially Peyer's patches, in this light, we will find that Baumgarten years ago and many others since (Pratt-Peabody & Long, *Jr. A. M. A.*, Sept. 7, 1907) considered them as metastases, rather than as primary lesions, and indeed it is hard to think of them as anything else when we think of the numerous cases of typhoid cholecystitis, who discharge such enormous quantities of bacilli through their intestines without any lesion of the gut (Barlow; *Medicine*, 1903, LX, 734).

Probably the ulcers are formed very much like gangrenous appendices, by a shutting off of the blood supply. In this case, perhaps by the large endothelial cells, which undergo marked proliferation in the disease or from the toxins, pressure from congestion, or from thrombi formed by the bacteria themselves.

Strange to say while cultures may easily be obtained from the neighborhood of the ulcers, the ulcers have few or no typhoid bacilli, although containing many secondary invaders (V. Drigalski; *Centrbl. & Bakt.*, 1904, XXXX, No. 6).

Another peculiar thing about the disease is that the bacilli are very numerous in the gall bladder, bile and first part of the duodenum and decrease in numbers as one examines the lower small intestin (Foster and Kayser; *Munch, Med. Wochochi*, 1905, page 1475), so that in some instances they are absent in the ileum.

I would like to consider some other matters at length; the worthlessness of the gall bladder as a functionating organ; lymphatic tissue in the liver; inflammation and destruction of blood forming organs with consequent leukopoenia and anemia, and the possibility that the lymphatic apparatus keeps up a constant discharge of bacilli into the blood and so prolongs the fever, etc., but I know your patience will stand but a few words more in conclusion.

Treatment. A young doctor in San Francisco, a few years ago, accidentally drew some of a culture of typhoid into his mouth. Germacides were freely and instantly used and these were followed by large doses of the so-called intestinal antiseptics, to no purpose, for at the end of fourteen days he came down with typical symptoms and had the disease in a very severe form. Now if medicines of this character given long before the sickness, have no effect, what possible benefit can we expect from them, except perhaps that of slightly inhibiting secondary invaders, or of removing typhoid bacilli from the excreta? But will it do the last? I think we all know of the famous case of the cook in New York who, at the end of 600 days of very active treatment, has not had them disappear from her stools.

The so-called typhoid serums are still in the experimental stage, Chantmesse (*Med. Press and Circular*, London, Dec. 25, 1907), being about the only observer to report marked success, and the vaccines are only giving moderate results in cutting down the mortality in the British and German armies and are surely not practical for ordinary purposes.

Perhaps if a good bac. coli communes and streptococcus serum could be found, we would be more reasonably certain of saving many lives now lost through perforations really due to those secondary invaders. At present, nothing specific has been found and so treatment should be directed along the same lines as with any other septicemia, giving due regard to bowel involvement. In feeding typhoid cases, the keeping up of the body strength, as recently proposed, by large doses of milk sugar, is certainly worthy of consideration.

Discussion.

Speaking of typhoid without intestinal lesions, Dr. Twitchell reminded the society that the bacillus of para-typhoid was first discovered in an abscess of the sterno-clavicular articulation, and that while there was no doubt of the fact that there were cases of true typhoid without intestinal lesion, it must be remembered that some of these cases might be para-typhoid. He believed that we were only on the threshold of our classification of the typhoid fevers, which were many in number, with similar clinical courses. He believed that other bacteria in the intestine had a beneficial effect on the in-

testinal condition; that perhaps the lactic acid bacilli were among the number, and that accounted for the good results in feeding with buttermilk.

Dr. Jones reported that on the railroad service track men predominate among the typhoid cases, but whether due to exposure by occupation, less personal care, or drinking out of many streams of water he could not say. Engine men came next, but they drink out of engine tanks that are rarely cleaned. Most of the cases received are the so-called "walking typhoid" type and come in during the second or third week and so have a splendid chance to spread the disease before their arrival at the hospital.

Dr. S. E. Simmons thought that the causes of typhoid fever could be expressed in the quadrilogy of feces, flies, fingers and food.

Dr. James reported an autopsy of a case of typhoid with 7 perforations in which, although the patient had had ham and eggs 36 hours before death, there was no digested food.

Dr. Parkinson thought that the typhoid cases of the last few years were either milder or were modified in their course by treatment. He believed that intestinal antiseptics were of avail, although probably they had only a secondary action.

Dr. W. A. Briggs stated that he had seen two epidemics from milk and noticed many cases after the first early rains had washed feces into the small streams. He said in part: I have insisted on the advantage of treatment with prenacetin because of the extremely smooth course of the disease, for in a large series I have had a very low death rate and I believe that it has a very important place because 1st, the patient is absolutely free from delirium, and those delirious will be relieved; and, 2nd, pulmonary complications are almost universally absent and cough is very rare. Intestinal complications are also rare. In 210 cases, I have had but two cases of moderate hemorrhage, and they occurred in the first of my series, when treatment was not so systematic.

It is thought that phenacetin reduces the hemoglobin, but my last two cases had but a very slight change before and after treatment. In 210 cases I have had 5 deaths, two cases under my charge, from the beginning two coming from the country in the third week of the fever, and one dying from the shock as a result of a beating by a drunken husband.

I suggest that you begin with small doses of phenacetin and feel your way until confident. In a number of cases, I have given 120 grains a day for two weeks at a time, and in some 140 grains. As for its effect on the heart, I believe that the reduced temperature under its use more than overbalances the toxic results.

Dr. Nichol stated that nine-tenths of deaths occurring from typhoid fever in Sacramento were brought here from other places, and that really no statistics compare with Sacramento as to low typhoid rate.

Dr. G. A. White reported operating on five typhoid perforation cases; all died, but one died from a second perforation nine days later, a second from the fever alone, and a third lived twelve days and then died of hemorrhage.

Dr. Turner, in conclusion, called the Society's attention to the interesting fact that Adami (Montreal M. J., 1899), stated that colon bacilli in small numbers in healthy individuals are constantly finding their way into the finer branches of the portal circulation, and that one of the functions of the liver is to arrest the further passage of the bacilli into the general circulation. Perhaps this function in typhoid fever is the cause of the numbers of bacilli in the duodenum, and the intestinal juices must be credited with causing their deaths as they deseend into the bowel.

TUBERCULINS.

By FELIX LENGFELD, San Francisco.

Notwithstanding the extensive use of tuberculins therapeutically, many physicians are somewhat confused regarding the nomenclature, dosage, etc. The busy practitioner has no time to look up literature extending over a series of years in a large number of periodicals. Even when he does he finds the subject none too clearly treated, so that it seems advisable to embody a few facts in a short statement.

There are now five tuberculins more or less generally used. There are a large number of others, some entirely discarded, and some used by a very limited number of specialists, and of little interest to the general practitioner.

The five most used are Tuberculin (Koch's); the Tuberculin of the German Pharmacopeia, now often spoken of as "Old" or "Original" Tuberculin; Koch's New Tuberculins (three in number)—Tuberculin Residue (T. R.), Tuberculin Obere (T. O.), Bacilli Emulsion (B. E.), and last Denys' Bacillary Filtrate (B. F.).

The Original Tuberculin is made by concentrating and filtering a pure bouillon culture of tubercle bacilli, to which 5% of glycerin has been added. The bouillon is heated to 70 to 100 degrees and concentrated to 0.1 its original volume, so that the finished product contains 50% of glycerin.

This Tuberculin after apparently failing as a curative agent has been very largely used for diagnostic purposes. Recently it has again been taken up as a curative agent, the doses now given being very much smaller than originally.

Koch's New Tuberculin (T. R.), is prepared by rubbing up very finely powdered dried tubercle bacilli with water, and subjecting it to the action of a centrifuge, so that everything soluble goes into solution and insoluble residue is left. This residue is then further powdered and repeatedly centrifuged with a mixture of glycerin and water in which all is finely suspended. This mixture is the finished T. R. One cubic centimeter (T. R.) is obtained from each 10 milligrams of dried tubercle bacilli used. It does not, however, hold in suspension all of this, but merely the insoluble portion, which if separated would be about 2 milligrams.

Tuft's New Tuberculin (T. O.): This consists of that portion of the bacilli separated from T. R. in the centrifuge. A small quantity of glycerin is added and the liquid so diluted that each cubic centimeter contains the soluble portion of 10 milligrams of tubercle bacilli.

Koch's New Tuberculin (B. E.): This, as the name indicates, consists of tubercle bacilli powdered and suspended in a mixture of glycerin and water, 10 milligrams of dried bacilli to 1 c.c. B. E.

Denys' (D. F.): consists of the filtrate from a bouillon culture of tubercle bacilli, heat and preservatives being avoided.

Regarding the dosage of Tuberculin, much confusion has arisen in the use of the term milligram, and consequent doubt as to whether the quantity given referred to the Tuberculin as found on the market, or to the solid substance in the Tuberculin,

or the weight of tubercle bacilli represented by the tuberculin.

This would all have been avoided had the term cubic millimeter, that is the .001 of a cubic centimeter, been used, instead of milligram, which indicates weight. However, the mischief has been done, a clumsier term stands little show of adoption, and the term milligram will continue to be used as synonymous, in most cases, with cubic millimeter. Most of the confusion has perhaps been with regard to Koch's New Tuberculin. Excepting for a short period during which physicians were misled by a statement in some journal that Koch's Tuberculin contains 10 milligrams of bacilli substance to the cubic centimeter, there has been little doubt as to what was meant when 1 milligram of Old Tuberculin was mentioned. It meant .001 of a cubic centimeter of Tuberculin as found on the market.

Some of the early workers on Koch's New Tuberculin, probably considering the dilution more or less arbitrary, gave their quantities in terms of dried tubercle bacilli, so that the comparison of doses of Old and New Tuberculin became rather complex.

Even this was not universal, so that when a milligram of T. R. is spoken of it is a little difficult to tell whether .001 of a cubic centimeter of the finished product is meant or the equivalent of 1 milligram of dried bacilli, that is 0.1 of a cubic centimeter of the finished product. It has even been suggested that the dosage should be given in terms of the solid substance in the T. R., which would be still more confusing, for 1 milligram would then mean one-half of a cubic centimeter of finished product, and it would almost take a trained mathematician to compare the doses of the different Tuberculins. It seems best clinically to give the dosage in terms of the finished product, so that 1 milligram in every case indicates 1 cubic millimeter, or the .001 of a cubic centimeter; and the tendency is certainly in this direction.

For curative purposes, the beginning dose of all Tuberculins is very small, being from .0001 of a milligram to .01 of a milligram. This is gradually increased until the physician is satisfied that the maximum dose has been reached. The beginning dose of the Old Tuberculin is slightly larger than that of the others. It is best to begin with small doses even with it.

There has been considerable discussion as to the best way to dilute Tuberculin so that the very small doses indicated may be accurately given and the dose gradually increased without too much complication.

Koch's Original Tuberculin, even in diluted solution, is stable to heat and preservatives, and the solution may be kept for quite a time by the addition of one-half per cent carbolic acid or one-third cresol.

Koch's New Tuberculins must be handled more carefully. It is said that diluted solutions very soon decompose; and it is difficult to learn from the literature the temperature they will stand. The writer's experience shows that T. R., at least, in dilution as high as 1 to 16,000 may be heated to 60 degrees and will keep for at least two months in hermetically sealed bulbs. Such two months' old solutions have produced a reaction with too large a dose.

I have no data on T. O. or B. E.

B. F. being prepared without heat or preservatives, it would seem wise to respect these precautions in its dilution. To dilute Tuberculins, normal salt, or a mixture of glycerin and water may be used. Two principal methods have been proposed for so diluting Tuberculins that the dose may be gradually and mechanically raised. These may be called the geometrical series and the decimal series. In the decimal series, solutions are prepared containing 1 c.c. of the Tuberculin in 10, in 100, in 1000, etc., c.c. of finished solution. With a beginning dose of .0001 of a milligram, solutions 1 to 1,000,000 are first used, beginning with 0.1 c.c. the dose is increased each time by 0.1 c.c. until 0.9 have been given. Then dilution 1 to 100,000 is used, the 0.1 c.c. being given, and so on down the series.

In the geometrical series the Tuberculin is diluted so that 2 c.c. equals 1 c.c. of Tuberculin; then 1 c.c. to 4 and to 8, and so on, doubling each time. In this series, beginning with an initial dose of .0001 of a milligram, the 0.1 of a cubic centimeter of dilution No. 21, which is almost exactly 1 to 1,000,000, is first used; then 0.2, then 0.3 c.c., then 0.4 c.c., then 0.5 c.c., then 0.3 c.c. of No. 20, 0.4 c.c. of No. 20, 0.5 then 0.3 of No. 19, and so on down the series, beginning always with 0.3 and going up to 0.5; or if the physician thinks it is easier to measure large quantities, he can run it 0.3, 0.4, 0.5, 0.6, 0.8 and 1 c.c., then 0.6, 0.8, 1 c.c., etc.

Here again we have confusion in the numbering: In the decimal system it is customary to begin numbering from the most dilute. In the geometrical series the No. 1 is T. R. The latter seems more rational, because a further dilution can be added at any time. The geometrical series has another advantage over the decimal—the relative increase in doses is more nearly constant. Thus after the first three doses the increase is never more than thirty-three per cent and never less than twenty per cent of the preceding dose. On the other hand, in the decimal system the increase varies from eleven to one hundred per cent of the preceding dose. It may be urged that the geometrical series means too large a number of bottles for hospital or dispensary use. This may be obviated by keeping on hand only every third dilution, thus No. 21, 18, 15, 12, etc., beginning with 0.1 c.c. of No. 21, give 0.2 c.c., 0.3, 0.4, 0.5, 0.7, 0.9, 1.2, 1.6. This latter is equivalent to 0.2 of No. 18, therefore the next dose is 0.3 of No. 18, and so on down the series. In this way the increase is from twenty-five to fifty per cent of the previous dose. Other variations suggest themselves. The private practitioner will probably prefer to get his dilutions in bulbs or tubes holding from 1 to 2 c.c.

The question is frequently asked: What is to be done by the man who has a minim instead of a c.c. syringe? If he will use a minim for each 0.1 of a c.c. as given here, he will get the same result, although he will always be one or two doses behind the man with the c.c. syringe; his percentage of increase, however, will be the same, and that is the essential feature.

FEE DIVISION.*

By REXWALD BROWN, M. D., Santa Barbara.

It has become a practice in many communities—a practice which thrives in the dark—for certain surgeons to induce general practitioners to refer them patients for operation, the fee for the surgical care to be returned in part to the general practitioner; also for general practitioners to exact of surgeons for patients tendered to their skill a division of the operative fee in exchange for the favor shown.

This, gentlemen, is a traffic in human life—patients with ailments which only surgery can relieve are bought and sold. As the practice lacks any moral element, the sufferers who are the subjects of barter naturally become the patients of those who pay the highest commissions. As a rule these surgeons are the least skilled—thinking as they do of the financial value to themselves of an operation they neglect the niceties of surgical technic which so much concerns the future health and happiness of the patient, and even means the difference between life and death.

If all members of the medical profession should sink to this base level of commercialism, and cease to labor in the fields of altruism, heaven help the people! This is not said in antagonism to the use of business methods by physicians—rather would I insist on better business management in our dealings with patients, but let it be done in strict accord with the highest principles of sterling honor.

The physicians engaged in the fee-splitting practice have prostituted their noble calling. They look upon medicine and surgery as a purely business proposition. Consciences become seared by money grabbing, and the best interests of the patients are scarce thought of. Gentlemen, the practice is reprehensible, and has no moral justification. A laborer is worthy of his hire—the surgeon who tries to get a compensation somewhere near what his services are worth—and they are never too high, when a life is saved with resultant years of happiness to the individual and to his family—should not be compelled to give to the physician who did nothing but refer him the patient a large slice of the fee.

The physician receives something for nothing—the patient actually pays into the physician's pocket through the surgeon a compensation which is rightly the surgeon's. The physician actually collects from two parties for services rendered to neither—it is a species of graft.

The medical profession stands for the increasing of individual and racial happiness, stands for the prevention and abolishment of disease. It offers to humans weighted with illness, relief and cure consistent with modern knowledge and its application. To each member of the profession it is not given to labor with equal knowledge and skill for the alleviation of suffering. Opportunities, training and adaptabilities have not been the same.

The public has learned that the medical profession must be adequately compensated for work done in order that it may have the means to ever increase by study and research the value of the services. This is not a selfish hold-up on the part of physicians, most of whom, did they devote the same thought and energy to other pursuits that they do to medicine, would perhaps be members of the wealthy classes.

Sick people prefer to be restored to health by those who are most competent to do so, and they are usually willing to pay a compensation commensurate with their means. It holds good in the medical profession as in all other spheres in life that some men will be better qualified to handle certain medical and surgical problems than will others. That they will be better paid for handling these conditions is part of modern social arrangements—the public expects to and desires to pay for actual value received.

A person naturally seeks a physician when he is ill. So great is his faith in the general probity of medical men that the average individual goes to the doctor nearest him, unless other circumstances send him to another practitioner, and relies upon him to direct the proper treatment. He places his life and well-being in trust. Nobly has the medical world merited this trust, keenly has it been alive to the sacred responsibilities of the calling. So utterly impossible has it been for any physician to be conversant with or able to handle all the special problems of medicine and surgery, that part of the duty of each has been to refer to better qualified men the patients whose illnesses are beyond his handling properly. It is a signal and unselfish service to humanity of which the profession is proud.

Only in this wildly commercial age, wherein money has seemed to be a god, have certain members of our glorious calling seen the possibilities of financial gain to themselves through trading upon the illnesses which patients in a supreme faith bring to them for cure. Such papers as this are written merely that we may not all forget the obligations of our work, our responsibilities to humanity. It is well that our medical societies should discuss the relations among their members and our relations to society. Only in this way shall we keep before us the "Gods of our Fathers."

Undoubtedly, fee-splitting may have some of its origin in the dissatisfaction of family physicians over what seems to be gross discrepancy between the fees they receive for months of service, and the fee which a surgeon receives from the same family for a single operation. Though this discrepancy be present it does not give the general practitioner a moral claim on part of the operative fee.

Each charges for his services according to standards of his own. The questions involved are—does the surgeon ask for more than he deserves?—does the general practitioner rate his services too low? In answer it may be said that the general practitioner in his heart of hearts knows that rarely is the surgeon unjust or excessive in his fees when the service is considered—rather the practitioner undervalues his own work, and knows that he has failed to educate the public to appreciation of his services which are of equal and often of greater value to society than are the surgeon's.

* Read before the Santa Barbara County Medical Society, January 11, 1909.

Understanding this, does not the family physician demean his calling and demean himself in demanding and accepting commissions from the fee for surgical services rendered by another and justly belonging to him, when this same money—the commission—should have been his directly from the patient for the services which he has not taught the public should be rightfully paid for and for which he has not the courage to charge. Such services are for instance—1st, the making of the diagnosis, and the responsibility entailed in deciding the necessity for operation, and in selecting the right man to whom to intrust the patient's life; this service should be of great value, for the patient relies utterly on his family physician, as he himself is not competent to judge of surgical conditions and of operators—the physician must therefore be conversant with the work of surgeons, and this requires time, travel, study and money on his part that he may know; 2nd, for paving the surgeon's way with accurate data of the case and the patient's idiosyncrasies; and 3rd, for consultation after operation, etc.

Gentlemen, why should the surgeon collect for the general practitioner for these and other similar services? He is not a bill collector.

Let me state my convictions: If the public should ever come to believe that it is being deliberately sold by its family doctor in whom it reposes all confidence, to the surgeon who pays the highest commission and not to the one of greatest surgical skill and judgment, there surely will be an eruption, which will go ill with the general practitioner. He is seeking a betterment of his financial status, which is justly deserved, in an utterly inexcusable way, which will altogether defeat the desired ends.

A spirited and concerted opposition to lodge and club practice, to excessive output of poorly prepared doctors from inferior schools, and united action toward the enactment and enforcement of good medical laws which would shut out of practice much of quackery and charlatanism, can aid much in bringing the general practitioner into his own, and too, will mean increased lease on life and happiness to humanity. The family doctor has yet to learn, has yet to teach his clientele that his services should not be reckoned at so much a visit, but should be based on the broader ground of value received in staying disease processes, through a keen knowledge of the underlying pathology.

Thousands of physicians charge nothing on their books for diagnosis and for opinions relative thereto. Does the sick patient always derive more benefit from say, twenty visits at two or three dollars apiece, in which perhaps the pulse is felt and a little conversation thrown in, or from one or two visits in which complete urine, blood, stomach and other analyses are done, that a rational therapy may be instituted?

This latter type of service is the essential one to the patient, and for which he should pay—visits should be incidental. If the practitioner insists on fees commensurate with the importance of the case and the knowledge required to reach a correct diagnosis, there will be no reason for him to bleed the surgeon, who should justly have his deserts for the work he does, and which the practitioner does not do, and is not qualified to do through lack of training.

Specialism exists in medicine as in all other pursuits, and it is not to the discredit of the general practitioner that he is not proficient in surgery. However, it is much to his discredit if he exacts tribute from fees which he does not earn. The mere fact that he is in a position to refer patients entitles him to no division. In the heart of the true physician there should be a quiet joy in being able to direct a patient to the hands of him who can give the relief he himself cannot. The mission of the medical profession is unselfish service.

Now, fellow practitioners, let me ask you a question. This is not directed personally, for Santa Barbara seems relatively free of the fee-splitting fever, I am glad to say. What course do you follow, when you need surgical attention? Do you not seek the surgeon whom you know to be utterly devoted to his work, scrupulously careful of every canon of surgical principle, and so interested in the welfare of patients that no thought of financial gain can bias his judgment? Of course you do, and you travel miles to him, consistent with your means.

Why don't you refer your surgical patients then to this man, or to those like him, consistent with their means? Most of you do—this is for the few who do not. You know that the consultant or the surgeon who offers commission, or from whom you exact commission, is competing with his more honorable colleagues on a basis other than that of professional character and skill. The reputable surgeons seek practice merely on their merits.

The fee-splitting surgeon takes an unfair advantage, and perhaps gains a practice more rapidly, but you know you have not all confidence in his judgment as to what is best for a patient, for you feel his judgment becomes warped as the prospect of a lucrative fee presents. But as you are looking too for your fee your conscience sleeps with the surgeon's. You deteriorate morally, and before you realize it you have deserted your surgical friend who has given you 50% for another who will pay you 75%. What betrayal of a patient's confiding faith! —the patient who thinks his family physician is all honor. What would his action be when death perhaps confronts him, did he know his physician was using him for bait to catch the highest bidder?

Many surgeons cannot bring themselves to the point of paying commissions outright, so they stretch the point to ease their consciences. The following substitutes have their champions: Some permit the general practitioner to transact all financial arrangements with the patient, the practitioner turning over to the surgeon an amount previously agreed upon between them—many give frequent and liberal presents to their friends, while still others request the general practitioner to be assistant at the operation of the referred patient, and perhaps direct the after treatment, for which he is paid a very liberal fee.

With reference to this last practice I would say a word ere closing. The placing of a knife into a human body is a serious matter. The responsi-

bilities of a surgeon exist from the moment the anesthetic is begun until he dismisses the patient wholly safe from any injury which could arise through his own manipulations or those of assistants. Life may be jeopardized not alone by the disease for which an operation is undertaken, but by lack of anatomical knowledge, by faulty technic, by imperfect asepsis, and by ill-judged treatment of conditions which arise after an operation, incident thereto, or to be considered with reference to the surgical problem present. The surgeon takes all the risk of both immediate and final failures, and with it loss of reputation. For the acts of his assistants he is wholly responsible. Should the general practitioner then feel slighted because the surgeon who, alive to all accidents which can occur in the surgical field, takes means to prevent them, in the interests of the patient, by having his own associates, trained to assist him as he desires, both during the operative technic and in the after care?

Insistence by the physician, not practically conversant with surgical principles and technic, upon being an assistant at operations, and upon giving orders during after treatment, without the concurrence of the operator, is distinctly troublesome, and often jeopardizes the patient's life and the surgeon's reputation. This may be a new thought to many, for the problem is comparatively a new one before the profession introduced by the widening surgical field. There is no doubt that the family physician will meet it aright, as the situation clarifies itself before him.

Fee-splitting of which the patient has no knowledge is a demoralizing and degrading practice, and evil are the consequences to the afflicted. The physicians and surgeons entangled in the meshes stand convicted of falling far from the teachings which rule the great body of medical men—the teachings of loyal and unselfish service.

MEDICAL MILK COMMISSIONS AND THE IMPORTANCE OF A PURE MILK SUPPLY.*

By WILLIAM L. HOLT, M. D., Santa Barbara.

I think we physicians hardly appreciate the importance of the milk supply as a factor in health and disease; and accordingly at the risk of being tedious I am going to consider the dangers of impure milk in some detail. There are four weighty reasons why the milk supply of any city or family is of the utmost importance.

First: It is one of the chief foods of most of our population and almost the only food of the infants. It is so easily obtained, easily prepared, easily digested, and cheap for its energy value of 20 calories to the ounce, and furthermore it contains the food constituents (proteid, carbohydrate, fat, and salts) in such proper proportion and desirable form that it is beyond question the ideal food for most people of whatever age.

Second: In our degenerate days, when, in the upper class at least, only one mother in four can nurse her child for a period of three months, the infants depend almost wholly from the first quarter on cow's milk for their food-supply. As Dr. McCleary has well expressed it, "The human infant tends more and more to become a parasite of the milch cow." And doctors should not need to be reminded how dependent the health and lives of our infants are upon the *quality* of the milk given them. It is a medical truism that the one great cause of the great infant mortality throughout the civilized world is dirty milk. I will cite a few statistics to show how great this mortality is among bottle-fed babies, most of whom are fed what must from a scientific standpoint be called dirty milk.

The average mortality of infants under one year in Germany is over 200 per thousand, which means that one out of every five children born there must die before it reaches the age of one year. Bergeron has expressed this terrible mortality among the newly-born most graphically thus: "The chances of a new-born child surviving a week are less than those of an old man of 90; of living a year, less than those of a man of four-score!" And the vital statistics of Berlin show that 90% of the 10,000 babies under one year of age dying there in 1900 were bottle-fed. The number of breast-fed babies who died during the year in Berlin was only 895. In Paris during the summer months of 1897 2840 infants died, and over 50% of them of diarrheal diseases. That these deaths were due to improper artificial feeding is clearly shown by the fact that only 10% of the infants dying of diarrheal diseases had been breast-fed. In France, where the infantile death-rate is much lower than in Germany or in the U. S., being only 137 in 1900, Chaterinkoff reports that of the 20,000 infants dying of intestinal diseases 80% were bottle-fed. Official statistics show that in Germany the mortality of bottle-fed infants during the first year is actually 51%; in other words more than half die during their first year; while the mortality of the breast-fed is only 8% or 80 per 1000. The infant mortality for the United States in 1880 was 246 per 1000; in 1890 it had fallen to 159 per 1000. During the same period the mortality in the cities of the United States fell from 303 to 184 per 1000. In 1900, however, the infant mortality was still above 150 in seven out of ten registration states. In the District of Columbia for 1900 the rate was 274-5, even worse than Russia's rate of 268. I am happy to say that the last report of the California Board of Health shows the infantile death rate for our state to be as low as that of France, 137.*

In considering these appalling figures we must not suppose that such a high death rate need or does always obtain among bottle-fed babies simply because they are fed on cow's instead of human milk. It is always a considerable disadvantage to a baby to be deprived of its mother's milk, but experience shows that most children fed on pure cow's milk in accordance with the carefully worked-out principles of our modern specialists thrive very well, and

* In this city excluding premature infanta, 22 under 1 year died during the past twelve months out of 184 total deaths. This probably represents an infant mortality of 130 to 150 per 1000.

* Read before the Santa Barbara County Medical Society.

that it is not cow's milk as such, but dirty, improperly modified, or wrongly fed cow's milk that kills.

This is proved by the fact that improvement of infants' milk supply and teaching of mothers concerning the first principles of artificial feeding has in several of our American cities considerably reduced the infant mortality. Dr. L. Emmett Holt of New York, for instance, explains the diminution in the death rate of children under five in New York City from 97 in 1891 to 67 in 1900 as due in large measure to the betterment of the milk supply and the furnishing of pure milk gratis together with a general adoption during hot weather of some form of milk sterilization.

But the classical example of reduction in infant mortality accomplished by improvement of the milk supply is that of Rochester, New York. The average mortality there during the month of July in the six years preceding the establishment of the Infant Milk Depots was 94 total deaths among infants under one year. As Rochester is a city of about 200,000 people with five thousand births annually, this figure represents a mortality of 19 per 1000 infants for the hot month of July, which is a comparatively low mortality. But when Dr. Goler established his first Infant Milk Depots in Rochester for the distribution of pasteurized milk to the working people's infants, the mortality for the months of July and August fell to 43 and 44 respectively. This was in 1897, and the same low figures were maintained for 1898 and 1899, showing the reduction was not accidental and temporary. But Dr. Goler was not content with saving so many hundreds of babies' lives. He said: "Pasteurization is good for dirty milk, but why have filth in milk at all—why not aim at clean milk which needs no pasteurization?" Like all innovators and reformers he was considered crazy and denounced for experimenting with babies' lives.

But in the next year, 1900, the Rochester Academy of Medicine organized an active Medical Milk Commission which obtained a supply of pure certified milk, and Dr. Goler tried the "dangerous experiment" of feeding infants on pure, raw milk. The results soon justified his belief in its superiority, as these figures show. In spite of the growing population the total deaths of children under five years during July and August were only 223 against 368 for the average of the three years preceding. The deaths under one year were 50 for July and 54 for August, 1900, but in 1901 they fell to 37 and 38 respectively and the next year to 26 and 43.

The third weighty reason for a pure milk supply is the danger of disease being transmitted by the milk: viz. tuberculosis from the cows and the germs of typhoid, diphtheria, and scarlet fever from human contamination.

The importance of milk from tubercular cattle and indeed of milk actually containing bovine tubercle bacilli as a cause of tuberculosis in infants and children is unfortunately still not agreed upon by the experts in the question. On one side Robert Koch claims that although children are undoubtedly sometimes infected by tuberculous cow's milk, such infection is so rare as to be nearly negligible compared with the frequency of their infection from human sources. At the other extreme is the other famous German authority, von Behring, who declares his belief that the great majority of all cases of tuberculosis are contracted in infancy by drinking tuberculous cow's milk. Dr. Theobald Smith, our leading American authority in this question, who first demonstrated the difference between human and bovine tubercle bacilli, takes a middle position, expressing himself as follows: "While racial differences probably prevent the absorption of bovine bacilli under ordinary circumstances, and a few bacilli are harmless, there is danger if the digestive tract is flooded with bacilli from the udders."

The experiments which have been made on a most extensive scale in the attempt to settle this vital problem are very interesting; here are the results of some of them. Guinea pigs, cats and apes are easily infected by tuberculous cow's milk, and it has been demonstrated repeatedly that the bacilli have the remarkable power of passing through the normal intestinal mucous membrane without leaving any lesion. In a series of sixteen young pigs fed on tuberculous cow's milk only one developed an intestinal lesion, all the others developed tubercular mesenteric or cervical glands. This fact taken in conjunction with the finding by an English commission that 25 per cent of the cases of tubercular adenitis in the children examined showed the bovine type of bacilli, is pretty strong evidence that a large percentage of tubercular adenitis in children is caused by drinking tuberculous milk. Such experiments certainly favor von Behring's claims rather than Koch's. The fact that young animals are much more susceptible to tubercular infection through the alimentary canal than are adult ones points in the same direction, and confirms us in our belief that tuberculous milk is much more dangerous for infants and children than for adults.

Several English commissions appointed especially to investigate this question of the transmissibility of tuberculosis by cow's milk have all reported affirmatively, that there is real danger of infection by drinking tuberculous cow's milk. Finally we have the testimony of a number of human experiments, where infants were fed on tuberculous milk—accidentally of course—and where other sources of infection were satisfactorily excluded and tubercular lesions demonstrated at autopsy. In one such tragic experiment reported by a careful German authority as an unimpeachable case of milk-infection, four infants with no family history of tuberculosis were fed on raw tuberculous cow's milk and all died of intestinal tuberculosis; the diagnosis was established at autopsy in both the cow and the infants.

I will sum up the matter in the words of our great hygienist, recently deceased, Charles Harrington: "Some of these cases, if not all, may be accepted as very strong evidence that tuberculosis may be spread through the agency of milk."

We are apparently extremely fortunate in having only 2 per cent of our cattle tubercular according

to the tuberculin tests made this spring in our county. But since most of our States have a much higher percentage of tubercular cattle, running as high as 50 per cent in Massachusetts, only the greatest vigilance will keep our percentage so low. Dr. Salmon, Director of the Bureau of Animal Industry, reported the following results of tuberculin tests made in the various states in the year 1906:

State.	No. Tested.	No. Tuberculous.	Pct.
Vermont	60,000	2,390	3.9
Massachusetts	24,685	12,443	50.0
Connecticut	6,300	.....	14.2
New York, 1897-8	1,200	163	18.4
Wisconsin: Experiment station tests on suspected herds	323	115	35.6
Nonsuspected herds	935	84	9.0

Dr. A. R. Ward and Clarence M. Haring report in the August bulletin of our Agricultural Experiment Station, that during the past four years they have made nearly 2,000 tuberculin tests on cows in the various counties of the San Francisco Bay region and in the Sacramento and San Joaquin valleys, of which 453, or 23 per cent, reacted. Only four herds were free from tuberculosis. They consider that a more accurate statement of the prevalence of bovine tuberculosis in California, however, may be compiled from the results of tests made on whole herds the first time. And in this case the figures show 1,022 animals tested with 326 condemned, or 32 per cent. Only 18 per cent of all the herds tested were free from the disease. Few of the herds were suspected; most of them were tested in routine inspections for municipalities.

One fact concerning tubercular cattle I believe is not generally known by dairymen or physicians, but is of vital importance, viz: not only the cow afflicted with tuberculosis of the lungs or udder or whole system is liable to infect her milk, but any and every cow with tuberculosis of any organ whatever is likely to expel tubercle bacilli in her feces and so to infect her milk. For ordinary market milk usually contains more or less cow-manure, as shown by the Government examinations of the milk supply of Washington, which reported fecal matter in 70 per cent of the 172 samples examined.

I will not touch the great problem of the prevention and control of tuberculosis among cattle or the theory and practice of the tuberculin test. But I wish to emphasize the fact that, considering the real danger of infants and young children contracting tuberculosis from tuberculous milk, we physicians should consider it our business to eradicate bovine tuberculosis as a part of our great campaign against human tuberculosis. We should not think, "Oh! we are not concerned with cows; that is the veterinary's business and the dairyman's."

Besides tuberculosis the cow is liable to several other infectious diseases which may be transmitted to man by means of her milk. Most of these are fortunately rare here. They are actinomycosis, botryomycosis, foot-and-mouth disease, cowpox, rabies, milk-sickness or the trembles, gastro-enteritis, sepsis, and mastitis or garget. The last mentioned —garget—is of importance because the streptococci which get into the milk in large numbers from the inflamed udder are liable to cause severe gastro-intestinal diseases in children.

Of the others, the trembles is an obscure disease which occurred in the Middle West in former years and caused a peculiar and very fatal disease in persons who drank the milk; outbreaks still occur in thinly settled parts of Tennessee and North Carolina, but it has never been reported west of Missouri and Arkansas. Hence it is only of historical interest.

Besides the infection of milk with the germs of bovine diseases, there are many objectionable and injurious changes which may occur in milk before it is drawn. Bitter milk may be due either to bacteria entering and multiplying in the milk after it is drawn, or to improper feed, such as lupines, Swedish turnips, or cabbages. Red milk may be due also to bacteria gaining entrance after milking, or to feed containing an excess of silica, such as sedges and rushes, or to madder root, but it is usually colored by the admixture of blood from the udder. And milk may actually be blue when freshly drawn, due to the entrance into the udder of B. cyanogenes. Moreover, milk may be easily given a bad flavor by feeding garlic, wild onions, moldy hay or grain, spoiled ensilage, or distillery grain. The obnoxious products excreted in such milk are mostly volatile oils contained in the food; and if the cows are allowed to wait eight to ten hours after feeding before milking, these objectionable flavors will have been excreted through the other excretory channels and the milk will not be injuriously affected.

The most objectionable feed in this respect is distillery swill, since it causes, in addition to a bad flavor, the secretion of a small amount of alcohol in the milk, and this is decidedly injurious to children and also to calves.

Furthermore, certain poisonous plants, as the poison-ivy and poison-oak and the common artichoke, cause toxic substances in the milk which produce severe gastro-intestinal disturbances.

And finally, the milk secreted for fifteen days before and five days after parturition—called the colostrum—has a strong odor, bitter taste and acid reaction, and is liable to cause colic, diarrhea and such digestive disorders.

Now let us suppose that our cows and their feed are blameless, and we have secured a practically pure milk in the pail. What are the next dangers? We will disregard for the present the contamination of the milk with the common non-pathogenic bacteria which will fall into the pail from the cow's udder and flank, the dust in the air, and the milker's hands and clothes, unless an airtight automatic milking machine be used or the greatest care is taken to have the cow, the air, and the milker scrupulously clean. Much more important is the danger of infecting the milk with the germs of one of the epidemic diseases, typhoid, scarlet fever, or diphtheria, and exposing hundreds of persons perhaps to death from one of these plagues. Since typhoid causes

more deaths than any other of the epidemic diseases in the United States, I will consider that first.

The census reports for 1905 show a death rate from typhoid of 28 per 100,000 population, which means that about 22,000 persons died in that year in our nation from this essentially preventable filth-disease. And 558 deaths from typhoid occurred in California in 1907. What a disgrace to our boasted American civilization! And it is estimated that about a third of all typhoid epidemics in this country are milk-borne. Milk, it must be remembered, is such a favorable medium for the B. typhosus, that a few bacilli mixed in a large volume of milk for a large dairy's supply will multiply so rapidly as soon to infect the whole amount, and so expose each one of that dairy's customers to the disease. The germs may get into the milk in any one of many ways: direct from the dirty hands of a milker who has been tending a typhoid patient or has the disease himself, from contaminated water used to wash the pails or bottles, or from the person who cools or bottles the milk, or even from the waitress in a restaurant who serves you. The chief danger of typhoid infection of milk is believed to be from patients in the early stages of the disease before a diagnosis has been made, or even in the incubation period, and also in convalescence when the patient is apparently well but is still discharging bacilli in the urine and stools. The agency of that noxious germ-carrier and peace-disturber, the common house fly, in infecting milk and other food with typhoid germs from feces should here be mentioned. Hence the requirement that all milk-houses shall be screened and flies also excluded from the stable as far as possible.

Dr. J. W. Trask of the Public Health and Marine Hospital Service, in the valuable and complete Government document, entitled "Milk and Its Relation to the Public Health," reports 179 milk-borne epidemics of typhoid fever, 107 of which have occurred in the United States since 1888. Four of these happened in our own state, one in McCloud, two in Los Angeles, and one in Palo Alto. In this last epidemic at Palo Alto the number of cases, 232, was the high proportion of 25 per cent of the total number of persons exposed by taking the infected milk. The circumstances of the outbreak at Oakland in 1893 give a good example of such milk-borne typhoid epidemics. Here 362 cases occurred in one month, May, 70 per cent of whom were consumers of milk from one dairy. An inspection revealed the following disgraceful state of affairs: Dejecta from a typhoid-infected house close by had been thrown on the ground close to a dam in the creek, from which a pipe conducted water to a tank for dairy purposes. This polluted water also flowed through the cow-pasture, and was undoubtedly the means of infecting the milk.

In the great majority of these epidemics the disease prevailed at the farm or dairy. In 54 cases the milk was contaminated by well-water, which shows the importance of a safe water supply in producing certified milk.

Next in frequency to typhoid come milk-borne epidemics of scarlet-fever. Dr. Trask reports 74 of these, most of them in this country. The largest was in Boston and its suburbs in January, 1907. The outbreak was explosive in character, 227 cases occurring within four days. The water supply was above suspicion, and 195 of the cases (about 90 per cent) took milk from the same dairy. The original source of infection was not found; but as 222 farms were supplying this single large dairy, that is not surprising. This dairy sold milk also in three large suburbs, and in them 350 cases developed during the first twenty days of January, over 80 per cent of whom had used milk from this same dairy. No such epidemics are reported from California, and scarlet-fever caused only 72 deaths in the state in 1907, compared with 558 from typhoid and 380 from diphtheria and croup; but the danger of such milk-borne epidemics of this fatal disease must never be forgotten.

Milk-borne epidemics of diphtheria seem to be less frequent than of scarlatina; but Trask reports 51, one of which was in Los Angeles in 1903. Here 35 cases occurred within ten days in 33 families, all being supplied with milk from the same dairy, where Klebs Loeffler bacilli were found in the throats of three milkers. The original source of the infection, however, was not found.

As we have recently suffered a small epidemic of diphtheria here in our own city, I will narrate the story of another milk-borne epidemic of this disease, which shows how extremely careful we must be in our disinfection of houses where milk is handled and milkers live. In Wellsville, New York, in 1906, forty-six cases occurred in the last fortnight of May, all of which had taken milk from one dairy. Four children in this dairyman's family had had diphtheria in March and April; and during their illness the milk was handled elsewhere, the milkers remained away from the house, and no epidemic resulted. But after the children recovered, a faulty disinfection was made by their mother, the milkers returned, and the milk was again bottled there. Ten days later the first case broke out among this dairy's customers, and 46 cases occurred in all before it was stopped. There was no reasonable doubt in this epidemic that it was due to careless and inefficient disinfection.

It is apropos here to tell how such milk-borne epidemics of typhoid, scarlet-fever, and diphtheria can be prevented. First, the dairy should be well situated; it should have good drainage, and the water supply should be examined and found reasonably pure and quite safe from possible sewage contamination. Second, the health of all persons engaged in milking and handling or delivering the milk should be watched, including a physical examination by a physician at least once a month as a routine measure. If any such employee contracts any infectious disease himself, or if any member of his family or household does so, he must cease at once from handling the milk and stay away until he is beyond reasonable doubt not a probable source of infection. This rule should apply to storekeepers who sell milk, as well as to cooks and waiters and

waitresses in hotels and restaurants. Third, flies must be carefully excluded from the milk; they are dangerous carriers of all sorts of disease germs. Fourth, sterilization of all bottles and cans returned from customers' houses before they are used again for holding milk. Fifth, sealing of milk bottles as soon as filled, to prevent any danger of infection during delivery. But since under present conditions these precautions cannot be carried out in most cities, pasteurization properly done after the milk has been bottled is the most practicable method of preventing milk-epidemics in our large cities. This should be combined with intelligent and careful supervision over the depots and stores where milk is sold.

So much for the dangers of the milk supply. Now how do Medical Milk Commissions aim to obtain milk which is pure and as free from all these dangers as human knowledge and conscientiousness can make it? I will give you a brief sketch of the founding of the first medical milk commission by Dr. Henry L. Coit of New Jersey in 1893. During the spring of 1887 he found himself confronted with the task of feeding his infant son. In order to obtain sound milk for him he was driven from one source of impoverished and contaminated milk to another, until in desperation he sought a small suburban dairyman who kept and delivered the milk of four cows. When he found three cases of diphtheria in this dairyman's house, and the man caring for the patients at night and the milk during the day, he lost patience, and at the annual meeting of the New Jersey State Medical Society offered a resolution for a committee to inquire into the relations, if any existed, between the mortality among infants in large centers of population and the milk supply. Dr. Chas. E. Lehlbach supported his motion, and the committee was appointed; but after agitating and investigating the question for two years, they failed to accomplish any improvement in the milk supply.

The State Dairy Commissioner wrote: "Such a radical reform as you desire in the production and handling of milk may not be accomplished in our generation." This would have discouraged most men, but it only aroused Dr. Coit's indignation, and he says: "I determined that if sound milk could not be obtained for the State of New Jersey, it could and must be secured at least for the section in which my family and my patients lived." He then devised the plan of the organization which I represent here to-night—"a professional body composed of physicians, which should first educate, then encourage, then finally endorse the work of dairymen who would bring to us milk designed for the most exacting needs of physicians." Prof. Albert R. Leeds endorsed Dr. Coit's plan, and the first meeting of the Essex County Medical Milk Commission was held in Newark on April 13, 1893. I cannot outline the plan of such commissions better than in Dr. Coit's own story of the plan of this first commission which he told at the first session of the American Association of Medical Milk Commissions at Atlantic City in 1907.

He said: "It was considered fundamental and essential, in order to obtain clean and pure milk, that we must engage the very best expert judgment on cleanliness and prophylaxis. We must also engage the very best expert judgment on dairy farming in all its relations. The proper collection and handling of milk must therefore be educational, occupying the best thought and engaging the best service of all concerned in its production. The plan includes three general requirements.

"1. That physicians give their practical support to an effort conducted by a Medical Milk Commission selected by a Medical Society from the section where they live, who shall endeavor to bring to the city a supply of milk produced under such regulations that purity shall be assured.

"2. That approved and trustworthy dairymen possessing honor, financial ability and dairy facilities shall be induced, by reason of promised medical support and the increased price of their milk, to conduct their dairies, collect and handle the product in conformity with a code of requirements made by the aforesaid Medical Commission and imposed by them in due legal form.

"3. That their duties shall be, first, to establish correct clinical standards of purity for cow's milk; second, to be responsible for a periodical and personal inspection of the dairy or dairies under their patronage; third, to provide for bi-monthly expert examinations of the dairy-stock by competent and approved veterinarians, and a medical supervision of the employees by competent physicians. The milk produced should also be subjected to periodic chemical analyses and to bacterial counts made under the direction of the Commission at such times as in its judgment is desirable. The legal requirements are stringent and binding; the code includes ample sureties for its fufillment, necessary forfeiture clauses, a territorial limit for the sale of its product, and provision for the compensation of the experts employed by the Commission.

"It controls the character of the land used for pasturage and the cultivation of fodder; it determines the construction, drainage, ventilation and location of the buildings; provides for an abundant and pure water supply, and prevents the use of water from wells or springs holding surface drainage; it requires in the stable cleanliness and order, and forbids the keeping of any livestock except the cow within 300 yards of the dairy buildings. It regulates the assortment of the herd with reference to uniform results, as well as the health, the breed, and the temperament of the animals. It excludes any that are judged by a competent observer to be tuberculous or are found in a state of health prejudicial to the herd. It provides for proper housing and shelter of the animals, together with their grooming, their treatment, and the prompt removal of their waste from the stable. It regulates their feeding with reference to uniformity in the chemical composition of the product, and restrains the use of all questionable or exhausted food materials.

"It governs the collection and handling of the milk by insisting upon a proper regard for cleanli-

ness as viewed by the bacteriologist as it relates to the animal, her surroundings, the milker's hands, vessels, and the association of persons handling the milk with immediate or remote sources of infection. It controls by minute specified requirements every step in the cooling of the milk and its preparation for shipment, and adds to the product every detail of care known to promote its keeping qualities or favor its safe transportation. The motives of the Commission are disinterested, and its members forbid to themselves any pecuniary rewards. The experts are employed by the Commission and paid by the dairyman. The bi-monthly reports to the Commission of these officers are the basis of approval of the product, which in the form of a certificate acquire commercial value to the dairyman.

"In order to meet the clinical requirements of cow's milk, in the present state of our knowledge, three conditions must be fulfilled.

"1. An absence of large numbers of bacteria and the entire freedom of the milk from the pathogenic varieties.

"2. Unvarying resistance to early fermentative changes in the milk, so that it may be kept under ordinary conditions without extraordinary care.

"3. A constant nutritive value of known chemical composition and a uniform relation between the percentages of fats, proteids and carbohydrates."

Dr. Coit also coined the term "certified" milk, and got a legal decision restraining anyone from selling or advertising "certified" milk unless authorized to do so by the County Medical Society. If unscrupulous dairymen try to sell unauthorized milk as certified, we shall have to get such legal protection here also.

And here I wish to say that it is not the purpose of this or any other Milk Commission to supersede the City Board of Health in supervising the general milk supply. Only indirectly does the Milk Commission hope to affect the general supply by setting a high standard before the public and educating them to demand purer milk. But the Commission has no legal authority over any other dairyman than the one with which it makes its contract. The Board of Health should punish those dairies which sell adulterated or very dirty milk; the Milk Commission will reward the dairyman who produces really pure milk.

Three cities in California have Medical Milk Commissions: San Francisco, Oakland and Pasadena. One of these, at Oakland, was organized by the Oakland Home Club, but is endorsed by two medical societies, and its members are physicians. Members of the faculty of the State University cooperate, and bacteriological examinations are made in the laboratory of the State Board of Health. In their report for 1907 they were certifying the milk of one dairy of eighty cows, and plans for certifying another dairy were in progress. The report does not give their chemical or bacteriological standards.

For the following account of the San Francisco Medical Milk Commission I am indebted to the chairman, Dr. A. B. Spalding, whose kind letter in answer to my inquiries I will quote (with his permission), as follows:

"The San Francisco County Commission was organized in 1905, but was put out of business by the earthquake. At that time we were certifying to the milk of two dairies. They had had our certificate only two months, but had already, I believe, begun to sell about 400 quarts of milk daily, when both dairies lost so heavily by the fire that they dropped certified milk in San Francisco. For the rest of the year nothing could be accomplished, and in 1907 a new Commission was appointed with Dr. Smith as chairman. This Commission failed to get results, and in January, 1908, the original Commission was reappointed with myself as chairman. Such a Commission is more than a mere committee, and the best results are obtained when such a Commission is more or less permanent. At present members of our Commission are appointed for five years, and one new member each year.

"Beginning next February, the five representatives of the County Society have been requested to invite two laymen to serve with them. I do not think this is a good plan, as the laity are not sufficiently interested to do the necessary work.

"Our Commission meets several times each month. Our experts are all from the University of California, and make the examinations frequently at very low rates. Dr. Jaffa, the chemist, for instance, makes weekly chemical examinations for two dollars each, reporting on Sp. Gr., total solids, fat, and freedom from preservatives. We have found frequent examinations necessary because of the wide variations in the fat-content, due to poor technique in the mixing and bottling of the milk. This has been our hardest problem, and even now, after months of work, the fat will vary in different bottles of the same milking from 3.2 to 4 per cent. The herd is composed of some Jerseys, but mostly Herefords and common American breeds.

"The herd is tested every three months for tuberculosis, and our veterinary also watches their general health. Formerly we tested the cows for tuberculosis only once in six months, but so many contracted the disease during that period that we found the three-month examination necessary. The veterinary visits the dairy once each month, however, and reports on the health of the herd.

"The bacteriological examinations are also made weekly, by Dr. Ward of Berkeley. But as a dairy gets in running order we believe less frequent examinations will be necessary. Originally with other experts, we paid chemist and bacteriologist ten dollars apiece for only one examination a month. *That is not often enough to guarantee the purity of the milk.*

"The requirements for a certificate are that the milk shall not contain above 20,000 germs per c.c. and 3.5% butter-fat. I favor a total solid requirement, but as yet we have fixed on none. *The bacterial count keeps regularly below 2000,* and only once ran high due to changes being made in the barn.

"One member of the commission visits each dairy

every month and reports on the conditions and the health of the employees. We insist that the milk be bottled immediately after milking and be sealed, cooled to 50° F. and kept at that temperature until sold. We allow about 30 hours for the delivery, but find the milk will keep indefinitely if kept cold.

"Expenses to Dairymen: A dairy applying for a certificate must first advance the fees for examinations by chemist, bacteriologist, and veterinarian, and pay the actual expenses of a visit to the dairy by all the members of the commission. Then a vote is taken on the dairy, and if satisfactory a certificate is issued for one month. If not passed, another examination is required when the faults have been corrected, and one member of the commission visits and reports on conditions as changed. This is also at the dairyman's expense. After receiving the certificate the dairyman must pay directly the experts' bills, amounting to about $30 a month, and also a small tax to the commission on each quart of milk sold, to pay our actual expenses. At present this tax is ⅛c a quart, which gives a sufficient income. We levy this tax by buying the certificates ourselves and selling them to the dairyman at a slight advance.

"Price of certified milk: We have nothing to do with the price; but personally I believe a good profit can be made on the sale of 300 to 400 quarts a day at 15c a quart.

"Success: The first dairy began selling certified milk in San Francisco last April; since then it has been impossible to supply the demand. This dairy has increased its output about 100 quarts each month and at present (Nov. 17) they are selling over 900 quarts a day at 15c a quart. A second dairy has started with 25 cows and sells about 100 quarts." (In a letter just received the last of December Dr. Spalding tells me that the commission is certifying the milk of three dairies, which supply five city milk dealers.)

Evidently the people of San Francisco appreciate purity in milk if not in politics!

In concluding this presentation of the importance of pure milk and the aims and methods of Medical Milk Commissions in obtaining pure, reliable milk for infants and invalids I must appeal to you, gentlemen, for support. The success of certified milk in Santa Barbara depends quite as much on you as on the dairymen and the commission. The people must be taught the dangers of ordinary milk; they must be taught to demand pure, certified milk for their babies and sick ones; and who but we physicians can or will teach them these things? The press may help the cause somewhat; but let us not rely at all on it, but teach our own patients and friends the value of certified milk and strongly recommend it in our own practice.

REPORT OF THE MILK COMMISSION OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

By the Chairman, ALFRED BAKER SPALDING, M. D., San Francisco.

It is because the physicians have created a demand for pure milk that the dairyman has invested his capital and devoted his time and energy to obtain the same and place it on the market. The milkman is decidedly practical and is willing to do any possible thing that produces a fair return for his money. He was promised the moral support of the profession if he would conduct his milk business along certain supposed odd and theoretical lines. This he has done. The public can now obtain in San Francisco an abundance of pure milk, and this pure milk will continue to be available just so long as the milkman finds it to his profit to produce it.

Unfortunately, the public left to themselves prefers milk that is cheap to milk that is pure, and so it becomes an important duty of the family physician to impress their patients with the dangers of cheap milk and to do what they alone can do—create a healthy public opinion in favor of pure milk.

There are many brands of so-called "pure milk," but only one has held the respect of the laity, and that is the milk certified to by an organization of unbiased and commercially uninterested physicians. In 1893, through the efforts of Dr. H. L. Coit and the Essex County, N. J., Medical Society, a dairyman was induced to produce milk of a high standard of purity, according to the directions of a Medical Milk Commission, for Newark, N. J. Other localities slowly took up this idea and in a similar way obtained what has generally come to be known as "certified milk," until at present there are in the United States thirty-four medical milk commissions with a national organization known as the American Association of Medical Milk Commissions, which hold annual meetings at the same time and place as the American Medical Association.

Briefly, "certified milk" means a milk from well-fed, healthy, non-tubercular cows, a milk so free from contamination and so carefully handled from the time of milking to the time of delivery, that the bacteria content shall not at any time exceed 10,000 germs per ccm., a milk containing all the nutritious milk solids without subtraction, addition or manipulation of any kind, a milk that is immediately cooled, bottled and sealed at the producing farm and delivered cold in such original container to the consumer as quickly as commercial facilities will permit.

Such a milk you can readily understand is of the utmost value in infant feeding and for the feeding of the sick. Imagine the effect both psychical and physical on a typhoid patient, for instance, of mixing with his drinking water an amount of tuberculous cow manure sufficient to produce a perceptible sediment on standing, of allowing this contaminated water to remain warm until the bacteria content ran (to place it at a low figure) two million germs per ccm. and then of flushing the patient's digestive tract with quantities of this foul and nauseating beverage! How many well people would drink it knowingly? And yet, so far as the Milk Commission can learn, there is not in San Francisco a hotel or hospital where an adult guest or patient can obtain a glass of milk with any less number of germs or which is any more free from tuberculous cow dung.

It is true that a sort of bacillus soup called "pasturized" milk can be obtained from which has been strained a part of the sediment (manure) together with all legal excess of butter fat, which has been heated for a few seconds to a degree that kills many of the harmless germs and stuns some of the more virulent ones.

In the fall of 1905 the President of the San Francisco County Medical Society appointed a commission to obtain for San Francisco a supply of pure milk to which the society could certify. The members of this commission, of which the writer was chairman, did not at first know a great deal about certified milk, and it took them some months to master the situation. However, they did succeed in placing on the market certified milk from two different sources for just one month previous to the fire of April, 1906. In January, 1907, an ill-advised President of the society thoughtlessly demoralized this important work by discharging the original commission and appointing a new one imbued with all the ignorance and inexperience that marked the inauguration of the first commission. Throughout 1907 nothing of importance was accomplished. During the past year satisfactory results have been attained and maintained, and it is the desire of the commission that a report of the aims, methods and results be made to the Society in order that, with a better understanding of conditions, the success of the venture be assured.

According to resolution of the Society, the President appointed last January five members to serve on the Milk Commission in such a way that in the future the complexion of the Commission can be changed only gradually and one new member appointed annually. These five are instructed to elect two lay members beginning with the coming year.

In April the milk from the Ideal Farms met the requirements of the Commission and was given a certificate. In November the milk from the Warren Model Dairy was certified, and in December the Timm Dairy received certificate. These farms are widely scattered, one being in Marin county, one at Menlo Park and the third at Dixon, near Sacramento. It requires an endless amount of work and watchfulness to see that the required standards are maintained.

The milk that is received in the sealed bottle with the certificate of the County Medical Society is produced on these model farms by healthy, well-fed, non-tuberculous cows, cows which are cared for carefully, which are well groomed before milking and milked in large, fresh, well-ventilated stables by intelligent milkers dressed in clean white clothes. The milkers wash the udders of the cows and milk with well washed dry hands. The milk is received in sterile pails having seven-inch openings, is promptly and efficiently cooled, mixed and poured into sterile bottles, after which it is sealed, stamped with the day for delivery, and transported cold to the distributer in San Francisco. The distributing agents, whose market milk is frequently subject to the disapproval of the local health authorities, cannot mix the certified milk with the ordinary supply and are under contract with the producer to deliver the milk according to the requirements of the Milk Commission. This milk must contain from 3½ to 4% of butter fat, with an amount of solids not fat of at least 8½% and must contain not more than 10,000 germs per ccm.

The expert work is done by the members of the faculty of the College of Agriculture in Berkeley. A veterinarian from the university visits the different farms each month and renders a report to the Commission in regard to the health of the herds and the sanitary conditions of the dairy. Once each week from the laboratories at Berkeley, Prof. Jaffa, the chemist, and Prof. Ward, the state bacteriologist, send reports in regard to the chemical and bacteriological condition of the milk, picked at random from the delivery wagons in San Francisco. In addition to these inspections some member of the Commission makes a personal visit to each of the farms some time during the month to ascertain the health of the employees and the way in which the rules of the Commission are being carried out. By invitation, Dr. George S. Baker, chief of the Pacific Coast division, Bureau of Animal Industry, Washington, D. C., has acted as counselor to the Commission, and besides attending meetings of the Commission has visited the farms to give practical aid to the dairymen. During the year the Commission has held 36 meetings with an average attendance for the five members of over four at each meeting. Sixteen preliminary visits have been made by members to farms preliminary to granting certificate, and in addition eleven monthly visits have been made to certified farms, making a total of twenty-seven visits. The secretary of the Commission attended the annual meeting of the Association of American Medical Milk Commissions in Chicago last June and rendered a report of work done in San Francisco. The dairymen have exhibited a willingness to meet the requirements of the Commission and to invest the capital needed to improve the quality and purity of the milk.

The germ count has, with the exception of one month, remained in the neighborhood of 2,500 germs per ccm., with a minimum count of 320 and a maximum count of 7,600. When the count ran high in July the cause was detected by our experts and promptly corrected by the dairyman. It has been hard to maintain a constant per cent of butter fat and is a problem the Commission still has to contend with. The total solids have averaged from 12½ to 13%.

The dairymen pay for the work of the experts, and, since last November, have paid for the running expenses of the Commission.

The sale of certified milk has increased at a rapid rate. Beginning in April with a few dozen quarts the sale for December amounted to 1,165 quarts per day. The dairyman depends on the members of the Society to recommend his product. He receives a certificate only from month to month, and so long as he meets the requirements his name as well as the names of all his distributers are sent to each member of the county society. Twice during the year the secretary of the county society neglected to place the names of the dairymen on the regular program, much to the chagrin of the Commission, as this forms part of the contract with the dairyman.

The Commission commends to the Society the certified milk now on the market and urges the members to encourage its use in families and hotels for general consumption and to insist on hospitals and private patients being supplied with a sufficient amount of certified milk for the nourishment of all infants and invalids needing a milk diet.

PERSISTENT OMPHALOMESENTERIC DUCT WITH ACCESSORY PANCREAS.*

By W. W. ROBLEE, M. D., Riverside.

The patient, T. P., aged 2½ years, came to me January 6, 1908, the mother stating that the baby's umbilicus was sore and constantly moistened by a watery discharge. The confinement was a normal one, the cord came off within a week, and the navel was apparently normal until at the age of 20 months, the mother noticed a drop of blood coming from it. There appeared to be some very small granulations present at this time, but no tumor growth, and from that time on the navel remained red and moist. It was cauterized several times with nitrate of silver, and in December, 1907, shortly before they came to California, it was curetted by their physician, Dr. Watkins, in Washington. After they came here, on two different occasions I touched what appeared to be two small red granulations, with chromic acid, but the discharge continued. In March, 1908, the child was taken ill with an acute infection, probably influenza. He was seriously sick, and then before he fully recovered, an attack of pertussis developed. During this time, about six weeks, the mother paid but little attention to the navel, and upon her return from a stay at the seashore, she brought the child to my office.

Upon inspection, I found that since seeing the patient about a month previous, a small tumor mass had developed outside of, but connected by a pedicle to the umbilicus. This was ½-inch in diameter, round, red in color and very firm in consistency. After excluding hernia, in diagnosis, I recommended its excision. This I did under chloroform anaesthesia and followed it by a thorough cauterization of its base by the electro cautery.

At this date, eight months after the performance of the operation, it has healed completely and no more moisture occurs at the umbilicus. Whether the result will be permanent or not, I am unable to say, but I judge from the histological findings, that there will be no more trouble.

Histology. A vertical section through the tumor mass shows the following condition: The tumor is solid, the outer covering is composed of a layer of intestinal glands. Below this, is a layer of connective tissue, then comes the central portion of the tumor, which is composed of typical pancreatic tissue, lobes, lobules, acini and characteristic islands of Langerhans. No excretory duct can be found; but one was undoubtedly present, and through it the moisture came which caused so much annoyance. We then have forming the base of the tumor, another layer of connective tisssue and some unstriped muscle fibers. It is evident from the section that the tumor was excised well below the pancreatic tissue, and I look for no further trouble from that source.

The explanation of the histological findings has been difficult to arrive at, and I have been unable to find any case reports showing a like condition. The layer of intestinal mucous membrane evidently is due to a persistence of the omphalomesenteric duct; the pancreatic tissue is a so-called accessory pancreas, which evidently became displaced in early embryological life. I find no records of an accessory pancreas having increased in size so rapidly as did this one. In fact, the largest gland I find a record of, is reported by Thorel,[1] said to be the size of a two-mark piece. The usual size is from 1 to 2 cm. in diameter.

Both the persistance of an unclosed omphalomesenteric duct and an accessory pancreas are interesting and unusual pathological conditions. When both occur in the same individual, the case is of sufficient rarity and interest to demand a very careful study of the embryological conditions that may cause the same.

Portions of the omphalomesenteric duct persist in one person out of every fifty, according to the figures given by the Anatomical Society of Great Britain and Ireland.

In the embryo at the 4th week, the intestine communicates with the yolk sac by means of a tube or canal, the ovo vitelline or omphalomesenteric duct. Along with this canal, are an artery and vein. By the end of the sixth week, the abdominal plates close, the umbilical vesicle, the duct and blood vessels atrophy, and in a short time nothing remains but a few fibres which unite the intestine to the umbilicus. The atrophy of this duct may not be complete and we may have a partial or complete persistence of the canal. If it is complete, there may be a persistent fecal fistula at the umbilicus. If it is incomplete, we have a blind pouch remaining, which is similar to the appendix vermiformis in character; but usually thicker and larger, which has been called Meckel's diverticulum, after the observer who was the first[2] to explain, "In what manner this fault of primitive formation arises."

The diverticulum is in probably 85% of cases attached to the ileum; but it may be attached to any portion of the small intestine. It is one of the important causes of intestinal obstruction in children, the bowels becoming kinked or caught about this fibrous band, and thus becoming strangulated. It is also subject to inflammation with all the acute symptoms of an appendicitis, and if it is not excised bands of adhesions form which still further add to the probability of an intestinal obstruction. In fact, bands and cords in the abdomen are second in importance only to intussusception in the causation of intestinal obstruction; these bands frequently have their origin from omphalomesenteric remains.

Now to turn for a moment to a consideration of accessory pancreas, we find a similar condition of affairs. It is a comparatively rare anomaly; a careful search of the literature gives a total of only about 70 cases situated away from the immediate neighborhood of the main organ, reported to date.

* Read before the Southern California Medical Association, Santa Ana.

These small islands of misplaced pancreatic tissue have been found in the wall of the stomach, the wall of the small intestine, especially the upper portion, in the stomach and intestinal diverticuli, in the latter of which it has invariably been found attached to the tip, the spleen, mesenteric fat, omentum and umbilicus.

The pancreas, according to Zenker,[3] modified by Glenski,[4] is developed from three primitive diverticuli. Normally, these fuse; but if for any reason any one of these processes does not fuse with the others, we have a duplicate or accessory pancreas.

The gastrointestinal canal develops in close proximity to the pancreas, and if a nodule of pancreatic tissue is detached from the rest of the gland, it can be carried upward or downward by the longitudinal growth of the intestine. The accessory pancreas then can, and probably does, bear a distinct relationship to the development of intestinal diverticuli.

Bize [5] cites 7 cases situated at the tip of diverticuli and claims that these diverticuli all developed because of the traction exerted upon the developing intestinal wall by the accessory pancreas. In the case I report, the pancreatic cells must have been pinched off and held with the omphalomesenteric duct by the coalescing abdominal plates.

Wright [6] reports a case of accessory pancreas just within the umbilicus, with a fistula leading from it to the umbilicus, which gave much the same symptomatology as did my case; but upon section no omphalomesenteric covering was found, the fistulous tract appearing to correspond with an invagination of the epidermis. The case I report appears to be unique, none other giving the same combination of tissue growth.

The one additional point of interest is the apparently rapid growth of the tumor for a few weeks prior to its excision. The age of the child speaks against carcinoma.

Warthin,[7] Bize [5] and Ellis [8] all report cases of accessory pancreas in which malignancy appears to be established, and all lay stress upon the possibility of such an occurrence. In this case the growth can probably be otherwise explained. The pancreatic nodule probably was situated under the umbilicus, and it was forced out by the paroxysms of coughing indulged in by the child during the attack of whooping-cough from which it suffered. The miscroscopic section shows that my incision was well beneath the base of the tumor, and I look for no more trouble with the case.

The layer of duct cells forming the outer covering of the tumor evidently does not come from a patulous tube or the discharge would not have ceased following the comparatively superficial surgical measures used in this case. The only operative procedure offering permanent cure in the cases having a patulous tube is the performance of an abdominal section with complete excision of the duct at its point of origin from the intestine.

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SPINAL ANESTHESIA.

A CRITICAL REVIEW.

No method of anesthesia has been the subject of more contradictory reports than the spinal method. To many Tuffier's dramatic demonstrations before the International Congress of 1900 heralded the dawn of the long desired successor of general anesthesia. Ere long, however, enthusiasm gave way to reserve, and then, from numerous sources, came words of caution, and even expressions of condemnation. The uncertainty of the method called forth numerous explanations: faulty technic, sepsis, improper preparation of the drug, hypotonic or hyperthermic solutions, variability of the meningeal pressure, etc., etc. Others, particularly the physiologists, blamed the drug or association of drugs as "an insult to the nervous system," citing the innocuousness of spinal puncture in medical hands and the absence of ill effects from injections of isotonic salt solution.

To-day, with perfected technic, absolute asepsis and the possession of numerous substitutes for cocaine, the diverse, long operative lists still fail to clear up this condition of indecision as to the usefulness of spinal anesthesia. Thus, surgeons with an experience of several hundreds of spinal injections have abandoned the method entirely, while new advocates are periodically publishing laudatory reports.

The great majority of French surgeons have anesthesia is contraindicated. Across the Rhine, no final verdict has been reached, but the recent contributions to the study of local and general anesthesia from the clinic of Germany's most original surgical mind, I refer to Bier, are most significant. England, with its highly trained specialists in general anesthesia, was tardy in taking up the study of spinal anesthesia, and only an exceedingly small proportion of English surgeons find any advantage in spinal anesthesia over general anesthesia as at present employed. In the United States the pendulum has swung constantly toward conservatism since 1904, and to-day the great majority of American surgeons, not excepting the genitourinary specialists, are restricting more and more the use of spinal anesthesia to the rather infrequent operative conditions of the lower limbs and pelvis in which shock is especially apprehended or where a coexisting disease makes general anesthesia dangerous. Indeed, in surgical societies, an apology is expected to precede the report of any considerable number of cases of spinal anesthesia. Unfortunately, many spinal injections will continue to be made in this country by surgeons who are guided by their own convenience or insane desire for statistical eminence rather than by their patients' interests.

Particularly interesting and indicative of the present status of spinal anesthesia are the reports and discussions of the recent International Congress (Brussels, October, 1908). Rehn, of Frankfort, summed up the Committee's view as follows: (1)

high anesthesias are dangerous and, in our present state of knowledge, barely justifiable; (2) attempts at localizing the action of analgesic substances in the subarachnoid space promise little of value; (3) less dangerous in old people and very objectionable in the young, the spinal method is distinctly contraindicated in suppurations, pronounced arterio sclerosis, central nervous disorders and extensive tuberculous lesions; (4) it should only be used as a substitute for general anesthesia and the latter should invariably be preferred when possible; (5) the spinal method should never be resorted to in conditions where local or primary ether anesthesia is satisfactory; (6) Bier's new original method of anesthesia will still further restrict the field of spinal anesthesia; (7) the patient's consent should always be obtained before resorting to the spinal method.

Sonnenberg's list of 1117 injections shows three deaths from meningitis, three cases of temporary paralysis of the seventh nerve and one of the facial and hypoglossal. Kummel, using stovain, tropococain and novocain, had no deaths in 1400 cases, but several cases of marked collapse all successfully treated with intravenous injections of large amounts of salt solution (1500-2000 cc.) Bruning had three deaths in 450 cases (1 paraplegia with ascending pylo-nephritis, 1 respiratory failure on the operating table and 1 cerebral hemorrhage). In several cases Bruning observed severe pain in the lower limbs persisting 12 and 18 months after the injection. Jonnesco and Jaino report no fatalities in 617 stovain injections. In several cases Jonnesco resorted successfully to the method of high anesthesia originally advocated by Tait and Caglieri (the sixth cervical space). According to Jonnesco, anesthesia of the various segments of the body may be produced by varying the site of the injection (cervical, high or low dorsal, lumbar). Fourteen successful "segmental anesthesias" were reported by Jonnesco, who adds 1 mg. of strychnin to the stovain solution in view of eliminating the paralyzing effect of the latter drug on the respiration and the heart.

Alessandri (Rome) had no deaths with tropococain, stovain and novocain in 918 cases. Legueu (350 cases) referred to his previously published fatalities with spinal anesthesia and to the occurrence of late complications (persisting paraplegias, incontinence of urine, violent meningeal reactions) which caused him to classify spinal anesthesia among "the exceptional methods."

The combined statistics presented at the International Congress strongly accentuate the uncertain action of spinal injections; failures ranged from 8 to 16 per cent. The percentage of failures was lower with tropococain than with stovain or novocain; whilst, on the other hand, stovain caused less shock and a longer anesthesia. The addition of adrenalin is probably accountable for some early paralyses. No one has succeeded in eliminating or even markedly reducing the frequency of the three most disagreeable features of spinal anesthesia: vomiting, headache and urinary disorders.

Local Anesthesia in the Reduction of Fractures and Dislocations. The principal obstacle in the reduction of fractures is muscular contraction due to pain. The disadvantages and dangers of general anesthesia in such conditions, especially in alcoholic patients, are too well known to require comment. Hence the total rejection of general anesthesia by some surgeons who thus jeopardize the accuracy and completeness of their work; while other surgeons add an uncertain element of prognosis by resorting to spinal anesthesia.

In 1885 Conway, of New York, reported three cases of Colles' fracture and one elbow dislocation, all reduced without pain under local anesthesia. Like Corning's original experiments in spinal anesthesia, Conway's work was overlooked until rediscovered abroad, for in 1908 Lerda (of Turin) reported thirty cases of fracture reduced under local anesthesia and shortly afterwards Quenu published a list of fourteen cases.

The technic is as follows: after the usual aseptic preparation, a 1% solution of cocaine is injected directly over the site of the fracture, sufficiently deep to reach the fractured surfaces of the bone; the peri-articular tissues are also injected. In fractures involving two bones both sites of fracture should be injected separately. The application of a rubber band upon the point of injection will prove valuable in prolonging the anesthesia. The average dose is 30 drops of a 1% solution of cocaine. No harm has resulted from the use of as much as 50 drops. In dislocations the injections should be made around the joints, at the site of the ligaments and in the soft peri-articular parts.

Under the name of *"Indirect Local Anesthesia,"* Bier has made a valuable contribution to operative surgery of the limbs.

The technic of this procedure is as follows: The elevated limb having been rendered bloodless by means of an Esmarch bandage, a tourniquet is tightly applied above and below the proposed field of operation. Under infiltration anesthesia the principal vein or one of its tributaries is exposed in the distal portion of the field of operation and its lumen opened by a small longitudinal incision. In operations upon or in the vicinity of the knee joint, for instance, the internal saphenous vein may be made use of. A canula is then introduced into the vein and made secure, and from 40 to 80 cc. of a one-half solution of novocain is introduced, the injection of the solution being made under considerable pressure.* By thus making use of the veins as a medium an anesthetic solution is carried to all the tissues, including periosteum and bone, which lie between the proximal and distal tourniquets. In from 3 to 5 minutes complete anesthesia is obtained which continues for a length of time sufficient to perform any operation. At the completion of the operation and prior to the removal of the tourniquet, the novocain solution may be washed out with salt solution.

This method of anesthesia has the advantage of

* The average dose of novocain used by Bier was 60 to 80 cc of a ½ per cent solution for operations on the knee, 40 to 50 for elbow interventions. An arthrodesis of the knee in a 3-year-old patient required 25 cc. of a ¼ per cent solution.

being applicable to all operations on the limbs where a segment may thus be rendered anesthetic. Properly applied it is apparently without danger, although one should bear in mind that the quantity of drug used amounts to a toxic dose if allowed to enter the general circulation.

The principle which Bier has made use of is interesting from a physiological standpoint, and its practical value has already been demonstrated by several German surgeons.

About one year ago, Klapp, then assistant to Bier, sought to diminish the quantity of anesthetic (especially in general anesthesia) by reducing the amount of circulating blood. His experiments were upon the following lines: Two rabbits of approximately the same weight were selected; upon the first an Esmarch bandage was placed as high as possible on each thigh; both rabbits were then placed in a glass jar into which a mixture of chloroform and air is injected. Under these conditions the ligated rabbit would invariably go to sleep much quicker than the control rabbit, and, upon removing the bandages, at the completion of the experiment, the ligated rabbit would recover earlier than the control rabbit. If the ligated rabbit be placed in the glass jar several minutes after the control rabbit and both rabbits fall asleep at the same time, they will awaken almost simultaneously after being taken from the jars and removing the bandages.

Thus, by shutting off from the general circulation the blood in the limbs, narcosis may be obtained with smaller quantities of anesthetic than are considered necessary under normal conditions.

Zur Veith, working in Bier's clinic, applied the results of the foregoing experiments in 100 operations. He first studied on himself the effects of prolonged application of Esmarch bandage to the upper and lower extremities, and found it could not be tolerated for more than 15 to 20 minutes on account of the pain which soon followed its application and gradually increased in intensity. No change in the pulse rate or tension was noted. The well known reports of brachial paralysis following prolonged constriction of the arm led zur Veith to apply the Esmarch bandages only to the lower limbs in his operative cases. Under these conditions the quantity of anesthetic necessary to produce and maintain narcosis was notably reduced. Another fact of considerable importance was the patients' early, almost immediate, recovery from the anesthetic upon removing the bandages. Apparently the blood of the lower limbs, saturated with CO_2 and free from anesthetic, rushing suddenly into the general circulation, acts as an excitant to the central nerve centers.

Anschutz, with 50 additional cases, confirms zur Veith's findings and considers the procedure especially valuable in operations upon the head and neck. Fear of late hemorrhage has caused him to advise against its use in intestinal operations. On the other hand zur Veith has never noted a single instance of late hemorrhage. D. T.

A CASE OF SCROTAL GALACTOCELE.

By HARRY I. WIEL, M. D., San Francisco.

This case offers an interest, almost if not quite unique and is well worth the telling. At the outset we must define *galactocele*. Searching the literature under that heading, cases will be found in number sufficient to remove the condition from the rarities, but a glance at the articles themselves will discover that they refer to milk-containing cysts of the mammary gland.

The matter brought out in this report is a different affair and yet comes under the heading. It is almost inconceivable to have a milk-containing cyst of any organ other than the mammary gland, but this case proves it possible. Therefore, conforming to the literal sense of the term, we mean by galactocele any cyst containing milk, and by milk, for this purpose is understood nothing more than an emulsion of fat.

J. T. Y., carpenter, married, age 38, native of Australia, consulted me, June 10, 1908, for a swelling of the right side of the scrotum. Only point of interest in family history was death of mother at 64 of uterine cancer. Previous history of no note except that until nine months of time of consultation he had lived in western Australia. (In the light of later findings this was considered of some importance.)

Present illness was first noticed ten weeks previously when right side of scrotum was seen to be enlarging and gradually increased to its present size. It never gave any discomfort other than a slight sense of heaviness on walking. No sexual or urinary disturbances, no loss of weight, no fever, no general malaise, no night sweats; in fact, general health entirely unimpaired.

Physical examination disclosed a normal well-nourished individual as regards heart, lungs, head and abdomen. On lower extremities were noticed numerous varices, probably varicose lymphatics. Right side of scrotum enlarged to about the size of a large orange, tense, heavy and evidently containing fluid. The testicle was easily made out lying in the usual position behind the sac of fluid and had a small nodule on its anterior inferior surface. The inguinal canal was clear, the epididymis normal as was also the left side of the scrotum. The condition was unhesitatingly diagnosed as hydrocele and tapping advised which was done the next day in the office. The result was to say the least startling, for on withdrawing the piston of the syringe, the fluid which followed into the barrel was to all appearances milk, 150 cc. in amount. Examination of the fluid showed it to be a true emulsion of fat and corresponding to milk in many of its reactions.

The patient was told to return the next day and meanwhile it was a puzzle as to what the bottom of the condition might be. In twenty-four hours the sac had filled again completely, and as it was evident that the condition was an unusual one, a surgical consultation was advised. Dr. Camillus Bush saw the patient with me on the following day and together we tapped the sac again, 130 cc. of "milk" being withdrawn. The blood was examined and found to be negative from all points of view. In the light that there was present a small nodular growth on the testicle it appeared to us that we might be dealing with a tumor of the testicle and even went so far as to suggest to ourselves a teratoma with some aberrant mammary tissue secreting milk. The idea of filariasis had of course previously entered our mind both from the nature of the fluid found and from the man's former place of residence. Elephantiasis, however, we argued was usually bilateral; but nevertheless we had not yet examined the blood at night and could not definitely exclude it. At any rate unilateral castration was urged and agreed upon.

On June 14th at 10 p. m., the patient was roused from his sleep and a specimen of blood taken, many smears and fresh samples being examined. Nothing in the nature of a parasite was found.

Operation June 15th, by Dr. Camillus Bush. Under

ether anesthesia an incision was made high up on the left side of the scrotum near the external ring. The spermatic cord was found much thickened due to varicose lymphatics, from the cut ends of which by the use of considerable force some of the milky fluid could be expressed from the sac below. The vas was seen to be normal. The cremaster, vas and vessels were tied and cut and the testicle lifted out of the scrotum with the galactocele intact. The scrotum was then closed and the patient returned to his bed.

Specimen was sent to Dr. Ophuls, pathologist to the Lane Hospital, for examination. He opened the sac and found 150 cc. of the "milk." To the naked eye the tunica albuginea and vaginalis were normal, though microscopically there existed a mild degree of chronic periorchitis. The epididymis was a little large and soft and on gross section rather pultaceous. The nodule heretofore mentioned was a small spermatocele. Smears made from section of the varicose lymphatics and from fresh blood from the specimen were negative for parasites.

Post-operative history. Patient's general recovery was uneventful though an interesting feature in his local trouble developed. On the 4th day after the operation there was noticed a soft boggy, probably cystic intra-abdominal mass just above the right Poupart's ligament, immovable and painless. Its appearance seemed to be sudden and its size, during the patient's stay in the hospital did not alter. On the 8th day the patient was allowed to go to his home, and ordered to visit me at the office frequently for observation.

This he did. It was difficult for us to disassociate the matter from a parasitic cause, and with that notion in mind atoxyl, in the light of its use in trypanisomiasis, suggested itself to us as a therapeutic agent. We used the drug by means of intravenous injections, beginning with a dose of 1-3 gr. This was done at two day intervals, gradually increasing the dose up to 1 1-3 grs. until July 10th, twenty-four days after the operation. At that time the patient was in good general condition and the intra-abdominal tumor, if changed at all, had perhaps grown slightly larger.

The patient was then allowed rest from treatment for a week as we felt delicate about pushing atoxyl too far. When seen the week following he reported having been at work at his trade and having felt no ill effects. Abdominal examination showed that the abdominal tumor had disappeared. He was seen again a week later and the mass had not returned. He then left town and we have not seen him since, though he has been heard from as working and in normal condition.

In recent years there have appeared at intervals in the literature reports and discussions on cases of chylous ascites, and their nature is not yet quite clear. Here we have a chylous hydrocele and probably the same factors are at the bottom of both. On the other hand the rapidity with which it filled after tapping, and the development of an intra-abdominal cystic mass after communication with the scrotum had been closed, suggests to us that there must have been an open funicular process of peritoneum and that we were dealing with an "hydrocele communicans." This may have been in connection with a chylous ascites, but more probably with a mesenteric cyst, and whether we could even trace the source of the fluid to the receptaculum chyli is food for thought. Of this we were certain, that we were not dealing with lymphatic fluid nor with the sort of fluid obtained in a spermatocele, but with a creamy white opaque emulsion of fat, in fact with a milk.

We also came to the conclusion finally that the affair was not parasitic, as a continued and careful search by many persons would in all probability have revealed at some time any organisms that might have been the cause. Especially careful were we to seek many specimens of blood while the patient was asleep.

Literature on this matter is so sparse as to be almost negligible. Konig in passing mentions that Vidal had such a case in an African soldier and took the milk to be some anomaly in albuminous metabolism, a diffuse statement which really throws no light at all on the subject. The first named also quotes V. Pitha as having such a case, but without comment. Here and there in a text-book on genito-urinary surgery is an isolated statement to the effect that such an anomaly has been known to occur, but probably its mention comes from the knowledge of the case of Vidal.

In a matter so rare as this it may not be of much moment just what the etiological factors are, and as fortunately (sic) in this case there is no immediate outlook for an autopsy to throw what light it can, we shall probably not find out anything further. Nevertheless the extraordinary is always teeming with interest, and as remarkable tales of unusual things are often received with pleasure, we take that as justification for putting this one in print.

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WARREN TRIENNIAL PRIZE.

Massachusetts General Hospital.

The Warren Triennial Prize was founded by the late Dr. J. Mason Warren in memory of his father, and his will provides that the accumulated interest of the fund shall be awarded every three years to the best dissertation, considered worthy of a premium, on some subject in Physiology, Surgery, or Pathological Anatomy; the arbitrators being the physicians and surgeons of the Massachusetts General Hospital.

The subject for competition for the year 1910 is on Some Special Subject in Physiology, Surgery, or Pathology.

Dissertation must be in either the English, French or German languages, and must be typewritten and suitably bound, so as to be easily handled. Work that has been published previously will not be considered in competition. The name of the writer must be enclosed in a sealed envelope, on which must be written a motto corresponding with one or the accompanying dissertation.

Any clew given by the dissertation, or any action on the part of the writer which reveals his name before the award of the prize, will disqualify him from receiving the same.

The amount of the prize for the year 1910 will be $500.

In case no dissertation is considered sufficiently meritorious, no award will be made. Dissertations will be received until April 14, 1910.

A high value will be placed on original work.

FREDERIC A. WASHBURN,
Resident Physician.

Boston, February, 1909.

UNIVERSAL ESPERANTO ASSOCIATION FOR PHYSICIANS.

To the Editor:

Sir—At the last Esperanto Congress at Dresden, in August, 1908, an association of physicians interested in Esperanto, whether proficients or not, was formed, with the following officers: President, Prof. Dor, of Lyons, France; vice-presidents, Drs. Mybs, of Altona, Germany, and Whitaker, of Liverpool; Secretary, Dr. W. Robin, Warsaw, Russia; Treasurer, Dr. Roblot, of Charenton, Seine, France. Consuls were appointed for France, Russia, Austria, Germany, Poland, England, Sweden, Spain, Canada and the United States. As the association grows, the number of consuls will be multiplied according to the requirements of large cities and medical centers in each country. The chief aim of the association is to bring into relationship physicians of different countries, affording them, in a language that all can understand, an organ for the discussion of matters of professional interest—questions mainly that affect the wellbeing of the profession and its members, though the scientific aspect may receive attention as well. It will also prove in some measure an aid to traveling physicians by enabling them to get into touch as a matter of right with someone in any country in the world, of whom they can seek information on local professional matters. Every member will receive gratis the "Vocho de Kuracistoj" (Voice of the Physicians), the monthly organ of the association, which is now in its second year, and which any physician of moderate training can learn to read with little casual study in the cars, in a few weeks. For myself, I learned the language sufficiently well in three weeks to write an article in it several columns in length, on the "Professional Secret in the United States." It was published in the November issue of the "Vocho de Kuracistoj." I did not take Esperanto up from fancy, for I have always been prejudiced against it. But my experience with it when I was called on to deal with it in the way of duty, has led me to regret that I allowed so long a time to elapse after first hearing it advocated, before I began seriously to study it. It has brought me into personal friendly relations with many physicians of many lands.

Should this note prompt any physician to take an interest in it, I shall be glad to answer as far as I can any specific questions to those who will include postage, and as consul for U. S. A. I shall be particularly glad to receive and transmit the application for membership of any physician in the Tutmonda Esperanto Kuracista Asocio (T. E. K. A.). The subscription is $1.00 per annum. Checks should add the exchange if any is necessary—about 15 cents.

KENNETH W. MILLICAN.

1143 Sheridan Rd., Chicago.

COUNTY SOCIETIES

BUTTE COUNTY.

The regular meeting of the Butte County Medical Society was held Tuesday evening, December 8, at the offices of Dr. O. Stansbury at Chico, with the following members and visitors present:

Dr. L. Q. Thompson of Gridley, Drs. Kusel and Gates of Oroville, Drs. C. L. Browning, N. T. Enloe, L. C. Perdue, O. Stansbury and M. Stansbury, D. H. Moulton, P. E. Bullington, W. B. Johnson, C. Oliver, C. Smith, J. W. Harvey, N. Allen and Ella F. Gatchell and the Board of City Trustees.

Dr. N. K. Foster, Secretary of the State Board of Health, was present as the guest of the Society. President Dr. L. Q. Thompson presided.

A paper on diphtheria was read by Dr. C. L. Browning and discussed by several physicians. Dr. Foster advised the City Trustees that free antitoxin furnished to indigent families was a good investment, as it would check the spread of the disease. He advised the enforcement of a longer term of quarantine, that it should be three weeks from the time of improvement or two negative cultures taken 24 hours apart if laboratory tests are made, which he advised. Did not believe in closing schools but in having a supervision of the scholars, especially any suspicious case should be quarantined till a culture could be examined.

Drs. Bullington and M. Stansbury were elected to membership. A great deal of business was transacted. The following officers were elected for 1909: President, N. T. Enloe; Vice-President, L. L. Thompson; Secretary-Treasurer, Ella F. Gatchell; Board of Censors, L. Q. Thompson and P. F. Bullington; delegate to State Medical Society, D. M. Moulton; alternate, M. Stansbury.

A vote of thanks was tendered Dr. Foster for his presence and valuable advice. Meeting adjourned.

ELLA F. GATCHELL, Sec'y.

LEE—Friday

HUMBOLDT COUNTY.

The annual meeting of the Humboldt County Medical Society was held at Sequoia Tavern January 19th, 1909, at which the following officers were elected for the ensuing year:

President—Curtis O. Falk of Eureka.

Vice-President—Charles W. Mills of Arcata.

Secretary—John N. Chain of Eureka.

Treasurer—B. M. Marshall of Eureka.

Delegate to the State Society, elected 1908—Dr. F. R. Horel of Arcata. 1909—Charles C. Falk of Eureka.

Alternates—Drs. O. W. Sinclair and B. M. Marshall of Eureka.

The President appointed the following committees—Chairmen first:

Program and Scientific Work—Drs. J. H. Mallery, G. N. Drysdale and Charles C. Falk.

Public Health and Legislation—Drs. Rae Felt, H. S. Delamere and C. W. Mills.

Social Entertainment and Refreshment—Drs. John Chain, O. W. Sinclair and B. M. Marshall.

Special Legislative Committee—Reappointed—Drs. J. H. Mallery, Charles C. Falk and E. J. Hill.

Dr. Drysdale read a paper on "Some Surgical Cases, With Especial Reference to the Effect of Fear." Whenever Drysdale gets this paper in form for printing, I will send it to you, as it was really interesting. Dr. Chain made a short talk on "Some Impure Food Products and the Possible Remedy," which resulted in a resolution instructing our representatives to support pure food legislation requiring the manufacturers to brand their products with the exact contents, with a special reference to preservatives. Dr. Curtis O. Falk presented a case of nutmeg poisoning, which is of interest and will be in form to send to you soon.

The Secretary was also instructed to write Senator Martinelli supporting his State Dairy Bureau bill. This is particularly important for Humboldt, and anything you can do along these lines will be appreciated.

Withal, the meeting was an interesting one. It, of course, followed the annual banquet.

Sincerely yours,

J. H. MALLERY, Sec'y.

LOS ANGELES COUNTY.

At a regular meeting of the Los Angeles County Medical Association held on March 5th, 1909, Dr. George H. Kress introduced the following resolutions, which were adopted unanimously by the Association:

Whereas, Ophthalmia Neonatorium, a preventable

disease, is the cause of about one-tenth of all blindness;

And whereas, this unnecessary blindness means untold misery to several thousand persons of our country, as well as an annual expenditure of almost one million dollars in the care of these unfortunate persons;

Now, thefore be it resolved, That it is the sense of the Los Angeles County Medical Association, that all members of the Association be urged to spread the knowledge of the great value of the Crede method of silver nitrate instillation as a preventive of ophthalmia neonatorium, and that all practioners and midwives should use this method in obstetric practice.

And be it further resolved, That this Association request the California State Board of Health to make the prevention of ophthalmia neonatorium a matter of special consideration and action, and that a copy of this resolution be sent to that board, and copies be sent for publication to the Bulletin of this Association and to the Journal of the Medical Society of the State of California.

MENDOCINO COUNTY.

Pursuant to a called meeting by Dr. E. W. King, president of the Mendocino County Medical Society, for the purpose of electing officers and electing a delegate and alternate to the State Society, a meeting was held in Ukiah at the office of Dr. Lathrop. Present were Drs. King, Lathrop, Bond, Rea and Allen. The minutes of the previous meeting being read and accepted, and there being no previous business, the members immediately took up the question of election of officers.

It was moved and carried that Dr. Bond be elected president; moved and carried that Dr. Lathrop be elected vice-president; moved and carried that Dr. Allen be elected secretary and treasurer; moved and carried that Dr. King be elected delegate to the State Society; moved and carried that Dr. Beekman be elected alternate to the State Society; moved and carried that Drs. Bond, Rea and Lathrop be elected board of censors for the ensuing year.

It was resolved that the word regular be removed from the constitution and by-laws and that Dr. King enter into correspondence with the State Society regarding the meaning of the word regular as mentioned in the constitution and by-laws of the Medical Society of the State of California, found in Article 1, Section 3.

Moved and carried that application blanks be printed, and an explanation regarding the word regular in the constitution and by-laws be printed thereon.

Open discussion was had as to the best ways of advancing the interests of the society in this county.

There being no further business, the meeting was adjourned until the regular meeting, the third Friday in April.

F. E. ALLEN, Secretary-Treasurer.

SONOMA COUNTY.

The regular monthly meeting was held at Cloverdale, February 22nd, 1909. Dr. H. C. Trachman read a paper on Neurosis and Tuberculosis of the Larynx, in which he described typical cases of both conditions. The meeting was held at the office of Dr. W. C. Shipley and after the meeting the society was banqueted by the Cloverdale members, Drs. Shipley, F. C Grant and H. C. Trask, and then attended, in a body, the Citrus Fair.

The meeting for March was held on the 5th, at Santa Rosa, the subject of the evening being the Care of the Mother and Babe, Before, During and After Labor; papers by Drs. Jackson Temple and J. C. Condit were generally discussed. The next meeting is to be held at Petaluma, April 2nd, and Dr. George H. Evans, of San Francisco, will read a paper on Tuberculosis.

G. W. MALLORY, Secretary.

SAN FRANCISCO BRANCH, H. K. MULFORD COMPANY.

In order the more conveniently to serve the coast trade, the H. K. Mulford Company has opened a branch house in San Francisco at Second and Natoma streets.

ITALIAN-AMERICAN MEDICAL SOCIETY FORMED.

On March 4th the Italian-American Medical Society of San Francisco was launched at a banquet at For d' Italia restaurant, to which all those mentioned below had been invited by Dr. Osea Perrone, the organizer. After a sumptuous repast and an informal discussion as to the most advisable way to proceed to the formation of an active organization, Drs. A. S. Musante, O. Perrone and E. Taussig were appointed to draft a set of by-laws and constitution. Besides those named, Drs. C. Barsotti, A. de Lucis, M. Isnardi, V. Luchetti and G. Scapparone were present. Drs. D. Bacigalupi, C. Bricca, G. Coglieri, Jadarola and T. Rottanzi have signified their support in the movement, but were prevented from being present. It is expected to have the few remaining eligibles come into the society, as it is for the social, professional and economic improvement of the Italian-American practitioners that it is instituted.

REMARKABLY HEALTHY.

Dr. David B. Fields, Superintendent of the Trinity County Hospital, was somewhat surprised to receive a communication from the State Board of Health asking why the death rate in his county was so low. He thereupon investigated certain conditions, among them the ages of the inmates of the county hospital, finding that the average age of the twenty-one inmates was 77.85 years, as may be seen from the appended list. The question arises, Is this a hospital or an institution for old men?

The following are the inmates and the ages in the Trinity County Hospital, March 11th, 1909:

Bell, Frank, 85; Boles, John, 82; Boltz, John, 82; Boyle, Mike, 76; Cass, Charles, 73; Collins, Ira, 74; Cross, W. E., 80; Frank, William, 84; Fenton, Mike, 78; Ford, B., 74; Frye, Louis, 76; Hartigan, John, 86; Heist, Chris, 63; Luckie, James, 78; Louppe, John, 69; Mitchell, Frank, 81; McCoy, Chesley, 84; McManus, Harry, 62; Nichols, W. H., 64; Smith, Roland, 94; Zooks, Sam, 90.

The average age of the above twenty-one is 77.85.

GROUND SQUIRRELS.

The humble and lowly ground squirrel, according to C. Hart Merriam, U. S. Biological Survey, causes a loss to agriculture on this coast of some $10,000,000 annually. But that is not why the insignificant squirrel is attracting attention; it is because he is known to be a carrier of plague. Merriam has written an excellent article, which is reprinted from the Public Health Reports, on the ground squirrel and the best way to get rid of him. Seeing that we have in certain counties of California a permanent plague focus (unless the squirrels can be exterminated), it is to be hoped that the article will have a wide distribution and general reading.

HEALTH PAMPHLETS.

The Health Department of the Pasadena City Schools, under the management of Dr. Hoag, has begun the publication of little leaflets called "Health Pamphlets," setting forth, briefly, certain facts in regard to the health of school children and defects to be looked for. These should prove of great value in educating parents and the public generally in matters of public health. They are small, easily read and set forth their contained information in a plain and simple manner; they should be adopted by other places where there is medical supervision of school children.

DEATH OF DR. BULL.

Dr. Wm. T. Bull, the distinguished surgeon of New York, died of cancer, February 22nd, 1909. He had been incapacitated for many months and had had his share of suffering before the end came to relieve him.

NEW AND NON-OFFICIAL REMEDIES.

Since the publication of New and Non-Official Remedies, 1909, the Council has acted on the following products:

Articles accepted for N. N. R.—

Brovalol (Schering & Glatz).

Medinal (Schering & Glatz).

Veronal Sodium (Farbenfabriken, of Elberfeld Company).

Agurin Tablets, 5 grs. (Farbenfabriken).

Citarin Tablets, 15 grs. (Farbenfabriken).

Hedonal Tablets, 8 grs. (Farbenfabriken).

Veronal Sodium (Farbenfabriken of Elberfeld

Novaspirin Tablets, 5 grs. (Farbenfabriken).

Piperazine Tablets, 16 grs. (Farbenfabriken).

Sajodin Tablets, 8 grs. (Farbenfabriken).

Acet-Theocin-Sodium Tablets, 4 grs. (Farbenfabriken).

Veronal Tablets, 5 grs. (Farbenfabriken).

Iodothyrine Tablets, 5 grs. (Farbenfabriken).

Articles accepted for N. N. R. Appendix—

Tabloid Coffee Mint (Burroughs, Wellcome & Co.).

Maltine (Maltine Company).

Articles reconsidered and rejected—

Migrainin (Koechl & Co.).

ACTIVE SECRETARIES.

Sacramento is to be congrautlated upon the activity of the Secretary of its County Society, Dr. E. C. Turner. After every meeting he sends out a circular letter to those who were not in attendance at the meeting, briefly outlining what was done and calling attention to the attractive things presented from month to month. This amount of personal interest shown in individual members can not but help to increase the general tone and activity of the society. A somewhat similar line of activity is shown by Dr. M. L. Emerson, Secretary of the Alameda County Society, and it has had a very stimulating effect upon that organization.

AMERICAN PHARMACEUTICAL ASSOCIATION.

The A. Ph. A., as it is generally called, will meet in Los Angeles this summer—in August, if we are correctly informed. The meeting will be a notable one and a large attendance is expected. It would well repay many of our members to attend the sessions of this Association, if they can conveniently find the time. They will undoubtedly be very welcome, as guests.

PUBLICATIONS.

Therapeutics of Radiant Light and Heat and Convective Heat. By Wm. Benham Snow, M. D., Author of "A Manual of Electro-Static Modes of Application, Therapeutics, Radiography and Radiotherapy," "Currents of High Potential of High and Other Frequencies," Editor of the Journal of Advanced Therapeutics, and late Instructor in Electro-Therapeutics in the New York Post Gradnate Medical School. Scientific Authors' Publishing Company, 349 West Fifty-seventh street, New York. Price $2 net.

Surgical Diseases of Children. By Samuel W. Kelley, M. D. E. B. Treat & Co., New York. 1909.

After a very careful perusal of this volume of 765 pages, the reviewer has no hesitancy in advising students and practitioners to ignore its existence. There can be no valid excuse for writing such rambling discourses and inaccuracies. The enumeration of the latter would require pages of fine type and merely cause merriment or lassitude. In these days of over-burdened bibliography, it becomes a duty to sound an occasional note of warning. Unfortunately, in the present instance, one can only conjecture as to where rests the responsibility (writer or publisher) of foisting upon the medical profession such a senscless book. D. T.

Diseases of the Digestive Canal (Oesophagus, Stomach, Intestines). By Paul Cohnheim. Edited and translated by Dudley Fulton, M. D. J. B. Lippincott Company, Philadelphia.

In these days of encyclopedic publications the general practitioner in search of a guide will welcome this clear and concise record of personal experience in the study of gastric disorders. Omitting physiologic and pathologic considerations as well as all bibliographic data, Cohnheim has given an excellent picture of the practical side and thoroughness which characterize the teaching at his well known and popular Berlin clinic. Like all true clinicians, Cohnheim lays infinite stress upon the anamnesis in diagnosis, and in every chapter the reader will note the prominence given to subjective symptoms and the secondary role of laboratory methods. The major portion of this book of 235 pages is devoted to diseases of the stomach, and will prove a trustworthy guide to the busy practitioner, especially in the diagnosis and treatment of functional disorders of the stomach. The subject of chronic constipation is treated logically, practically and at considerable length. Those who are conversant with the recent gynecological and urological contributions to the study of mucous colitis, will note with surprise Cohnheim's rejection of the neurotic origin of some forms of this disorder. The chapters on diseases of the esophagus and rectum should have been either omitted or rewritten. In their present state they contain numerous antiquated views and dangerous statements.

Successful translating is a difficult and complex art. Dr. Dudley Fulton deserves praise for his very lucid translation and also for having bolstered up the author's surgical shortcomings. Indeed, one regrets the paucity of editorial emendations, although the addition of poor pathological plates has had a tendency to lower the value of the original work. D. T.

Golden Rules of Dietetics.—By A. L. Benedict, A. M., M. D. C. V. Mosby Medical Book and Publishing Company, St. Louis, 1908.

This volume of 407 pages contains an account of the general principles and details of the science and art of dietetics. While the work is not original in any sense of the word it does present the practical side of the question in an interesting and useful manner. At the same time sufficient emphasis has been laid on matters of more or less academic interest which at least indicate the trend of modern research along lines which promise help at the bed-side. Since dietetics in the hands of most physicians is neither an art nor a science this book if read will do much good by putting the practice of dietetics on a more intelligent basis.

Human Anatomy.—Edited by George A. Piersol, M. D., Professor of Anatomy in the University of Pennsylvania. J. B. Lippincott Company, Philadelphia and London, 1908. 2088 pages.

It has been told of Strafford that before reading any book for the first time, he would call for a sheet of paper, and then proceed to write down upon it some sketch of the ideas that he already had upon the subject of the book and of the questions that he expected to find answered. "After glancing my eye over the design and order of a new book," says Gibbon, "I suspended the perusal till I had fin-

ished the task of self-examination, till I had revolved in a solitary walk all that I knew or believed or had thought on the subject of the whole work or of some particular chapter; I was then qualified to discern how much the author added to my original stock; and if I was sometimes satisfied by the agreement, I was sometimes warned by the opposition of our ideas." Critical literature built of such high ideals is unfortunately nowadays but seldom found in book-review work; its decadence is to be deplored for surely none can be more instructive or interesting.

In the review of the present work on Anatomy the reviewer has perforce contented himself with the mediocre task of reading a chapter here and there—chapters dealing with subjects in which he is more or less personally interested. The work is too encyclopedic in proportion for anything like a detailed criticism. However, from our perusal we have gathered a most favorable impression of the work, not only from the clearness of description but also from the suggestive and practical manner in which the subject is handled. Indeed, the names of the contributors are sufficient assurance of the general excellence of the reading matter which is further illuminated by many new and original illustrations. In the latter respect alone the volume is noteworthy. The determination to produce a series of drawings that should faithfully record the dissections and preparations as they actually appear and not as diagrammatic figures has been fully realized. When it is stated that considerable more than 2000 original drawings have been made in the preparation of the figures illustrating the work, some conception will be had of the magnitude of this feature.

Of special interest is the stand taken by the editor with reference to the nomenclature advocated by the Basle Congress. It is evident that he considers the terminology used by English-speaking anatomists and surgeons more practical, although the BNA synonyms may be found in the special type reserved for the purpose. "The constant aim of the editor has been to use the simplest anatomical terminology and preference has always been given to the anglicized names, rather than to the more formal designations. Although in many cases the modifications suggested by the new terminology have been followed with advantage, consistent use of the Basle nomenclature seems less in accord with the conceded directness of English scientific literature than the enthusiastic advocates of such adoption have demonstrated."

It may be of interest to know that the contributors to the volume are Prof. Thomas Dwight, of Harvard University, who has written the description of the skeleton, including the joints, and that of the gastro-pulmonary system and of the accessory organs of nutrition; Prof. Carl A. Hamann, of Western Reserve University, who has contributed the account of the cerebro-spinal and sympathetic nerves; Prof. J. Playfair McMurrich, of the University of Michigan, who has supplied the descriptions of the muscular, and of the blood-and-lymph-vascular systems; Prof. J. William White, of the University of Pennsylvania, who has dealt with the practical requirements of the subject from the standpoint of the practitioner; and finally, Prof. George A. Piersol, also of the University of Pennsylvania, who has written the introductory, histological and embryological sections throughout the work, and contributed the description of the central nervous system, including the deep relations of the cranial nerves, of the organs of special sense, of the carotid, coccygeal and aortic bodies, and of the uro-genital system. A. J. L.

Gonorrhoea in Women. By Palmer Findley, Professor of Gynecology in the College of Medicine of the University of Nebraska, etc.

This little monograph covers the subject under the title quite exhaustively and is as nearly up to date as it is well possible to be. The author has appended a very complete bibliography, the arrangement of which, as well as that of the text, is very convenient. Under the head of "Abortive Treatment" and "Prophylaxis" we must wholly agree with the author, that until such time as the male prostitute shall be regulated and denied the artificial and grossly unfair and unwise protection afforded him through the "medical secret" anything like an effective prophylaxis must be out of the question. His suggestion, that the most effective move might emanate from some morally courageous Health Officer seems to offer one practical solution, or at least an entering wedge toward the same. With the very minor exception of evidences of probably careless proof-reading, as evidenced in several misspelled words and proper names, and "palida mars" for "pallida mors" in one quotation, the work gives evidence of careful preparation and an earnest endeavor to supply as nearly complete a presentation of this most vital subject as has as yet appeared.

J. C. S.

Abdominal Hernia; Its Diagnosis and Treatment. By W. B. De Garmo, M. D. J. B. Lippincott, Philadelphia. 1908.

The author states in his preface that his book is addressed particularly to the physician, and has accordingly devoted much space to the diagnosis and mechanical treatment of abdominal hernia. The chapters on surgical treatment are devoted to an exposition only of those methods which have proven satisfactory in his hands.

The first chapters consist of a résumé, but sufficiently full for the purpose, of the surgical anatomy of the inguinal region, the descent of the testis, and the formation of the hernial sac. Following this is a very practical chapter on the differential diagnosis of inguinal hernia. The classification of inguinal hernia into oblique, direct, sigmoid or caecal interstitial may be open to objection, but the placing of sigmoid or caecal hernia in a distinct class, gives emphasis to the diagnostic points which are clearly pointed out to us. The danger of opening into the bowel directly in sigmoid hernia due to the extra-peritoneal descent and the absence of a hernial sac, makes this form of hernia of particular diagnostic importance to the surgeon. This form is well described and illustrated.

The next one hundred pages are devoted to the mechanical treatment of hernia. Over and above all else this department makes the book worth while, and will be found most valuable to both surgeon and practitioner. This subject has been neglected both in our literature and in our practice; relegated as unimportant, we have turned our patients over completely to the truss maker, or nearest drug store, taking no active supervision of the case.

The author has brought to bear in this section a life-long interest in the subject and wide experience and observation. An interesting series of pictures are given showing the lines of development of trusses from their earliest beginning in different countries. The proper mechanism and application is explained and pictured. In fact the practical value of this section cannot be overestimated.

Another important chapter is the mechanical treatment of inguinal hernia in infancy and childhood. One-half of all abdominal herniae occur during the first five years of life; the proper treatment at this time is especially important since the defect may frequently be cured without an operation. Minute instructions are given for the handling of these cases. A short chapter of interest is inserted in the treatment of inguinal hernia by gymnastics with an outline of the exercises as developed by J. W. Seaver, Director of Physical Education at Yale. This subject is interesting but will hardly become popular with the profession.

In the chapter on the surgical cure of herniae we

would have wished that besides the description of the Bassini and Halstead operation some reference had been made to Ferguson's method, the operation without transplantation of the cord, which simplifies the operation, causes a minimum of trauma and with overlapping of the fascia gives a permanent cure. In the surgical cure of direct hernia which at times becomes most difficult a fuller exposition would have been more satisfactory. In a book of this character we think more stress should have been placed on hernia in the linea alba, and more attention and space devoted to its diagnosis and symptomatology. Especially in America is this form of hernia overlooked and not sought after in the routine examination of patients suffering with stomach symptoms. Its frequency will be found to increase if carefully sought for, and relief brought to a large number of sufferers treated for dyspepsia. Aside from these minor criticisms, we believe the book has fulfilled the author's wishes and may be especially recommended to the student and the general practitioner. H. B.

Medical Inspection of Schools. By Luther Halsey Gulick, M. D. Director of Physical Training, New York Public Schools, and Leonard P. Ayres, General Superintendent of Schools of Porto Rico, 1906-1908. Charities Publication Committee, New York. 1908.

This volume had its origin in the "Backward Children Investigation," a research supported by the Russell Sage Foundation for the purpose of studying so-called "retardation" among school children, and inaugurated in November, 1907. It is a book of 276 pages in which the functions of medical school inspection are comprehensively defined. The work aims primarily at results of a practical nature, consequently, while it contains much of purely theoretical interest, the form of presentation is such as to make it of incalculable service to all who are directly connected with, or interested in, the betterment and safeguarding of the health of school children.

Medical inspection "is founded on a recognition of the close connection which exists between the physical and mental condition of the children and the whole process of education." It "seeks to secure ultimately for every child, normal or defective, conditions of life compatible with that full and effective development of its organic functions, its special senses, and its mental powers, which constitute a true education." (Extract from Memorandum of British Board of Education.) Such a conception of education is the development of recent years. While it is true that the laws of Lycurgus provided for state control of the physical and mental training of Spartan youths it is equally true that we have for centuries been complacently quoting Juvenal's much-abused half-line, "A sound mind in a sound body," forgetting all the time that while diligent provisions existed for schools in which "sound minds" were to be shaped, no scrutiny was exercised as to their fitness for conserving and developing "sound bodies." Indeed, most of us have been Ponce de Leons, little remembering that a healthy old age begins in the physical and mental training of our youth.

At first merely limited to the detection and segregation of contagious diseases, medical inspection of schools has extended its activities to a closer examination of the child, and as a result it now concerns itself with the discovery and remedy of those physical defects which interfere with the child's ability to do his work, or which, if neglected, will seriously affect his physical efficiency in after-life. From such inquiries surprising numbers of children have been found who, through defective eyesight or hearing have been seriously handicapped.

There seems to be a widespread belief in America that such work is still on trial and that we are leading the way. The reverse of both of these impressions is true. As early as 1837 a royal ordinance in France made it the special duty of those having charge of kindergartens to watch over the health of the children; and the decrees of 1842 and 1843 ordered that every public boys' and girls' school should be visited by a physician who was to inspect the localities and the general health of the school children. Probably the first system of medical inspection in the full modern sense of the term was, however, inaugurated in Brussels in Belgium in 1874, when school physicians were appointed who were required to visit schools three times a month. So successful did the system prove that it was soon adopted by Antwerp, Louvain, Liege and other cities, and served as a model for systems in Switzerland. In Germany, Leipsic and Dresden were the first cities to have medical inspection. A beginning was made in Dresden in 1867, but it was not until 1889 that a true medical inspection was established when in Wiesbaden a system was developed providing for a careful and thorough physical examination of each child at the time of entering school, and for a re-examination in the third, fifth, and eighth years of the public school course. The system also provides for careful service for the detection of contagious diseases and for the inspection of school buildings and surroundings. In 1898 the Wiesbaden system was generally adopted throughout Germany. Other countries, such as Hungary, Austria, Norway, Sweden, England, Chile, Argentine Republic and Japan have also made provisions for medical inspection.

In the United States the first regular system of school inspection seems to have been made in Boston in 1894, although 2 years before that date Dr. Moreau Morse had been appointed Medical Inspector of Schools in the City of New York. It was not, however, until 1897 that the work was seriously undertaken in the latter city. Since then the movement has spread to other large cities, but not to the extent which the importance of the matter demands.

In some parts of our country the objection has been made to the introduction of such medical supervision, that the state has no right to permit or require such overseeing; but as Dr. William H. Allen has very properly said: "When the state for its own protection compels a child to go to school, it pledges itself not to injure itself by injuring the child."

It is probable that considerable time will pass before there will be brought to bear in all schools the measures, now so successfully pursued in some, for maintaining and improving the physical soundness of rising generations. But the book the subject of this review, will bring Light where Darkness before prevailed. A. J. L.

CHANGE OF ADDRESS.

Berg, Adolph, from Ortmann Bldg., to 525 Montgomery st., San Francisco.

Wislocki, E. J., from 1st and Fountain sts., San Jose, to 26 South 1st st., San Jose.

Gates, C. O., from Mt. View, to Watsonville, Cal.

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Kucick, O. S., from 303½ Montgomery ave., to 277 Montgomery ave., San Francisco.

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Shaw, Frederic E., Sisters' Hospital, Sacramento.

Reynolds, Louis G., from Los Angeles, to 810½ K st., Sacramento.

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Newmark, Philip, from Bradbury Blk., Los Angeles, to Security Bldg., Los Angeles.

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Wilson, Carl G., from Menlo Park, to 860 University ave., Palo Alto, Cal.

Morgan, Chas. L., from address unknown to Half Moon Bay, San Mateo Co., Cal.

Banta, Wm., from address unknown to Calistoga, Napa Co., Cal.

Mathewson, May A., from address unknown to Dos Palos, Merced Co., Cal.

Mathewson, Carelton, from address unknown to Dos Palos, Merced Co., Cal.

Page, Clarence W., from Postoffice Bldg., Berkeley, to 2131 University ave., Berkeley, Cal.

Scapparone, C. G., 617 Montgomery ave., San Francisco.

Friedberger, W., from Stockton, to French Camp, Cal., care County Hospital.

Lendrum, B. A., Fort Bragg Hospital, Fort Bragg, Cal.

Gardner, A. M., from 1059 O'Farrell st., to 240 Stockton st., San Francisco.

Hughes, Jerome A., from 1823 Eddy st., to 86 Post st., San Francisco.

Pressley, Jas. F., from 300 Page st., to 135 Stockton st., San Francisco.

Plinz, Jno. K., from Mason and Union sts., to 916 Kearny st., San Francisco.

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Cottingham, R. C., from 3319 Jackson st., to 1990 Sutter st., San Francisco.

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Leffler, Jno., from 1808 Laguna st., to 1911 Sutter st., San Francisco.

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Mahan, D. J., from 2344 Sutter st., to 17th and Market sts., San Francisco.

Orr, Robt. H., from 2104 Howard st., to Phelan Bldg., San Francisco.

Palmer, C. B., from 1836 Pine st., to 1256 Hyde st., San Francisco.

Powers, C. L., from 1911 Bush st., to 1694 Post st., San Francisco.

Rabe, B. A., from 261 4th ave., to 930 Clement st., San Francisco.

Richstein, J. J., from 39th ave. and J st., to Westbank Bldg., San Francisco.

New Members.

Fairchild, F. D., 4605 Central ave., Los Angeles.

Cahen, Edw. M., County Hospital, Los Angeles.

Balsley, Jno. A., 1447 11th st., Santa Monica.

Newcomb, Ralph H., 44 South Marengo ave., Pasadena.

Whitlock, R. G., 2828 East Main st., Los Angeles.

Jones, Ed. D., 3146 Vermont ave., Los Angeles.

Welsh, P. M., Bixby-Heartwell Bldg., Long Beach, Cal.

Pascoe, E. R., County Hospital, Los Angeles.

Manning, W. R., 213 South Broadway, Los Angeles.

Bowerman, A. C., El Monte Los Angeles Society (by transfer from Fresno Co. Society).

Deaths.

Van Meter, Miles E., San Francisco, Cal.

Smith, Jno. Wm., San Francisco, Cal.

Dearth, Leonard, Los Angeles, Cal.

Brayton, H. W., San Francisco, Cal.

Jones, Henry Isaac, Oakland, Cal.

Resigned.

Noble, Maud, San Francisco.

California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

PHILIP MILLS JONES, M. D., Secretary and Editor

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Secretary State Society, - - Butler Building,
State Journal, - - - San Francisco.
Official Register, - - -

Telephone Douglas 2537

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VOL. VII MAY, 1909. No. 5

EDITORIAL NOTES.

The San Jose meeting of the State Society, now a thing of the past, was a distinct success. The full minutes of the proceedings of the House of Delegates will be found in this issue, together with the reports of officers. It will be seen from these that the Society was never in better condition than at the present time. In spite of many setbacks, we have steadily increased in numbers and we have also steadily reduced our obligations. There were 316 registered in attendance and doubtless, as is always the case, a number more who forgot to register. The tone of the program was excellent and some of the sessions worthy of the highest commendation. The President, Dr. Beckett, enforced the rule limiting authors and speakers to ten and five minutes respectively, and once more it was demonstrated to be a very wise rule. The newly elected President, Dr. Jas. H. Parkinson, of Sacramento, is known to most of our members and will undoubtedly guide the Society with a sure and a wise head during the coming year. The next meeting will be held at Sacramento, the third week in April, 1910. It is unfortunate that, probably through oversight in the confusion of electing a large number of committeemen, the Chairman of the Public Health Committee, Dr. F. C. E. Mattison, who has done such masterly work in organizing and making so very important this committee, was not reelected. No words of commendation can too highly praise the work that Dr. Mattison has done for the Society and for the Public Health of the people during the last two years, during which he has given liberally of his time and his energy for the furthering of the work of this committee. It is a sorrow to see him discontinue it and we can only hope that the new committee may continue the work as energetically and as satisfactorily as the former committee did under the management of Dr. Mattison.

SAN JOSE MEETING.

In the last legislature were introduced a number of bills affecting the status of those who desire to treat the sick. The Naturopaths wanted a law creating a board of examiners in Naturopathy; the chiropractics wanted a similar board for their peculiar cult, whatever it may be; there were two bills creating entirely new and original laws to regulate the practice of medicine and of osteopathy and two more which, at the beginning of things, merely amended the present law and created reciprocity. One of these, A. B. 1331, by Silver, was later amended to include all the bad features of all the others, and some in addition! The question is often asked, "Why are there so many attacks upon the medical law?" One reason is this: Any person may engage a lawyer as his professional adviser; there are many lawyers in the legislature; if the client of such an one desires a bill introduced, his lawyer-legislator naturally takes a great interest in that bill. This is not called "graft" by the legal profession; it is merely the system by means of which the great industries have had, for many years, very friendly congresses to make laws for them. It is therefore clear how such bills may be introduced and why the introducers may fight hard for their passage. But the number of such attorneys is small. Another reason, a vastly more important one, is the prevailing ignorance of the whole subject. Some people come along and want a board of examiners in "comforthealing"; they state at once that they do *not* wish to practice medicine; not at all; *only* comforthealing, which is mysteriously different from anything else and makes sick people well without doing anything to them. That sort of argument impresses a good many intelligent legislators who say "Why do you oppose these men? They do not ask to practice *medicine* and their bill is so drawn that they can *not* practice anything but 'comforthealing'; can not prescribe or operate or call themselves doctors." All of this is beautifully fine and simple—on the surface of it. But the legislator does not know the facts; he does not know that every one of these applicants to do these certain and sundry peculiar things is really and actually going to practice medicine as soon as he gets his license to practice something else.

WHY THESE ASSAULTS?

A graphic illustration of this was furnished within ten days after the last meeting of the Board of Medical Examiners. The legislature amended the present law and compelled the board to endorse certificates from the "Board of Naturopathic Examiners" which had been issued prior to the passage of the amendment. Some fifty were so indorsed on April 7th. Within a few days an agent for one of

CASE IN POINT.

the new and exclusive buildings in San Francisco telephoned to the office of the board to know if "John Doe" was licensed to practice and was all right. He was informed that no one of that name was licensed to practice medicine in this State. Now comes "John Doe," most indignant, says that his certificate was endorsed by the Board April 7th, that he is an M. D., and that he intends to practice medicine. He was authorized by the legislature to practice Naturopathy, *and that only;* not to practice medicine, to operate or to prescribe drugs; yet he openly states that he intends to practice medicine. What are you going to do about it? Invoke the law? Fine! But from whence is coming the money to hunt out and prosecute the many hundreds of such cases that exist now, and the many thousands that would exist with all these wide open doorways to the easy practice of medicine? If a crusade against them was begun, assuming that ample funds were at hand, how tremendous would be the work! Here is the case of a man who graduated from some medical school, tried to pass the examination and obtain a license to practice medicine, and failed. He joins the naturopaths, possibly after a few weeks' reading, and is subsequently licensed, by the manner described, to practice that cult. He comes into court, shows that he has a degree of M. D. (the court knows not one school from another) and says that he is being "persecuted" because he is a better man than the regular society physicians. He is promptly acquitted. This the history, not of one case only, but of very many. Large numbers of people would like to treat the sick in some esoteric manner—*because the sick are easy prey;* if they can obtain legal recognition of any form whatsoever, they will very shortly thereafter be practicing medicine. But the average layman—and this includes the representatives from your own district, in all probability, does not understand this at all; he never sees the crooked work underneath because the faddist speaks him fair and his words sound plausible.

ANOTHER REASON.

Another reason for the attacks upon medical standards—and "medical standards" might be written *safeguards against ignorance and quackery*—is one that brings to our own threshold a certain amount of shame: The complete lack of confidence in our profession caused by the eternal differences and squabbles among medical men themselves. From a private letter written by a high-minded lawyer who sat in the last Senate and voted for Assembly bill 1331, the following may be quoted as driving this home in no uncertain way.

> "Now among lawyers, the rule is entirely different and no such jealously or illwill exists among them as appears to exist among the members of the medical profession in the State of California. * * * * it certainly is very annoying and perplexing to the average legislator and he is at a loss to know the right thing to do as the doctors are divided themselves."

There it is, the same old story! The "doctors are divided among themselves"; they do not know what they want; some want one thing and others clamor equally loudly for something else. And how is the layman to tell the sheep from the goats; they are all equally physicians and equally eminent in their profession, so far as he can judge. The layman does not know the undercurrents, and there is mighty little time in which to point them out to a legislator when the legislature is in session. There is always some one good point put into these vicious bills about which their advocates can talk and thus gain support, ignoring the "joker" which they always contain. Or, this apparently good point may be a very bad one if its ultimate operation is studied out. Thus, Dr. Geo. L. Eaton argued at Sacramento that A. B. 1331 should pass because, as things are now, if the most eminent surgeon in New York or Chicago should come to California he could not perform an operation unless he had submitted himself to an examination at the hands of a board composed of men admittedly less competent than himself. He did not go on to explain why the bill was so urgently desired by the College of P. & S. of San Francisco (so recently for sale) and the Los Angeles College of Osteopathy, one of whose professors admitted that its graduates could not pass our board examinations. Why? The single plea that a really big man can not come here and practice without taking the examination, excites enough sympathy for the oppressed to obliterate all thought of the reasonable objections. This sympathy for the really great man, if carried out, would lead to the influx of 80 per cent. of those rejected by our examinations and thousands of at least equally ignorant osteopaths. But the schools that dislike high standards do not care about such trifles as this; and the legislator does not know the real conditions. A Senator, also a lawyer and a gentleman, puts your plain duty and your chief work for the next year or so very plainly before you in this statement:

> "It is hard indeed for a member of the legislature to know the right thing to do concerning the various medical bills that come before the legislature. On one hand we have * * and other equally eminent medical gentlemen contending that one bill is vicious and should not be passed and on the other hand we have such men as Winslow Anderson, Geo. L. Eaton, T. C. McSwain and other regular practitioners, who contend that the bill should be passed; so between the two, it is pretty hard for the layman to determine what is the right thing to do."

BILL 1331.

The vote on this bill, Assembly 1331, which so nearly became a law, is certainly peculiar and worthy of careful study. In the Assembly, after its various amendings, it came to final vote on March 13th. Fifty Assemblymen voted for its passage and not a single vote was recorded against it. Here is the roll call as taken from the official Daily Journal of the Assembly:

Ayes—Messrs. Barndollar, Beatty, Beban, Black, Bohnett, Callan, Cattell, Coghlan, Collum, Cronin, Dean, Drew, Feeley, Flint, Gerdes, Gillis, Greer, Griffiths, Hammon, Hanlon, Hawk, Hewitt, Hinkle, Holmquist, Irwin, Johnson of Sacramento, Johnson of San Diego, Juilliard, Kehoe, Leeds, Lightner, Maher, McManus, Melrose, Mendenhall, Moore, Nelson, Otis, Preston, Sackett, Schmitt, Silver, Stuckenbruck, Telfer, Transue, Wagner, Wheelan, Whitney, Wyllie, and Young—50.

Noes—None.

In the Senate, things were not so simple. It came up for final passage on March 20th. Senator Willis asked to be excused from voting, and the following Senators *voted for the passage of this bill which would have been such a blow to the protection of the people:* Anthony, San Francisco; Campbell, San Luis Obispo; Cartwright, Fresno; Curtin, Sonora; Cutten, Eureka; Estudillo, Riverside (in order to have the right to move for reconsideration); Finn, San Francisco; Hare, San Francisco; Hartman, San Francisco; Hurd, Los Angeles; Kennedy, San Francisco; Leavitt, Oakland; Martinelli, San Rafael; Miller, Visalia; Reily, San Francisco; Rush, Suisun; Sanford, Ukiah; Savage, San Pedro; Strobridge, Hayward; Walker, San Jose; Welch, San Francisco; Wright, San Diego.

Estudillo voted against the bill but finding it had passed changed his vote from "no" to "aye" and gave notice that he would move to reconsider. On Monday, March 22d, Estudillo moved that the action be reconsidered. This motion was put and carried. The vote was again taken on the final passage of the bill and of those named above *Caminetti, Curtin, Leavitt, Rush, Walker and Willis* changed their votes and voted *against* the bill. Wright was absent and did not vote. Birdsall and Boynton, not recorded as voting for the previous passage of the bill, are recorded as voting *against* it when it came to reconsideration. Of the Senators named, the term of office of the following has expired; some of them will want to be re-elected:

Anthony, Caminetti, Cartwright, Curtin, Hartman, Kennedy, Leavitt, Miller, Reily, Sanford, Savage and Wright.

NOTABLE BANQUET.

On March 31st a most remarkable thing occurred; the citizens of San Francisco tendered a banquet to a physician and presented him with a magnificent watch. A year and a half ago the same citizens were ready to mob any one who suggested that there was any necessity for calling upon Dr. Blue or any one else to fight plague, for the reason that, in their almighty opinion, no plague existed in San Francisco. But all things change; and so did the opinion of these distinguished citizens—including the mayor. The Council of the State Society called a public meeting and through some happy accident, two members of the Merchants' Exchange, out of some eight hundred members of the commercial bodies that had been invited, attended the meeting. These two listened to the remarks made by the physicians present and came to the conclusion that they had better wake up before the city was quarantined. The rest is history. The fight was a hard one for Dr. Rupert Blue, because he had to fight not only the plague but an ignorant and an antagonistic people; but he won. His tact, his courtesy and his efficiency are known to all who have come in contact with him and the prominent citizens of San Francisco certainly did themselves great honor when they so publicly admitted their previous stubbornness and their very present gratitude and apology.

ABOUT ANTI-VACCINATION.

Sometimes one is lead to believe that the 20th is a retrogressive century. Certainly there must be a very large number of exceedingly ignorant people in the world—and especially in California—if we are to take the attitude of the last legislature as in any way indicating the average intelligence. Mr. Harry Barndollar, of the Sixty-ninth District, Long Beach, introduced a bill (A. B. 992) which practically does away with compulsory vaccination; and it passed both Assembly and Senate. At the time of writing it is in the hands of the Governor who, it is to be hoped, will veto it. Why not take this up with our representatives and ask them to explain *why* they wished to put our State back many years and endanger the lives of many thousands of our citizens by doing away with our one protection against epidemic smallpox? Why should not the Long Beach branch of the Los Angeles County Association have Mr. Barndollar attend one of its meetings and discuss vaccination, incidentally asking him to *explain his attitude* on this most important public health measure? Furthermore, the physicians in the Sixty-ninth Assembly District should talk the matter over with the leading citizens who are active politically and call their attention to the mistaken activity of Mr. Barndollar so that, if he is again elected to represent that district, he will be better posted on the subject of vaccination and better able to avoid doing the State great injury. It is purely a matter of education. A few cranks (alas! some of them physicians), speaking in a loud and would-be authoritative voice, make statements against vaccination that stick in the untutored mind; it takes time and argument to get these ideas out. Here are the names of the Assemblymen who *voted in favor of doing away with compulsory vaccination:*

Barndollar, Long Beach; Beardslee, Stockton; Beatty, San Francisco; Black, San Francisco; Bohnett, San Jose; Butler, San Rafael; Callan, San Francisco; Cattell, Pasadena; Cogswell, El Monte; Costar, Chico; Cronin, Benicia; Cullen, San Francisco; Dean, Redding; Flavelle, Ontario; Fleisher, Santa Maria; Flint, Hollister; Gillis, Yreka; Griffiths, Monticello; Hanlon, Los Angeles; Hewitt, Yuba City; Hinkle, San Diego; Holmquist, Redwood City; Irwin, Bakersfield; Johnson, San Diego; Johnston, Richmond; Kehoe, Eureka; Leeds, Los Angeles; Maher, Santa Cruz; McClellan, Bridgeville; Mendenhall, Williams; Moore, Copperopolis; Mott, Oakland; Odom, Coalinga; Otis, Alameda;

Perine, San Francisco; Preston, Ukiah; Pulcifer, Oakland; Rech, Los Angeles; Rutherford, Truckee; Sackett, Ventura; Silver, Pleasanton; Stuckenbruck, Acampo; Telfer, San Jose; Wagner, Madera; Webber, Hanford; Whitney, Healdsburg; Wilson, Winters; and Young, Berkeley.

Here are the Senators who voted to do away with compulsory vaccination: Bates, Alameda; Bell, Pasadena; Bills, Sacramento; Birdsall, Auburn; Caminetti, Jackson; Campbell, San Luis Obispo; Curtin, Sonora; Finn, San Francisco; Hare, San Francsico; Hurd, Los Angeles; Leavitt, Oakland; Lewis, Stockton; Martinelli, San Rafael; Miller, Visalia; Rush, Suisun; Sanford, Ukiah; Savage, San Pedro; Strobridge, Hayward; Thompson, Alhambra; Walker, San Jose; Weed, Dunsmuir; Willis, Redlands; Wright, San Diego.

REPORT OF PRESIDENT TO THE HOUSE OF DELEGATES.

W. W. BECKETT, M. D.

During the past year there has been a gain in membership of about one hundred. This is small when we consider the number of new doctors that are continually coming into our State, and the new doctors that are being graduated annually from our local schools, and that we have about 2000 non-members. There should be a greater effort made by the County Societies to get in new members. The sending of the programs of the Society meetings, with an invitation to attend, and also a membership blank to be filled out, to non-members, might do much toward increasing the membership of the local societies.

The education of the laity along health and sanitary lines should be pushed more vigorously in the future than has been done in the past. The work done by the State Board of Health in preparing the Sanitation Car Exhibit will be an object lesson that will do more to educate the public along these lines than probably any other method that could be devised. The car should be advertised extensively by the local societies in advance of its coming to their localities.

Public addresses, newspaper and magazine articles by members of our society, would do much toward bringing about a greater sentiment in favor of compulsory vaccination, regulating pure drug and pure food laws, the care of the tuberculous poor, the quarantine of infectious diseases, a high standard of medical education, and the elimination of quacks and the nostrum evil; and should also very materially help in checking the progress of the Great White Plague and in staying the ravages made by the Greater Black Plague.

The recommendation made by my predecessor that the County Societies take up the post-graduate course that has been prepared by the American Medical Association has been but poorly carried out, or not at all. Invaluable good could be done by a thorough organization of the County Societies into post-graduate schools, and it is to be hoped that many of our component societies will take up this work during the coming year.

That our medical laws may not be interfered with, it is very important that we nominate only the best men we have in our society for positions on the State Board of Medical Examiners. If we can place five stanch men and true on the Board for the coming two years, much, if not all, of the criticisms that have been made against the present law, will be overcome, and we will occupy a very different position in the eyes of the public. I therefore recommend that you select with great care, only those who will fill these positions with credit to themselves and to this society.

At the last meeting of the American Medical Association quite a large number of our members were in attendance, yet only a part of our delegates were present. This should not be. Only members who will attend these meetings should be elected delegates. At most of these meetings we are usually without a full representation.

The persistent fight our Secretary has made, through our State Journal, against the Nostrum evil, and the good work done by him at Sacramento in upholding and maintaining our present State Medical law, should be commended by every member of our society.

Reciprocity has now been adopted by about twenty-seven States. The council of education of the A. M. A. is doing much to elevate the standard of medical education and in time it is to be hoped that a uniform standard may be attained by all the medical schools throughout the country. There should be reciprocity between States having the same legal requirements and when there is a uniform standard for all practitioners throughout the United States, then there should be reciprocity between all the States. The fight that was waged against our State medical law during the recent session of the State Legislature by the Naturopaths and others, was probably the most persistent and best organized of any that has ever taken place in this State. An anti-vaccination law was passed by both houses, but fortunately, was vetoed by the Governor. Bills of all sorts, intend to change the present medical law in all sorts of ways, were introduced and one was passed, but owing to the heroic work, of some of our members, was reconsidered and defeated.

If we are to preserve a medical law that will protect the public against quackery and ignorance, and maintain the present standard of medical education, it will be essential that we organize early, in every county in the State, so that we may ascertain before the primaries meet, who we can depend upon to vote for bills recommended by our Legislative Committee.

Governor Gillett should be especially commended by this Society for the earnest effort he has made in favor of just medical legislation. Those members of the Legislature who stood by us and voted to maintain our present medical law, should have our gratitude and our united support.

It should be the object of this association to promote concord and fraternity, unity and strength, the advancement of our knowledge, the protection of our own interests, and to uphold the honor of our

profession. The possibilities of this association are great, its influence which is increasing year after year, will last as a living power for good and remain a valuable legacy for the benefit of posterity. Our profession is heaven-born, and we may have the satisfaction of knowing that we are doing a noble Christian work in our effort to cure disease and alleviate human suffering. May harmony and good fellowship prevail throughout the sessions of this meeting.

REPORT OF THE SECRETARY.

To the President and Members of the House of Delegates:

Gentlemen:

As it is the province of the Council to report to your honorable body the financial condition of the Society and all matters relating to its publications, I will not discuss that portion of the year's work except to say that I was surprised to see any financial gain whatever during the year last passed.

In 1902, with a membership in the State Society of some 300 and with scarcely more than $700.00 in the treasury, we undertook the reorganization of the Society and the publication of a Journal. There was no office and no office equipment. There was little if any general society work to be done for the Society really existed only on paper; save once a year, at the annual meeting. But the office of the State Society is not unlike a central exchange in a telephone system; with the development of individual activity—with the growth of organization and of interest—has come an enormous increase in the amount of work thrown upon the exchange. From month to month and from year to year this work has grown and consequently our expenses have greatly increased. In spite of this fact, and in spite of the further fact that we were completely wiped out in 1906, and, like every one else, were subjected to the financial panic of 1907-08, we have been able steadily to reduce our indebtedness each year, to re-equip completely our office, to extend greatly the work of organization and to be of greater use to our members throughout the State, as evidenced by the much enlarged volume of correspondence.

It is evident to me, however, that we shall not be able to reduce our note of $2,000.000 more rapidly than to an extent of a few hundreds of dollars a year, without seriously crippling the general work of the Society and absolutely stopping all further organization work. As this would be calamitous, I respectfully suggest that the Council be authorized to take up the note for $2,000.00 now outstanding and issue in its stead 20 notes of $100 each, to be taken up by members, and that these notes be paid in units of $100, from year to year as funds are available. This year, for example, we shall be able to take up from one to five of such units, if nothing unforseen prevents.

During the year, the Society has increased in membership, and shows a decidedly healthier condition than a year ago. Forty-one members have died and thirteen have resigned or been dropped. On April 15th, the total membership was 1858, a net increase of 117 over last year, and the largest yet reached. Fourteen county societies have gained 124 members; one has been re-enlivened and has 21 members; three, Kings, Stanislaus and Tehama have not reported and the remaining ten show a loss of 22 members, though in several cases the final reports from these societies are not yet in.

The societies which have gained in membership are as follows: Alameda 9, Butte 3, Los Angeles 13, Monterey 2, Riverside 6, San Diego 20, San Francisco 51, San Joaquin 3, San Luis Obispo 2, San Mateo 8, Santa Clara 3, Shasta 2, Sonoma 4, Yuba-Sutter 1.

It is most encouraging to see that interest in county society work is steadily increasing and that some sections which never before had shown any particular interest in organization work, are now waking up and taking a good deal of interest in it. But we are just beginning. If we are to prevent the repetition of the fierce onslaughts upon our medical law and upon public health laws in general, we must do a great deal of organization work this next two years and each county society must take care of its own Assembly districts and see that its prominent citizens are educated to a proper understanding of the protective significance of these public health laws—of which laws that regulating the practice of medicine is by no means the least important. I have compiled a list of the members of the last legislature and the way in which each one voted on all public health laws. With your permission, I shall send to the medical society in each district the record of the legislators from that district; is it not then the duty of the local medical society, and of each of its members individually, to have an explanation from those of our legislators who voted against the public health of the people?

The Journal during 1908 printed 430 pages of reading matter including 122 original articles and 82 reports of societies, etc., of some length. No other medical journal on the Pacific Coast has presented to its readers anything like this amount of material. The quality of matter could be distinctly improved if you would give more of your best work to your own Journal; but even as things are, the extent to which articles appearing in your Journal are referred to and abstracted shows that it must contain at least some articles of more than trifling merit. To that extent to which you will co-operate, will your Journal be improved and bettered. The editor can do only a little; the members of the Society can do a great deal to improve the Journal.

If the work of the Society is to be continued and not curtailed, the assessment for 1910 should be fixed at $3.00; a smaller amount will necessitate cutting off a great deal of work that should be done.

It is to be hoped that some practicable plan for undertaking the defense of our members in malpractice suits may soon be adopted and placed in operation. Other states have tried this with marked success and it has added materially to the ad-

vantages of membership. The Society exists only for the benefit and improvement of its members and this undertaking will certainly be a great benefit and a not inconsiderable saving to them.

Respectfully submitted,
PHILIP MILLS JONES, Secretary.

REPORT OF THE COUNCIL.

To the House of Delegates, Medical Society, State of California:

The current year has been uneventful as regard to stirring events. The Council have held several meetings, transacting the business properly coming before it.

As will appear by the several reports submitted, the Society is in a good state of efficiency, the membership being slightly increased, while the interest manifested by the component Societies is up to standard.

The card files have been brought into good and complete order.

The business of the JOURNAL is better than before, with every prospect of further improvement.

The following is the report of the Council:

The year of 1908 saw a financial depression over the whole country which did not fail to affect our Society. Through failures, etc., the JOURNAL lost $278.00, the largest sum that has yet been charged to profit and loss since we began publication in 1902.

Advertisements were withdrawn to the extent of $900.00, thus making a total loss on JOURNAL business, from what was expected in the beginning of the year, of $1,178.00.

However, for the first time we are able to present a statement of the year's business uncomplicated with inheritances from previous years, except $890.00 paid for JOURNAL account incurred in 1907.

The statement presented to you, which is the auditor's report to the Council after experting the Secretary's books, includes only the receipts and expenses for 1908; no bills remained unpaid.

The total receipts for the year were $1,50[illegible].29 less than for the year 1907, and the total disbursements were $1,075.58 less than the preceding year. It will therefore be apparent that we were injuriously affected during the year to the extent of nearly $1,608.71. In spite of the fact, our JOURNAL has shown a slight increase in net earnings and our actual liabilities have been reduced somewhat as we see from the following figures:

Considering our actual liabilities only, and making no deduction therefrom for stock on hand, fixtures, petty cash, etc., we find actual liabilities—

January 1, 1907	$3,909.44
January 1, 1908	2,912.28
January 1, 1909	2,447.12

thus in three years, and in spite of losses from fire and from the business depression of last year, we have reduced our liabilities to the extent of $1,462.32. It must also be remembered that our expenses have increased in almost every direction.

Salaries, 1908	$5,077.00
" 1905	3,883.00
Increase	$1,194.00
Organization, 1908	$309.75
" 1905	99.70
Increase	$210.05
Society expense, 1908	$582.65
" " 1905	304.61
Increase	$278.04
Office expenses, 1908	$807.91
" " 1907	547.68
Increase	$260.23

Total increase in disbursements in these four items is therefore $1,942.32.

On the other hand, all back indebtedness on JOURNAL account has now been paid and the JOURNAL shows a slightly increased net earning capacity. In 1905 the books showed $288.00 excess of receipts over expenditures; in 1907, this was $594.00; in 1908 it was $958.00. It may be said, parenthetically, that business conditions are decidedly improving with the early months of the present year; already two pages of new advertisements have been received and others are anticipated.

In August it became apparent that it would be quite impossible to make any payment upon our note for $2,000.00, and a meeting of the Council was called to consider our financial status. At this meeting the Secretary was instructed to present a report, at some future date, with suggestions as to how we might reduce our expenses. He subsequently reported to me that he could see no way in which our expenses could be reduced save by reducing his salary and he, therefore, with my consent and without waiting for a meeting of the Council, reduced his salary for 1909 to the extent of $500.00.

With this reduction, with no inheritance of unpaid bills from the preceding year, and with the improvement in business conditions in view, we believe that it will be possible to reduce our loan to the extent of a few hundred dollars during the present year.

The actual cost of printing and distributing the twelve issues of the JOURNAL for 1908—all JOURNAL expenses—was $2,839.23. This is less than the amount which appears on the statement in your hands because $891.27 was paid in January, 1908, for JOURNAL expenses of a previous year, and $60.00 was paid in January, 1909, for the paper used in the December (1908) issue.

The Register for the past three years has been published by Mr. Henry Kaplan without expense to the Society. The information is compiled in our office and in return for this, a copy of the book is sent to each member. A plan is under consideration by means of which the Register may be issued quarterly and thus more accurate information furnished; many hundreds of changes occur each year.

C. G. KENYON, Chairman.

REPORT OF THE COMMITTEE ON PUBLIC POLICY AND LEGISLATION.

F. B. CARPENTER, M. D., Chairman.

Among the many bills introduced in the Legislature at the session just closed, those affecting medical matters were quite numerous; as for that matter they are at every session, and seem to be annually on the increase. Of them all, however, but two received serious consideration at the hands of the Sacramento Solons. One of these was a bill drawn in the interest of the Naturopaths, establishing a Board of Naturopaths, to be appointed by the Governor, and legalizing those already practicing Naturopathy in the State. This bill had a large following in both houses, was championed by strong leaders and stood a good prospect of passing as it was framed. In lieu of this an amendment to the present medical law was finally drafted which admitted to practice (legilized) those Naturopaths who were already in practice and required all Naturopaths who might hereafter apply for license to practice, to take the examinations of the State Board.

This bill as amended was finally passed, signed by the Governor, and is now a part of the State Medical Law. After the passage of this bill another bill, putting the appointment of the Board of Examiners in the hands of the Governor, and establishing reciprocity with other States, passed both houses, and needed only the Governor's signature to make it a law, when it would have replaced the present amended statute and we would have enjoyed th luxury of a political Board, and the privilege of exchanging compliments with other States, the standards of which are as questionable as would be the policy of the average political Board.

After this bill had passed both houses, Dr. Parkinson, who at the time was keeping in close touch with the Legislature and their doings, succeeded in securing its reconsideration by the Senate, when it was fortunately defeated by a small majority. It has always been the policy of your Legislative Committee, and we believe it to be the correct policy, to oppose any legislation which will place the appointment of the Board of Examiners in the hands of the Governor. Such an appointing power is undesirable, not that the Governor would not do his duty according to his best advice, but that he must depend for that advice upon consultation with a few of his personal friends or acquaintances, rather than upon the collective judgment of the assembled profession. It has, also, been our policy to oppose reciprocity with other States, for the reason that many States recognize the certificates issued by other States; and to recognize one, recognizes all with which that one may reciprocate; and as there are many lax and political Boards throughout the country, such a course would expose California to an influx of licentiates with all sorts of credentials. The high standing of the California State Board has gone abroad through the land, and since we have set the mark high, let us maintain it.

I recall that some years ago the address of the President of this Society dealt very liberally with the question of "the Doctor in Politics." It was forcibly argued that the doctor should take an interest in public questions, and it was shown wherein he might be of service to the general public.

Now, here is further argument why he should under certain conditions, become a public man, so-called. The medical man, as a member of the State Legislature, is well qualified to pass upon many questions coming before that body. Much matter of importance is referred to him by his colleagues, and his judgment and opinion respected by those with whom he associates. Experience in matters political has shown the advisability of there being more medical men in the State Legislature. The medical man in either house can do more to correct the ways of the average politician than can a whole County Medical Society from afar. I know of no one better fitted to adorn politics than the doctor, and to him we look to make political position an honor, and to reflect credit upon his party and his profession.

Now, adopt the practical side of this question, and make it your business within the coming year and years, to see that when there is a legislative opening in your district, that it is filled by a doctor. It will be to his credit, to your advantage and to the advantage of all the people.

REPORT OF THE PUBLIC HEALTH COMMISSION OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA FOR THE YEAR 1908-1909.

F. C. E. MATTISON, M. D. Chairman.

Mr. President and Members of the Society:

The work of the Public Health Commission during the last year has been largely educational, the major efforts being directed to inducing the country public health committees to take up the work in more aggressive fashion.

As the commission has striven to solve the many problems still before us, it began to realize the needs of a closer and more comprehensive organization; an organization that would weld together in a federated union all the public health agencies of California, viz.—the California State Board of Health, the California Public Health Officers Association, the Public Health Commission of the Society, the District Public Health Officers Association, and the County Medical Association Public Health Committees, and in an advisory capacity all other organizations and individuals working for these same ends.

A call has therefore been issued for such a meeting to be held at San Jose during this meeting, and it is hoped that that conference will enable such a union to be brought about.

There is a great need for concentrating all public health activities in a central body and of giving to our State Board of Health, the power that is now distributed among some lay boards, like the Dairy Commission.

As a majority of the members of the Executive Committee of this Public Health Commission live in Southern California, they have sought personally

to become further acquainted with the public health needs of the communities of that section.

The production of clean milk by all dairies, the need of enforcing the tuberculin test on all dairy cattle in California, the inauguration and maintenance of certified dairies, the need of securing better laws for the supervision of the dairy industry of California, have taken much time and effort in their study. The enforcement of the pure food laws, the disposal of garbage and sewage, the adequate inspection of bake-shops and other establishments producing food stuffs have been other subjects of discussion and investigation.

The efforts put forth to secure for Los Angeles a scientific disposal of sewage, which would be a model for other cities in the State necessitated many meetings with committees from various civic bodies and will no doubt result in better regulation of the very important measure.

This lack of organization among the profession prevented any strong effort being made during the recent State Legislature, to bring about the passage of laws on dairy inspection. This lack of organization was made even more manifest when our State medical law was in jeopardy. In this connection we may state that we secured from Dr. George H. Simmons, editor of the Journal of the A. M. A., several hundred copies of the last report of the Association of American Medical Colleges, and distributed a copy of this report with other literature in support of high medical standards to members of the Senate and Assembly.

During the past year the members of the Public Health Commission have given some thirty or more lectures before various clubs, organizations and medical societies, these lectures being on public health matters, dairies and dairy conditions or tuberculosis. An effort was made to defeat the proposed manner of disposal of garbage in Los Angeles and have a modern reduction plant installed, but the City Council will renew the old contract and permit the greater part of its garbage to be fed to hogs.

Without in any way infringing on the rights, this committee had made several hundred slides, showing tuberculosis conditions, and in conjunction with the California Association for the Study and Prevention of Tuberculosis, we have taken a part in the organization of Anti-Tuberculosis Societies, south of the Tehachapi Mountains.

The members of this commission residing in Los Angeles County are members of the Los Angeles County Medical Milk Commission and for the year 1908 personally inspected the Certified Milk Dairy at El Monte, and Dr. Black of our commission, made all bacteriological and chemical examinations of milk without cost to the commission. The fees resulting from the certification of this dairy by a vote of the Los Angeles County Society were given to the Medical Milk Commission to be used in public health work; this made it possible for us to secure lantern slides, and defrayed the expenses incident to our public health lectures, at no cost to the State Medical Society.

There has been a large portion of the work of the Public Health Commission that has been purely educational, and in view of the fact that many of our lectures were public meetings, open to the laity, and in almost every instance there was a large attendance, we feel that some good may come of this work.

We have seen very forcibly that medical legislation of inestimable value to the State is absolutely necessary in the near future, and would recommend that the Legislative Committee of the State Medical Society be enlarged so that it can contain from two to four members in every legislative district, and that work be started immediately. With two years ahead of us, we feel that much could be done in being a factor in this election of our Legislature two years hence. If the policy that has been pursued in the past,—waiting until the legislature convenes and then making a hasty scramble to get two or three of our members to go to Sacramento to lobby against an organized lobby, be continued, we will meet with defeat, as we have done in the past legislature, when the spectacle of some thirty or forty, secured legislation which was opposed by every member of our medical society.

We must organize, and organize at once, and unless we do organize, the medical profession of the State of California will never secure for the State, legislation that is absolutely essential.

The scope of work before the Public Health Commission is simply without limit. The production of unadulterated milk and other sanitary conditions, the prevention of contamination of water supplies of our people, the adequate and sanitary disposal of garbage, wastes and sewage, and prevention of atmospheric pollution by smoke and gases, the erection of sanitary houses and work shops, the supervision by the State of the conditions under which laboring men, women and children work,—these are a few of the problems facing this State along public health lines, and are a few of the problems concerning which your commission has been striving to educate the public and the profession.

The work has been handicapped by lack of funds and the indifference of many of whom we have a real right to expect support. But, the work is a righteous and a needed one, and increased effort can only mean increased success. We believe each year will see better and better results accrue from this organized effort to safeguard the public health interests of our State, and believe also that this Society should pledge itself anew to continue its efforts in these directions.

ANNUAL REPORT OF THE COMMITTEE ON TUBERCULOSIS.

GEORGE H. EVANS, M. D., Chairman.

The work of the Committee on Tuberculosis of the Medical Society of the State of California during the past year has not been as productive of results as the committee would have desired. When it held its first meeting, June 2nd, 1908, it was decided that the most useful thing that it could do was to gather all available data in regard to the

prevalence, distribution and causes of human tuberculosis in the State of California. Out here, in this glorious western state, most persons are prone to assume that the majority of dying consumptives are individuals who have traveled from eastern climes, in quest of health, but that their disease was too far advanced for the climate to cure them. Unfortunately, they fail to realize that our natives furnish more victims to this dread disease than do these eastern travelers, and a comprehensive report, it was thought, would do much to awaken all concerned to the realization of these facts.

This sort of report had been found very valuable in Maryland and other states and after a careful study of the situation, we asked your society for financial support in the undertaking. The treasury, we were told, was too poor to allow us the required funds, and we therefore postponed this undertaking until such time as the funds might be forthcoming. We hoped the Legislature might see fit to grant this money, and we therefore had a bill drawn up (Senate Bill No. 63) for the creation of a Tuberculosis Commission, with an appropriation sufficient to cover the cost of gathering the data, publishing, and distributing such report. It was the conviction of your committee that such a comprehensive report was an absolute necessity as a basis for a systematic and broad educational propaganda in a state where, with the exception of Colorado, the highest relative death rate exists of all the registration states.

Recognizing the fact that no great reduction in this death rate could be brought about unless necessary legislation were adopted whereby boards of health could be clothed with the necessary power to provide a comprehensive system of registration, another bill was drawn up by the committee (Senate Bill No. 59) "Defining the Powers, and Duties of Physicians, Local Health Officers and Boards of Health in the Matter of the Protection of the People of the State of California from the Disease known as Tuberculosis, providing for Requisitions and Reports and making an Appropriation therefor." This bill was drawn up after the plan of the New York law which went into effect in that state a year ago, and which has already been productive of splendid results.

Before these bills were introduced into the Senate, your committee consulted the State Board of Health, as well as representatives of the Federal Service. Dr. Foster offered to introduce both measures as State Board of Health bills, and as such did they enter the Senate.

Bill 63 was killed in committee, never reaching the floor of the Senate. Bill 59 came near suffering the same ignominious fate. Thanks to the efforts of Dr. Foster it reached the floor, and here again it would have died had not the committee been warned in time, and protested vigorously against such action, using all their influence to bring about its passage. They succeeded; but to what purpose? The Governor gave notice that he would veto the bill, and all the efforts of the committee were of no avail to hinder his action. This was done under a veto message dated March 16th, 1909, a copy of which is herewith appended:

Executive Department, State of California,
Sacramento, March 16th, 1909.

To the Honorable Senate of the State of California:

I have the honor to return herewith Senate Bill No. 59—An Act defining the powers and duties of physicians, local health officers, and boards of health in the matter of the protection of the people of the State of California from the disease known as tuberculosis, providing for requisitions and reports, and making appropriation therefor—without my approval for the following reasons:

This Act requires every physician practicing in this state, and every chief officer in charge of any hospital, dispensing asylum, or other private or public institution, to report to the local health officer the name, age, sex, color, occupation, address, and place where last employed of every person having tuberculosis who comes under his care or observation. It is made the duty of every health officer to make microscopical examinations of sputum sent him as that of a person having symptoms of tuberculosis, and he must make a record of all such examinations, which record is not to be divulged, except as may be necessary to carry into effect the provisions of this Act.

Thus far there is no particular objection to the bill, but it proceeds to more radical measures by providing that in the case of the vacation of any apartments or premises by the death or removal therefrom of a person having tuberculosis, the attending physician, or, in his absence, the owner, lessee, occupant or other person having charge of such apartments must notify the health officer, and such place shall not be occupied until disinfected, cleaned or renovated, as provided by the Act. Other provisions provide that if disinfection be not made within forty-eight hours, a notice shall be placed on the door of the premises to the effect that these apartments have been occupied by a consumptive and must not be occupied until disinfected, etc.

While these provisions are designed for the protection of the public health, they are so drastic that they would have a most deplorable effect if carried out in their entirety. The loss of business, and the inconvenience and loss through disinfection, would cause the closing of all doors against consumptives. These poor unfortunates would be unable to obtain lodgings in any place. They would become outcasts, and shelter would be denied them. Not only would they be excluded from all dwellings, but no person could travel with the assurance of receiving shelter unless he could produce a physician's certificate that he was free from tuberculosis. No landlord would rent apartments without the preliminary requirement of a clean bill of health from his prospective tenant.

(Signed) J. N. GILLETT,
Governor of the State of California.

The principal alleged objection the executive brought forward in this incomprehensible message was that "while these provisions (disinfection and renovation of infected premises) are designed for the protection of the public health, they are so drastic that they would have a most deplorable effect if carried out in their entirety. The *loss of business,* and the inconvenience and loss through disinfection, would cause the closing of all doors against consumptives."

Careful investigation in most large cities has clearly shown the influence of infected dwellings on the prevalence of tuberculosis. The greatest activity to-day in the crusade against this disease, is the effort to get at the infected centers, the breeding places, and remove the danger. The most malign influence that is attempting to interfere with this work is the criminal greed of the selfish owner of the tenement who uses the very argument of the

chief executive of this great state, in this veto message, so disastrous to the physical welfare and happiness of the people of this commonwealth.

Your committee would earnestly recommend that all local boards of health should immediately endeavor to have enacted ordinances, having for their objects intelligent registration of all cases of tuberculosis in their jurisdiction, and giving such boards discretionary power in matters pertaining to disinfection, renovation, etc.

The committee wishes to take this opportunity of thanking the different organizations for their valuable support in the endeavor to have these bills passed. Every organization to which application was made, gave its endorsement to these measures, with one exception: Bill No. 63 was not endorsed by the State Association for the Study and Prevention of Tuberculosis, as that body informed the committee some weeks later.

The committee refers with much satisfaction to the consummation of its efforts in the organization of the San Francisco Association for the Study and Prevention of Tuberculosis. This body has a large and active membership, with permanent headquarters and extensive office equipment. Its efforts at centralizing the work in that city has been productive of great good. It has completed a series of lectures. It has a central clinic thoroughly organized, with representation from the leading medical institutions of the city, and will, it is expected, in a few months, be in a clinic building of its own, plans of which have been accepted. The development of this Association is proving a great stimulus to those in other localities, Oakland having recently organized an association.

There being no funds at the disposal of this committee for the carrying out of the statistical work contemplated, and as it is believed that the Legislative Committee might take up these bills in two years' time; and further, there being but little advisory work to be done, local societies and the State Tuberculosis Association being now equipped to carry on this work, the committee recommends that it be herewith abolished.

(Signed.)

GEORGE H. EVANS,
F. M. POTTENGER,
HERBERT C. MOFFITT,
C. M. COOPER,
RENE BINE,
Committee.

REPORT OF THE COMMITTEE ON CANCER.

W. F. B. WAKEFIELD, M. D., Chairman.

The committee on cancer beg leave to make the following recommendations:

1. That a Committee on Cancer be made a permanent committee.

2. That 100,000 brochures, for distribution to the public, be printed, setting forth, in simple manner, some plain statements of facts, intended to be educational in character, provided that the committee succeed in raising the money for the printing of the same.

3. That the committee be given power to act in completing the details of the contents of the brochure and in having the same printed; the completed article to be submitted to the Publication Committee for approval before printing. The rough draft has been made but some finishing touches are required. The committee finds it very difficult to say just enough without saying too much. We thought it wise not to burden the general session with the article in detail, but simply to state that it will consist of about 1000 words pointing out the great mortality from cancer, drawing attention to the necessity for early enucleation, instructing the public in regard to the early signs of cancer of organs most frequently involved, urging them to renounce the idea of cancer being primarily a systemic disease, but to recognize its original localization, and to be honest with themselves in admitting its possibility in every individual and to consult the family physician on the development of any suspicious symptom, however trivial.

4. That the members of the State Medical Society be the distributing agents, the brochures, when printed, being handed over to the Secretary who, in turn, will send them to the different members of the Society with the request that they be judiciously distributed among his or her patients.

W. F. B. WAKEFIELD.
EMMETT RIXFORD.
M. H. FISCHER.

COMMITTEE ON VENEREAL DISEASES.

A. B. GROSSE, M. D., Chairman.

To the President and Members of the State Medical Society.

Your Committee on the prophylaxis of Venereal diseases begs leave to present the following report:

We have communicated with other bodies in the various States and countries working toward the same goal and we have sent the following circular letter to all the County Societies within our jurisdiction, elucidating the principles along the lines of which we deem it essential to proceed.

Board of Education and Labor Organizations have been interviewed, and preparations made for a vigorous campaign.

The Committee on the Prophylaxis of Venereal Diseases.

The committee has deemed it most expedient to address the following recommendations to the Secretaries of the various County Societies:

I. We recommend that each County Society arrange for the permanent maintenance of a ward or a certain number of beds in a hospital or similar institution for the care of acute venereal cases. We believe that this quasi quarantine will be a long step in the direction of preventing the spread of venereal infection. Such patients should be confined until it be deemed safe to dismiss them for ambulent treatment.

II. We recommend that each County Society arrange for practical talks on sexual hygiene to the

students of the upper classes of the high schools by competent and judicious physicians.

III. We recommend that the various benevolent lodges and trades unions receive practical talks from selected members of the respective County Societies not only of the dangers of venereal infection but also of the serious interference with the earning capacity of an individual suffering from a venereal infection. Further that common humanity and their own material interests demand that such infected individuals are entitled to and should receive a sick benefit equally with those otherwise so entitled.

IV. We recommend that each member of the medical profession constitute himself a committee of one to disseminate information and advice to his clientele more especially on the possible dangers from venereal infection.

Respectfully submitted,

ALFRED B. GROSSE.
JOHN C. SPENCER.
A. E. OSBORNE.

MINUTES OF THE HOUSE OF DELEGATES.

Thirty-ninth Annual Meeting, San Jose, April 20th, 1909.

FIRST SESSION.

The House of Delegates was called to order at 9 p. m., Tuesday, April 20th, by the President, Dr. W. W. Beckett. Forty-nine delegates responded at the first roll-call.

The President read the annual address to the House of Delegates.

Moved, seconded and carried that a committee of three be appointed, to which committee should be referred all reports of officers and all matters of new business. Jas. H. Parkinson, W. J. Barlow and T. C. Edwards appointed. President's address referred to this committee.

Report of the Secretary was read and referred to the same committee.

Report of the Council was read and referred to the same committee.

Report of the Committee on Scientific Work was presented and referred to the same committee.

Report of the Committee on Public Policy and Legislation, which had been read at the general session, was referred to the same committee. Dr. Parkinson presented a verbal, supplemental report from the committee, giving the history of various medical bills before the last Legislature.

Report of the Committee on Medical Education, read at the general session, was referred to the same committee.

Report of the Committee on Tuberculosis, read at the morning session, was referred to the same committee.

Report of the Committee on Public Health, read at the general session, was referred to the same committee.

Report of the Special Committee on Cancer, read at the general session, was referred to the same committee.

Report of the Special Committee on Venereal Diseases, read at the general session, was referred to the same committee.

An amendment to the By-Laws, adding to the list of standing committees, Article VI, Section 1, the following, was then introduced: "A Committee on Public Health to consist of five members to be elected annually."

Communication referring to the relief of the widow of the late Major Carroll was read and referred to the same committee.

The minutes were read and approved and the session adjourned to meet April 21st.

SECOND SESSION, APRIL 21, 1909.

Election of officers.

Meeting called to order by the President at 9:15 p. m. On the first roll-call 63 delegates responded; 15 more were subsequently noted present.

Place of meeting.—W. F. B. Wakefield and J. A. McKee appointed tellers. Sacramento, Santa Rosa, Long Beach, Stockton and Del Monte were placed in nomination, and on the first ballot received, respectively, the following votes: 28, 17, 0, 29 and 4. The President called for another ballot. On motion, regularly seconded and carried, it was decided to drop the three lowest nominations. On the second ballot Sacramento received 43 votes and Del Monte 34 votes. The President declared Sacramento as the place for next meeting.

President.—Dr. Jas. H. Parkinson, Sacramento, was placed in nomination by Dr. T. W. Huntington. There being no other nominations, on motion the nominations were closed and the Secretary was instructed to cast the ballot of the House of Delegates for Dr. Jas. H. Parkinson for President; carried.

1st Vice-President.—Dr. Wm. Simpson, San Jose, was nominated by Dr. H. Bert. Ellis. There being no other nominations, action similar to the foregoing was taken, the Secretary casting the ballot.

2nd Vice-President.—Dr. W. B. Sawyer, Riverside, was nominated by Dr. Griffith; no other nominations; similar action.

Secretary.—Dr. Philip M. Jones was nominated by Dr. Cheney; there being no other nominations, similar action was taken, the President casting the ballot of the House of Delegates.

Board of Examiners.—Dr. John C. Spencer nominated the following: A. S. Lobingier, Los Angeles; G. F. Reinhardt, Berkeley; Walter Lindley, Los Angeles; W. W. Roblee, Riverside; F. R. Burnham, San Diego; W. P. Burke, Highland; C. D. Ball, Santa Ana; J. H. Barbat, San Francisco; A. L. Cothran, San Jose; George H. Evans, San Francisco. There being no further nominations, the same course was taken, the Secretary casting the ballot for the House of Delegates.

Councilor.—First District, vice F. R. Burnham. Dr. Fred Baker was nominated by Dr. Magee; Dr. G. G. Moseley was nominated by Dr. Strong. On a ballot being taken, the President announced the election of Dr. Baker.

Third District.—Dr. T. C. Edwards was nominated to succeed himself by Dr. Saxton Pope. No other nominations; similar action.

Fourth District.—Dr. Geo. H. Aiken was nominated to succeed himself by Dr. J. R. Walker; no other nominations; similar action.

At Large.—Dr. H. A. L. Ryfkogel was nominated to succeed himself by Dr. C. G. Kenyon; no other nominations; similar action.

Eighth District.—Term expires 1910, vice Jas. H. Parkinson. Dr. W. A. Briggs was nominated by Dr. J. A. McKee; no other nominations; similar action.

Committee on Scientific Work.—The following were nominated: H. R. Oliver, W. H. Gibbons, H. A. Alderson and L. Schmitt. No other nominations; similar action.

Committee on Public Policy and Legislation.—The following were nominated: O. D. Hamlin, G. MacGowan, J. A. McKee; no other nominations; similar action.

Committee on Arrangements.—The following were nominated: A. M. Henderson, S. E. Simmons and J. W. James; no other nominations; similar action.

Committee on Public Health.—George H. Evans, George H. Kress, S. P. Black and W. F. Snow were nominated; no other nominations; similar action.

Delegates to the A. M. A. for two years.—H. Bert.

Ellis and Granville MacGowan were nominated; no other nominations; similar action.

Alternates to the A. M. A.—W. W. Beckett, Thos. W. Huntington and W. LeMoyne Wills were nominated; no other nominations; similar action.

Delegate to Darwin Celebration.—Dr. A. L. Lengfeld.

Reference Committee then reported by its chairman, Dr. Parkinson. The report was first read in full. It was then read section by section and adopted as follows:

Joint Legislative Committee.

Committee recommends: 1. That a joint legislative committee consisting of the legislative committees of the different branches of the profession represented under the present medical law, be organized, said committee to meet prior to and when necessary during sessions of the Legislature to consider medical bills that may be introduced and to formulate a policy of action.

Representatives in the Legislature.

2. That such legislation as this committee deems necessary be prepared and introduced by a representative in each house who shall have charge of such measures.

Medical Legislators.

3. That a determined effort should be made by the various County Societies to elect members of the profession to Senate and Assembly, always bearing in mind that such physicians must not only be well qualified and of good standing in the profession, but also capable of dealing with men and with affairs.

Committee on Medical Education. Publication of Investigations.

4. That the Board of Examiners should publish the results of their investigations of colleges in the State and recommends that its representatives on the board be so instructed.

Report from the Board of Examiners.

5. While recognizing that the Board of Examiners can report only to the Governor, your committee advises that an annual report to this society be requested from our representatives.

Naturopathic Certificates.

6. That our representatives on the Board of Examiners be instructed to closely scrutinize the credentials of all holders of naturopathic certificates applying for licenses in excess of the number specified by their representatives at joint conferences.

Popular Lectures.

7. That lectures designed to familiarize the laity with medical and sanitary questions be provided and that such lectures can be best given under the auspices of County Societies in their respective districts.

Committee on Tuberculosis.

8. In accordance with the request of this committee, we recommend that it be discharged, the work now being performed by the State Association.

Committee on Public Health. Certified Milk.

9 Believes that the best solution of the milk problem in the campaign for a better supply is certified milk and recommends that the doctrine of certified milk be preached to the public and urged before the local Health Boards throughout the State.

Central Health Organization.

10 That a strong Central Public Health organization is most desirable and that this committee be charged with the duty of bringing same about, to the end that organizations working for similar purposes may affiliate and meet in joint session prior to the annual meetings of the Society.

Committee on Cancer.

11. Recommends that this unique report, the like of which was never before presented to this Society, be adopted as read and that the committee be continued.

Committee on the Venereal Peril.

12. Recommends this report to the careful consideration of the County Societies and that the committee be continued.

Report of President to House of Delegates. Increase in Membership.

13. That as a decided increase in membership is desirable the President's suggestion on this subject be conveyed to the various County Societies.

Sanitation Car.

14. Believes that the usefulness of the "Sanitation Car" might be greatly extended were arrangements made for pitching a tent adjacent to the car so that the exhibits could be seen to better advantage.

Education of the Public.

15. That education of the public is best effected through the local societies and recommends that this matter be urged upon them.

Delegates to American Medical Association.

16. Recommends that no member should permit himself to be elected as delegate or alternate to the A. M. A. unless it be his present intention to attend the meeting.

Medico-Legislative Organization.

17. Recommends that legislative committees be appointed by every local society in senatorial districts and that wherever possible the members should be selected from men having had political experience, such committees to work through the secretaries of their respective societies who in turn shall report to the Secretary of the State Society, the latter officer dealing directly with the Committee on Public Policy and Legislation.

Governor Gillett.

18. Recommends that the thanks of the Society be extended to Governor James N. Gillett for his efficient services in connection with Public Health Legislation.

Report of Secretary. Society's Note.

19. Recommends that the Society's note for $2000 be taken up by the issuance of 20 notes of $100 each.

Records of Legislators.

20. Endorses the proposition to furnish the various County Societies with the records of their legislative representation on public health laws.

Better Papers for the Journal.

21. Recommends that the Secretaries of local Societies inform the editor of the Journal, in advance, of papers that may be read at their meetings so that when desirable same may be procured for publication.

Annual Assessment.

22. That the assessment for the coming year be fixed at $3.00.

Report of President of Council. Secretary's Salary.

23. Recommends that the council, when the income of the Society shall justify same, restore the Secretary's salary to the amount obtaining in 1908.

Quarterly Register.

24. Believes that the publication of a quarterly register is not desirable at the present time.

Committee on Scientific Program. Special Work Original Investigation.

25. Recommends that the Secretaries of the various local Societies be requested to inform the chairman of the Committee on Scientific Work as to men who may be engaged in special work or in original investigation so that the best material may be procured for the annual meetings.

Acceptance and Rejection of Papers.

26. Recommends that an increased discretion be

given the Program Committee in the acceptance or rejection of papers having in mind the fact that it is only possible to dispose of a limited number of papers at sessions and at the same time permit of intelligent discussion.

Ten Minute Papers.

27. Your committee submits the suggestion that the limit of ten minutes now advised for papers be made a part of the by-laws without recommendation.

Mrs. Carroll.

28. Recommends that the Secretary be instructed to receive subscriptions for this worthy object.

American Medical Benevolent Association.

29. In this connection your committee recommends that our delegates to the A. M. A. be instructed to urge the formation of an American Medical Benevolent Fund in connection with the Association, on the same lines as the British Medical Benevolent Fund.

JAMES H. PARKINSON.
W. JARVIS BARLOW.
T. C. EDWARDS.

Instructions to Delegates.—It was moved by Ellis, duly seconded and carried, that the delegates to the A. M. A. be instructed to endeavor to secure the meeting of the Association in 1910 at Los Angeles.

The amendment to the By-Laws, introduced at the previous session, was adopted.

Communication relating to new Councilor District was read and on motion referred to the Council.

Communication (verbal) from Dr. Hildreth for Dr. W. S. Fowler, Chairman of the special Committee on Medical Defense, and prevented from being present, was referred to the Council.

Moved by Dr. T. C. McCleave, regularly seconded and carried, that when the House of Delegates adjourn it do so in memory of our distinguished late President, Dr. Frank L. Adams.

Moved, seconded and carried (motion put by the Secretary) that the thanks of the House of Delegates be extended to Dr. W. W. Beckett for the tact and courtesy with which he had conducted the sessions of the Society.

Moved, seconded and carried that the thanks of the Society be extended to the Santa Clara County Medical Society, to the ladies of San Jose and to the medical profession of San Jose for the magnificent reception and entertainment they have extended to the Society.

The President, Dr. Jas. H. Parkinson, was then escorted to the chair and introduced. He made a few remarks, after which the minutes were read and approved as read.

The Society then adjourned sine die.

PHILIP MILLS JONES, Secretary.

DELEGATES PRESENT, SAN JOSE MEETING.

W. L. Emerson, H. N. Rowell, G. F. Reinle, Dudley Smith, W. O. Smith, T. C. McCleave, E. F. Gatchell, J. R. Walker, D. H. Trowbridge, H. Hildreth, W. E. Hibbard, A. Soiland, J. Y. Oldham, S. P. Black, W. H. Kiger, H. B. Ellis, W. H. Roberts, W. Le M. Wills, F. Miller, W. J. Barlow, D. Fulton, G. W. Lasher, E. W. Fleming, H. G. Brainard, John H. Kuser, J. L. McClelland, H. B. Christiansen, F. Chaffee, Thos. R. Griffith, S. E. Simmons, A. M. Henderson, J. A. McKee, D. C. Strong, T. L. Magee, H. P. Newman, V. G. Clark, W. F. B. Wakefield, H. Morrow, J. C. Spencer, H. Brunn, R. L. Porter, R. Russ, G. E. Ebright, Dudley Tait, F. B. Carpenter, S. J. Hunkin, T. W. Huntington, A. Weeks, W. F. Cheney, H. D'A. Power, C. G. Levison, C. M. Cooper, A. A. O'Neill, E. Schmoll, H. R. Oliver, M. R. Gibbons, R. L. Rigdon, G. B. Somers, W. S. Franklin, B. J. Powell, A. W. Hoisholt, H. M. Cox, H. C. McClenahan, Wm. T. Barry, W. F. Snow, J. N. Hall, H. J. B. Wright, J. L. Asay, S. T. Pope, R. T. Legge, J. J. Hogan, G. W. Mallery, W. E. Bates, H. D. Lawhead.

MEMBERS REGISTERED AT THE SAN JOSE MEETING.

Asay, J. L., San Jose; Avey, John L., Redlands; Atkinson, A. T., San Jose and San Francisco; Arnold, J. Dennis, San Francisco; Aiken, Geo. H., Fresno; Alexander, E. W., San Francisco; Avery, Caroline, San Jose; Alderson, Harry E., San Francisco; Arthur, E. A., Stockton; Abrahamson, Milton, San Francisco.

Birtch, Fayette W., San Francisco; Beckett, Wesley W., Los Angeles; Black, S. P., Los Angeles; Barbat, J. H., San Francisco; Barlow, W. Jarvis, Los Angeles; Barry, William T., Santa Barbara; Bates, W. E., Davis; Brumwell, D. A., King City; Belknap, L. J., San Jose; Briggs, Leroy H., Oakland; Buteau, S. H., Oakland; Benzinger, Z., Oakland; Burnham, F. R., San Diego; Brown, Rexwald, Santa Barbara; Browning, Ferdnand W., Hayward; Bew, Lolita Day, San Francisco; Burke, E. W., Highland; Brow, H. C., San Jose; Bering, R. E., Tulare; Benecke, J. L., San Jose; Butin, Mary R., Madera; Briggs, Wm. E., Sacramento; Briggs, W. A., Sacramento; Brainard, H. G., Los Angeles; Brunn, Harold, San Francisco; Barbat, Wm. F., San Francisco; Bishop, T. W., South Pasadena; Belknap, Florence A., San Jose; Brown, Philip K., San Francisco; Bull, C. George, Alameda.

Cole, Elsie W., Berkeley; Cohn, Robert D., San Francisco; Carpenter, F. B., San Francisco; Crees, Robert, Lakeport; Cox, H. M., San Luis Obispo; Christianson, H., Salinas; Crumpton, H. J., Sausalito; Chaffin, F., Yountville; Caldwell, Robert, San Jose; Cothran, A. Lincoln, San Jose; Cheney, W., San Francisco; Clark, W. A., Alameda; Cameron, Howard, Reno, Nev.; Castle, H. Edw., San Francisco; Clark, Jonas, Gilroy; Clark, V. G., San Diego; Chambers, W. E., Oakland; Curdts, C. E., Oakland; Cooper, C. M., San Francisco; Cooper, J. H., Mountain View; Card, E. F., Oakland; Cadwallader, R., San Francisco; Crowley, D. D., Oakland; Clark, Austin, Alameda; Channell, W. L., Oakland; Conner, A. W., San Jose; Conner, Ada Scott, San Jose; Crosby, Daniel, Fruitvale.

Daell, H. S., U. S. Navy; Deane, Louis C., San Francisco; Dietz, H. L., Oakland; Dozier, Chas. A., San Francisco; Dawson, J. D., Stockton; Dukes, Chas. A., Oakland.

Ellis, H. Bert., Los Angeles; Ewer, Edw. N., Oakland; Evans, Geo. H., San Francisco; Emerson, M. Lewis, Oakland; Enos, M. H., Oakland; Evans, J. H., Hyland; Eastman, F. M., Berkeley.

Frasse, Irvin N., Los Angeles; Foster, N. K., Sacramento; Fischer, Martin H., Oakland; Franklin, Walter S., San Francisco; Follansbee, Elizabeth A. Los Angeles; Fraser, W. W., San Jose; Fredrick, N. W., San Francisco; Fleming, E. W., Los Angeles; Fry, P. B., Benicia; Fulton, Dudley H., Los Angeles; Frankenheimer, Jules B., San Francisco; Fritschi, A. N., San Francisco; Frisbie, E. G., San Francisco.

Griffeth, T. R., Riverside; Greene, Frances M., Berkeley; Gillihan, Allen F., Berkeley; Grimes, Warren V., Pacific Grove; Gunn, Herbert, San Francisco; Gatchell, Ella F., Chico; Gates, Howard B., San Jose; Gates, Amelia L., San Jose; Gallimore, Elizabeth, San Jose; Gibbons, Morton R., San Francisco; Green, Jacob S., Alameda; Gross, R., Eureka; Galbraith, A., Oakland; Greenwood, Edna M., San Francisco; Grissim, J. D., Oakland; Grosse, A. B., San Francisco.

Holt, Wm. L., Santa Barbara; Hogan, Jas., Vallejo; Hoisholt, A. W., Stockton; Hastings, Hill, Los Angeles; Henderson, A. M., Sacramento; Harker, Geo. A., Oakland; Horthington, Geo. B., Marysville;

Hildreth, H., Delano; Hamlin, O. D., Oakland; Huntington, T. W., San Francisco; Hervey, C. H., San Jose; Hodghead, D. A., San Francisco; Hall, J. Underwood, San Jose; Hunkins, Sam, San Francisco; Hibbard, H. C., Los Angeles; Hyde, O. C., Oakland; Hull, Jack, Stockton; Harbrit, Ellis, ...; Hopkins, M. F., San Jose.

Kenyon, C. G., San Francisco; Kuser, J. F., San Rafael; Kress, George H., Los Angeles; Koford, Henning, Oakland; Kiger, W. H., Los Angeles; Kune, J. M., Oakland; Krone, C. R., Oakland; Kapp, M. W., San Jose; Keck, Josiah H., Palo Alto; Kocher, J. J., San Jose; King, Gus C., Banning; Knorp, Francis F., San Francisco.

Langdon, S. W. R., Stockton; Lucas, William T., Santa Maria; Lyon, S. B., San Jose; Levison, C. G., San Francisco; Lafontaine, Emma C., San Francisco; Lobingier, Andrew S., Los Angeles; Liverman, J. R., San Bernardino; La Spada, Francesco, San Jose; Legge, Robert T., McCloud; Lilley, W. E., Merced; Lee, Helen, San Francisco.

MacGowan, G., Los Angeles; Mattison, F. C. E., Pasadena; Miller, John J., San Jose; McClelland, J. L., Merced; Morton, A. W., San Francisco; Manson, P. M., Fresno; Meeker, J. A., Sacramento; Musser, Frances R., Oakland; McClury, Katherine, Oakland; Matsuraki, E., Oakland; Morrison, T. K., Reno, Nevada; Marvin, G. T., Agnew; McGavern, H. S., Sacramento; Miller, Frank W., Los Angeles; Maloney, M., San Francisco; Mallory, G. W., Santa Rosa; Moyer, J. J., Mayfield; Morrow, Howard, San Francisco; Mace, L. P., San Francisco; Magee, Thomas L., San Diego; McMahon, J., San Jose; McCleave, T. C., Berkeley; McGinty, Arthur, San Jose; McLaren, J. L., Oakland; Martin, H. R., Riverside; Milton, J. L., Alameda; McNutt, W. F., San Francisco; McGahn, Mary R., Sunnyvale; McClenahan, H. C., Belmont; Mead, L. D., San Francisco; Moore, W. G., San Francisco; McCresney, Geo. T., San Francisco; Mulcahy, M., San Jose; Martyn, J., Los Angeles; MacMonagle, Beverly, San Francisco; Meyer, Henry, San Francisco.

Norse, Alfred B., San Francisco; Newman, H. P., San Diego; Nagai, Gen, Berkeley; Nusbaumer, Pauline O., Oakland; Newell, Edward, San Jose.

Osborne, A. E., Santa Clara; O'Neill, Arthur A., San Francisco; Oldham, John Y., Los Angeles; Oliver, H. R., San Francisco; Orr, Jane, Oakland; Orbison, Thos. J., Los Angeles; Orme, Henry S., Los Angeles.

Pottenger, F. M., Los Angeles; Pomeroy, Geo. T., Oakland; Parkinson, J. H., Sacramento; Powell, Barton J., Stockton; Pischel, Kaspar, San Francisco; Park, H. C., San Jose; Power, H. D., San Francisco; Bond, H. M., Alameda; Pope, Saxton T., Watsonville; Peterson, F. H., San Jose; Porter, R., San Francisco; Page, Clarence W., Alameda; Peers, Robert A., Colfax; Peck, Allan H., Palo Alto; Pettersen, F. W., El Centro; Paul, J. W., Santa Clara; Painter, G., San Francisco; Porter, Wm. S., Oakland; Parsegan, J. H., San Francisco.

Reinhardt, G. F., Berkeley; Rogers, F. L., Long Beach; Rytkogel, H. A. L., San Francisco; Regansburger, Martin, San Francisco; Rothganger, George, San Francisco; Russ, Raymond, San Francisco; Rowell, Herbert N., Berkeley; Roberts, W. H., Pasadena; Roblee, W. W., Riverside; Reinle, Geo. L., Oakland; Rigdon, R. L., San Francisco; Richards, Chas. M., San Jose, Cal.; Rosenberg, Caroline, San Francisco; Robinson, J. W., Livermore; Rowe, Chas. H., Oakland; Rothschild, M., San Francisco.

Strong, D. C., San Bernardino; Snow, William F., Stanford University; Simpson, Wm., San Jose; Smythe, Margaret H., Stockton; Silvia, Clara A., Gilroy; Shannon, J. M., Oakland; Sampson, May H., Berkeley; Selfridge, Grant, San Francisco; Stoddard, T. A., Santa Barbara; Soiland, Albert, Los Angeles; Simmons, S. E., Sacramento; Sampson, A. F., San Francisco; Sampson, J. H., San Jose; Shortridge, C. D., San Francisco; Somers, Geo. B., San Francisco; Shuey, Sarah I., Oakland; Selling, Nathalie, San Francisco; Stratton, R. T., Oakland; Stephens, W. D., San Francisco; Stephens, J. M., San Francisco; Stillman, Stanley, San Francisco; Sill, Edward R., Oakland; Sewall, Edward C., San Francisco; Spencer, John C., San Francisco; Spalding, Alfred B., San Francisco; Smith, W. O., Alameda; Simpson, J. A., San Francisco; Sherman, H. M., San Francisco; Sanderson, A. J., Berkeley; Schunole, R., San Francisco; Schmitt, F. S., San Francisco; Seibert, F. M., San Mateo; Smith, Dudley, Oakland; Seymour, James H., San Francisco.

Taltavall, Wm. A., Redlands; Tait, F. D., San Francisco; Taylor, W. S., Livermore; Trowbridge, W. H., Fresno; Terry, Wallace I., San Francisco; Tebbe, Fred H., Weed; Trew, Niel C., Los Angeles; Thomas, Benjamin, San Jose; Thomas, Hayward, Oakland; Teass, C. J., Shasta; Trueman, J. E., San Jose.

Van Orden, Dorothea, Berkeley; Von Adelung, Edward, Oakland; Van Orden, Kate P., Alameda; Vecki, V. G., San Francisco; Van Winkle, T. W., San Francisco; Van Zwalenburg, C., Riverside.

Witter, G. F., San Jose; Wanzer, Lucy F. M., San Francisco; Wagner, H. L., San Francisco; Wakefield, W. F. B., San Francisco; Walker, J. L., Fresno; Wagner, E. R., San Jose; Wright, H. J. B., San Jose; Wintermute, G. P., Oakland; Wakefield, W. H., Oakland; Wilbur, R. L., Palo Alto; Witty, W. F., San Francisco; Walker, Agnes, San Francisco; Wills, W. L., Los Angeles; Wislocki, W. E., San Jose; Weeks, A., San Francisco; Whiffen, R. A., San Jose; Walter, Chas. H., San Jose; Watkins, J. T., San Francisco; Wilson, D. R., San Jose; Wilder, C. H., Oakland; Walker, B. F., Stockton; Wayland, C. A., San Jose; Wanden, C. C., Los Angeles; Wemple, C. L., San Francisco.

NOTICE.

We are going to try to issue the Register and Directory in July, this year. Will you please send in your own or any other change of address known to you. The accuracy of the work largely depends upon the co-operation of the members.

WESLEY W. BECKETT, M. D., PRESIDENT 1908, 1909.

Dr. Beckett was born in Portland, Oregon, on May 31st, 1857. When about three years old he came with his parents to California and has lived in this State ever since. He received his education from the public schools, and in 1888 was graduated by the Medical Department of the University of Southern California. He then spent a year in the New York Post Graduate Medical School and Hospital, eventually returning to Los Angeles, which city he has made his home ever since. Of late years Dr. Beckett has devoted his attention entirely to surgery. He is a member of the Los Angeles County Medical Society, Los Angeles Clinical and Pathological Society, Southern California Medical Society, Medical Society of the State of California and American Medical Association; ex-President Los Angeles County Society, Los Angeles Clinical and Pathological Society and Southern California Medical Society; ex-member of the Board of Health of the City of Los Angeles; Professor of Gynecology in the Medical Department of the University of Southern California. Dr. Beckett was elected President of the State Society at the meeting in April, 1908, and presided at the sessions at San Jose, April, 1909.

ADDRESS OF WILLIAM T. BARRY, M. D., TO THE SANTA BARBARA COUNTY MEDICAL SOCIETY, UPON RETIRING FROM THE CHAIR, JANUARY 8, 1909.

I can not lay down the gavel, which I have held for the past year, without thanking the members of the Santa Barbara County Medical Society for the kind support which they have given my administration. The rulings of the chair may at times seem arbitrary, but I have always aimed to be just while keeping within parliamentary law. On taking the chair a year ago I announced my policy in the following words:

"My plan throughout the year shall be to cooperate with the secretary and program committee in making our monthly meetings bright, fresh, entertaining and instructive. I propose also to call from time to time, certain special sessions to meet and listen to some of the more eminent members of our profession, or to discuss such special matters as can not be properly entered into at our monthly meetings."

How far I have been enabled to live up to this policy is for you to judge, as all is now a matter of history. But I am sure that those who have faithfully attended our monthly meetings will agree with me in saying that they have always found them instructive, and that the discussions have resulted in practical professional improvement. In regard to my plan to bring to Santa Barbara some of the more eminent members of our profession, and give you an opportunity to listen to them, I claim that in a very fair measure I have redeemed this promise, as the minutes show this Society has entertained the following gentlemen from a distance:

In May, James H. McBride, M. D., of Pasadena, favored the Society with an instructive paper on Neurasthenia.

During September we had with us Dr. Wesley W. Beckett, president of the State Society, who spoke on Post-Operative Treatment; also the same evening we listened to a paper read by Dr. Ethel L. Leonard of Los Angeles on the Practical Working of the Opsonic Index.

Then in October Dr. Philip King Brown of San Francisco presented a good paper on Physical Therapy in Chronic Heart Disease.

And finally in November, the Society entertained Dr. N. K. Foster, Secretary State Board of Health, who took up the subject of State and Municipal Sanitation and Health. (Dr. Rupert Blue of Marine Hospital Service, was to have been present with Dr. Foster and presented Bubonic Plague, but was kept away by urgent professional business. He has promised us a visit later.) Also at the November meeting we had with us the Rev. Clarence E. Webb, Superintendent Pacific Purity Association, whose remarks on the Venereal Peril were well received.

In addition to the above, in connection with our regular monthly meetings, I had the pleasure of arranging the following special sessions:

On September 15th we held a public session in the assembly room of the High School, which was addressed by Dr. Philip Mills Jones of San Francisco, the State Secretary of California Medical Society, on Public Health and Legislation, Dr. Beckett appearing with him on the platform.

Later in the fall another public meeting of the same character (on educational lines) was held at the High School, and addressed by Dr. Rexwald Brown on the important subject of Vaccination.

And lastly, in January, Dr. Charles C. Browning of Monrovia delivered at the High School under the auspices of the Santa Barbara County Medical Society a most important and instructive lecture illustrated by stereopticon on the Prevention of Tuberculosis (the immediate result of this lecture was the formation of a branch society for the Study and Prevention of Tuberculosis, of which Dr. Flint is the chairman).

I earnestly trust that my successor will continue this series of public lectures on educational lines so auspiciously commenced.

Nor was the social side entirely forgotten by the Society during the past year. An informal banquet and reception was given in honor of our worthy President, W. W. Beckett, M. D.; a function in the way of a Spanish lunch out in Montecito, to our active and efficient State Secretary, Philip Mills Jones, M. D.; and a lunch at Arlington hotel to Dr. C. C. Browning.

Our Society has grown during the past year, adding the following names to the roll: Doctors Hurst, Holt, Stoddard, Jr., and Lewis of Santa Ynez, also Dr. Philip A. Sheaff, who comes in this evening.

The year 1908 has seen come into existence a permanent Medical Milk Commission, a Venereal Committee, and a committee on organization for the Study and Prevention of Tuberculosis.

I desire to thank publicly the retiring Secretary, Dr. David A. Conrad for his efficient co-operation, and the different committees who assisted in making the Society business run smoothly. And I must commend the active and aggressive work done by Dr. T. A. Stoddard, the present Chairman of the Committee on Public Health and Legislation.

But gentlemen, let us not pause too long or congratulate ourselves unduly on our past successes; a new year lies before us and there is much to be done. We all need to advance scientifically and when feasible we should meet twice a month, and each should ungrudgingly give of his time and talents for the benefit of his fellows.

The profession needs to be more firmly united, and to this end personal enmities should be nobly laid aside.

We need to be more active in resisting the attacks of the enemies of legitimate medicine, the abortionist, the charlatan, the quack, also the foes of preventive medicine, the anti-vaccinationist, and the anti-serumist, Christian Science and the religious fanatic. I am convinced that a certain and proper portion of our deliberations should be given to the press, and to gain this point I appointed a press committee which has done some good work. In my address at the beginning of the year I was bold enough to suggest that this Society own and operate

its own hospital, also that we should own our own building to include a meeting room, a library and a museum. And whereas, any of these are still far from being in sight, I still continue to recommend them.

And now I am resigning the chair to an earnest and capable gentleman, Dr. Eugene A. Dial, for whom I bespeak your united support and hearty co-operation. I am only sorry that I have not proved myself more worthy of the honorable position I am relinquishing. Gentlemen, I thank you.

INTESTINAL OBSTRUCTION.*

By CHAS. G. LEVISON, M. D., San Francisco.

Were it not for the fact that the death rate in operations performed for the relief of acute intestinal obstruction has remained unchanged during the past twenty years, I should hesitate to present so threadbare a subject for your consideration. As a result of the cooperation of the physician and the surgeon, the mortality in appendicitis, ectopic pregnancy and typhoidal perforation, has diminished to a remarkable degree, and it is with the hope that a similar understanding may be brought about in the early treatment of ileus, that this paper is presented.

The symptom complex of bowel obstruction, constitutes the most serious and the most dreaded condition that is encountered in the domain of surgery, and it is largely due to the fact that the patient is referred for operation only after all of the remedial measures have been exhausted, and when his resistance is so reduced that it is almost nil. An individual with the distended abdomen of an advanced ileus and the poisoning caused by the absorption of toxins from the intestinal tract, frequently dies soon after operative interference from heart paralysis, despite all efforts at stimulation.

Mortality. In an article presented to the New York Surgical Society, January 22, 1908, Elsberg [1] makes the statement "That despite the advance in methods and technic, the mortality after operative interference in acute intestinal obstruction is still very high." In the hands of different operators he states that the mortality varies between fifty and seventy per cent. Of one hundred cases treated by operation during 1906 in three large hospitals in New York City, fifty-four per cent died. Ranzi [2] has collected 758 cases from the literature with a mortality of fifty-seven per cent. Other reports give a still larger death rate. The majority of these patients were seen in an advanced stage of obstruction, relatively few having come to operation at a time when relief of the obstruction was well borne. Elsberg [3] states that in many cases this was due to the difficulty experienced in making an early diagnosis, sometimes to delay on the part of the patient and other times to the very rapid progress of the symptoms. He also remarks "That even if the very advanced cases, those 'in extremis' were to be excluded, that the mortality after operation for acute intestinal obstruction would still give a death rate of at least from thirty to forty per cent." This mortality can be reduced only by improvements in diagnostic methods, so that it becomes possible to refer these patients to the surgeon at an earlier period. From an operative standpoint the number of failures can only be diminished by greater simplicity in operative manipulations.

Hesse [4] in an exhaustive paper, has compiled statistics which show what a grave and serious condition the acute intestinal obstruction in consequence of a strangulated hernia, really is. From Hesse's statistics, it appears that the mortality averages about fifty-five per cent in gangrenous strangulated hernia. They show that in 1500 cases of operation performed by fifty-nine operators, to relieve this condition, that the death rate has not varied much during the past twenty years. This goes to prove how little the mortality can be influenced by operation when patients are allowed to become toxic as a result of delay.

Classification. In the "Schlange" classification [5] of acute intestinal obstruction, two main divisions are given: the dynamic or paralytic ileus; and the obturation or mechanical ileus. The ileus of peritonitis represents the type of the paralytic ileus. The following condition which recently came under my observation was a good example of a bowel obstruction in consequence of an involvement of the central nervous system. It occurred in a healthy man forty-five years of age whose previous history was unimportant. He was seized with an intense headache which did not respond to treatment. All purgatives were without effect and for ten days there was no evacuation of the bowels. He then became unconscious and died a fortnight later of a basal tuberculosis meningitis.

In the second group the conditions are found which produce a mechanical obstruction such as kinks, adhesions, bands, tumors, volvulus, foreign bodies, etc.

With this classification kept in mind the diagnosis of ileus is often facilitated.

Diagnosis. Text books and tradition have established a belief in the minds of many physicians that the diagnosis of an incipient ileus is simple and that the condition is easily recognized by classic symptoms. This belief must be eradicated before we shall be able to treat these patients with even a modicum of success.

Writers, as a rule, do not distinguish between an early and a late obstruction, but only state that the condition is associated with great distention; that the peristalsis is evident through the abdominal wall; that the outline of the gut can usually be recognized on the surface of the abdomen; that there is absolute constipation; that the patient cannot pass flatus; that there is always vomiting and that the facies hippocratica is usually present. They also state that indicanuria is always present when the obstruction is high up, and that cachexia is present when a malignant growth exists.

An analysis of the following symptoms together with the history of appropriate cases will not be out of place here.

* Read before the San Francisco County Medical Society, August 11, 1908.

Distention. This is present in all cases late in their development; more especially when the obstruction is low down; when it is higher up as in the small intestine, the distention appears earlier, but not to the same degree that it does when it is in the sigmoid, for example. When distention is present it is always associated with toxemia which is the principal factor in reducing the resistance of the patient. Operation should not be delayed until the appearance of a general distention, as the most favorable moment for operation has passed by the time that this has appeared.

Constipation. Occasionally with a complete ileus, it is possible to obtain evacuations by means of enemata; this, however, should not deceive the physician. Even diarrhea may be present occasionally.

A warning must be uttered here against the continuous administration of purgatives when once bowel obstruction is suspected, for these remedies only have the effect of filling the intestine with fluid rich in bacteria, the same being an important factor in the production of the toxemia. When a true ileus is present, catharsis is futile, and when it is absent, temporizing is not associated with danger.

Flatus. Retention of flatus is one of the most important signs of bowel obstruction and the diagnosis of this condition is generally based upon the fact that it cannot be expelled; flatus, however, is occasionally passed in the presence of an apparently complete ileus. The following case which recently come under my observation occurred in a woman with a carcinoma of the sigmoid. On the morning of the operation she passed several stools, the result of enemata; she also expelled some flatus. On this account it was felt that an ileus was not present. At the operation the sigmoid was resected and it was found to be completely occluded. After its removal, when the gut was filled with water, not a drop of fluid escaped.

A similar condition occurred in a child in whom diagrosis of ileus had been made. The patient presented all the signs of a bowel obstruction and had been prepared for operation; an enema which was given on the table produced a bowel movement accompanied by the expulsion of some flatus. Naturally the child was put back to bed, for it was presumed that the ileus had been relieved, but through an error I was not informed that the condition had remained unimproved and at the evening visit when I had expected to find the patient better, he was found to be moribund. At autopsy the ileum was found to be obliterated at its lower end by a benign adenoma.

Visible peristalsis. This is frequently not discernible on account of the presence of thick abdominal walls, and it should only be accepted as a symptom of value when present.

Vomiting. This is almost always present when the obstruction is high up, but only appears late in the history of the condition when the obturation is low down. Cases of involvement of the sigmoid are not necessarily associated with vomiting until late in their progress, when the period for successful surgery has already passed, so that the absence of this symptom must not eliminate the possibility of the presence of an ileus. I recall the history of a woman in the last stages of Bright's disease with a strangulated umbilical hernia involving the small intestine, who died without a suggestion of vomiting. At autopsy the gut was found to be completely occluded.

Facies hippocratica. This symptom is frequently present, but there are many cases in their early history that I have seen where the pinched classic appearance has been absent. This sign of course appears when the patient is almost moribund and when the time for successful operation has passed.

Indicanuria. The presence of indican in the urine is also a point upon which considerable stress is laid in determining the situation of the obstruction. Text books state that when the obstruction is high up in the bowel, the output of indican in the urine is much increased, and the opposite obtains when the obstruction is low down. In my experience this has not been found to be the case, for I have observed small quantities of indican present with an obstruction high up, and large quantities when the obstruction was low down in the bowel, consequently I no longer examine the urine for indican, because of the uncertain value of this reaction.

Cachexia is frequently absent in the presence of a malignant growth, so that no particular value should be attached to this sign. We have all seen advanced cases of carcinoma of the uterus and the intestine, as well as ulcerating carcinoma of the breast, occur in fat women with rosy cheeks, who have presented no sign of disturbance with their nutrition.

Acute Bowel Obstruction. The diagnosis of an acute ileus caused by a strangulated hernia, is comparatively easy under ordinary conditions, because it is usually associated with pain at the hernial orifice and it is often possible for the patient to make a correct diagnosis himself. It is important, however, not to overlook the fact that a strangulated hernia may still be present even though the hernial ostium is patent. A case of this kind came under my observation where a healthy man was brought into the hospital with all the symptoms of an acute ileus; he gave a history of having an oblique inguinal hernia. Upon examination, the inguinal canal, which was very large, was found to be empty, so that a strangulated hernia was excluded as being the etiological factor in the ileus. Exploration revealed a strangulated intestine in the extreme tip of the hernial sac which had been reduced "en masse." The inverted hernial sac had extended some four inches into the abdominal cavity and at its tip had strangulated the small gut.

Writers upon this subject state that when a hernia exists and the symptoms of ileus are present, the rupture is almost always found to be the cause of the obstruction. This may be correct up to a certain point but it is important not to discontinue

the search for the obstruction because the hernial opening has been found free. A condition of this nature occurred in my experience in a patient who was suffering from an umbilical hernia with the symptoms of bowel obstruction. At operation the hernial opening was found to be patent and upon continuing the search a carcinoma of the ileum was discovered.

Chronic Bowel Obstruction. The recognition of a chronic bowel obstruction is of great importance for the reason that it is frequently possible to establish the diagnosis of an incipient ileus long before it is complete and it is to *this* point that I desire to attract your attention particularly. As I have stated before, the acute ileus is generally recognized, but in a slowly developing obstruction of the bowels not enough attention is paid to the symptoms which are sufficiently positive to give ample warning and it is at this stage that the best results from surgery can be achieved. A patient who is developing a chronic obstruction of the bowels most frequently complains of recurring gas pains (cramps). In the beginning he is able to expel the flatus without difficulty, but he gradually accomplishes this with less and less success. He complains of the gas pains passing up and down, this symptom being confined usually to a certain part of the abdomen. These pains are intermittent and are at times exceedingly severe. As a malignant growth often involves the sigmoid, the patient is apt to point to the left of the abdomen as being the region where the gases move; or if the cecum is the part affected, his attention is attracted to the right side of the abdomen. Associated with an increasing difficulty in getting rid of the flatulence is a progressive constipation necessitating the frequent administration of cathartics. There are many remissions from these symptoms so that in the interim the patient believes that he has quite recovered. At this time diarrhea may even be present. It is not long, however, before the symptoms recur with increased vigor. A point of great diagnostic importance is the gurgling in the intestine which remains confined to the same spot where the gases move. This is characteristic when fermentation in the bowels can be excluded.

Chemical and microscopical traces of blood are often present but this test is of value only when it is found upon examination that there is no bleeding from the rectum and that during the time the test is being made, the diet has been limited. The patient is generally asked whether the stool is ribbon-like or normal in size; if answered that it is normal in calibre, the conclusion is often arrived at that there can be no obstruction in the sigmoid. As the stools assume the contour of the lower bowel, ribbon-like feces are only present when this is involved; hence disease of the sigmoid can not be excluded if this sign is absent.

It is important not to confound the distension of an intestinal arterio-sclerosis with that of a chronic ileus but the following signs of a splanchnic arterio-sclerosis will practically eliminate this condition.

In visceral-sclerosis there are usually present general vascular changes. It is claimed,[6] however, that occasionally vascular intestinal changes may exist without any involvement of the general arterial system, but I, myself, have never seen this. High blood pressure and an accentuated second aortic sound are always present. Another point is the fact that the distention generally occurs after eating and that it is not associated with exaggerated peristaltic movements. A therapeutic test for this condition is the administration of diuretin, which acts very effectively.[7]

I saw a condition of considerable interest recently in a patient who was suffering from a gangrenous zoster; very severe attacks of cramps associated with distention were present during the entire course of the disease. Flatus could only be expelled after the administration of numerous enemata. As a result the patient walked the floor with a distended abdomen nightly for a period of three weeks; this condition persisted through the entire course of the zoster, and the distention and pain only subsided with the disappearance of the disease. In this instance, it was exceedingly difficult to exclude an incipient ileus.

Treatment. In a patient who experiences difficulty in emptying the bowels and greater difficulty in passing flatus, together with gurgling and severe pain, and where the condition seems to be progressing instead of remaining at a standstill, I believe there is a definite indication to open the abdomen; for it is in these cases that life can be saved and cancer cured if the abdomen is opened at a sufficiently early period. The diagnosis should be made upon these symptoms alone, and no time lost waiting to determine the presence of a palpable tumor, cachexia, loss in weight or visible peristalsis; for when these symptoms have become sufficiently marked, in the majority of instances the patient is lost. To be sure an occasional error in diagnosis will be committed but I have yet to regret opening an abdomen when an operation has been performed to relieve a condition of this nature.

From the foregoing remarks it is seen that the successful outcome in the treatment of bowel obstruction will depend to a great extent upon early diagnosis; hence *this* must be considered as the most important factor. In an ileus of unknown etiology where no localization has been possible, the abdomen should be opened in the median line by an incision extending from the pubes to the umbilicus. As growths most often involve either the sigmoid or cecum, the cecal region is quickly palpated and if this is found uninvolved, the hand is passed over to the sigmoid. In the majority of cases, the offending process will be found in either the one or the other of these positions, but if it is not discovered then further search must be made. Evisceration is not advocated because of the great shock which results from this procedure.

At this time it is important to discuss the principles of treatment which have been more or less generally accepted by surgeons of experience. The question as to whether an enterostomy of a distended loop should be established without searching for the

obstruction, or whether the obstruction should be sought for, is one which is far from having been determined. The statistics of the Heidelberg Clinic, published by Hesse,[8] show that where a resection of the gut has been performed for a gangrenous hernia, the mortality has been 33 1-3 per cent, and when an enterostomy has been established that the death rate has been 87½ per cent. Hesse's concluding remarks are: "That there is but one rational treatment for gangrenous hernia, and that is extensive primary resection of the necrotic gut, while the making of an artificial anus no longer comes into consideration as a life-saving procedure." As gangrenous hernia is operated upon earlier than most forms of ileus, it is evident that the good results in resection are due to the absence of toxemia and that the high death rate shows what a grave operation the simple enterostomy really is when toxemia is present. Elsberg[9] reports his experience in a number of cases of acute intestinal obstruction in which he advocates the operation of enterostomy performed by opening a loop of a distended coil of the intestine. He does not make a prolonged search for the obstruction and after the acute symptoms have subsided he performs a secondary operation for the purpose of discovering the cause of the ileus. His results are excellent and his methods seem to me to be worthy of consideration.

Monks,[10] in a recent article, advocates opening the intestine high up and lower down in a distended coil, which is then emptied and afterwards irrigated with saline through these openings. This same procedure is followed in various loops of the distended intestine. Monks reported one case where the patient seemed to be dying of a general peritonitis, and was apparently restored to health by the application of his method. This operation is much graver than a simple enterostomy and does not appeal to me because of the danger of shock and the possibility of soiling the peritoneal cavity. This is an accident not easily avoided, despite the statement of authors that the operation is comparatively simple. If the obstruction is due to a kink, band, or adhesion, it is not sufficient to relieve the constriction, for the poisonous substances contained within the bowel produce death unless gotten rid of. For example, in a strangulated hernia, where the constriction has been relieved, the patient dies despite the fact that the obstruction has been removed. Hence some attempt must be made to empty the intestine. Moynihan[11] advocates the introduction of a long glass tube into the distended bowel, which oftentimes can be pushed over the tube for a distance of eight or ten feet; in this manner a considerable quantity of fluid and gas can be evacuated from the intestine.

The impression prevails that when a bowel is distended with gas and is full of fluid, all that it is necessary to do is to puncture the gut and the gas will escape, allowing the intestinal wall to collapse. As a matter of fact, in an advanced stage of bowel obstruction, long before the patient becomes moribund, when the abdomen is opened, the intestinal wall is so thin and the muscle so paralyzed, that no gas whatever escapes when the gut is punctured. The only way the intestine can be emptied of its contents is by milking or stripping the same after it has been opened, but as has been stated before, these methods do not produce any better results than were obtained a number of years ago.

I desire, in conclusion, to state my position in the treatment of acute intestinal obstruction, based upon an experience with a large number of cases treated by the various methods in use; I would emphasize the fact that the cases which I have treated with the most success are those which I have operated upon early and where I have not hesitated to explore the abdomen after the diagnosis had been established. My plan is similar to that advocated by Elsberg,[12] namely, if the obstruction is easily and quickly found, all that is done is to open the distended loop and to express the intestinal contents and to perform an enterostomy. This can be done in the following manner and in my opinion is the most important act in the operation. Two sharp hemostats grasp a spot on a loop of distended intestine, the beaks being in juxtaposition. The intestine is then opened by a knife puncture between the two points; the loop of intestine, having been drawn out of the abdominal cavity, is held close to a basin so that the fluid can escape from the gut without any soiling of the abdominal cavity. As clamps are attached to the loop of gut, there is no possibility of the intestine escaping back into the abdominal cavity, and the opening, therefore, is under absolute control. This opening may be closed with a purse-string suture or an enterostomy can be made. I have treated a number of cases seen early, in this manner with fairly satisfactory results. It is my intention to continue this method in the future, as it is rational, simple and easily carried out and without much shock to the patient. After the acute symptoms have subsided the abdomen can readily be opened a second time and the cause of the obstruction determined; this can then be remedied without undue haste.

Regarding the employment of drugs, such as atropin and eserin for bowel obstruction, I would state that these remedies have been of no avail in my experience.

The treatment of chronic bowel obstruction is one that requires separate consideration.

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SOME REMINISCENCES OF INDIAN PRACTICE.

By FORDYCE GRINNELL, M. D., Pasadena.

Many diseases of civilized life were not familiar to people whose time was spent mainly in the open air.

The early adventurers among the American Indians assert that tuberculosis was unknown in their native wilds. When gathered on reservations and

rude huts were built for them, poorly ventilated, and their food was changed from venison and buffalo and wild berries and teepsons,—to bacon and poor flour,—then the disease appeared. It has since proved their worst foe.

Filth diseases, the scourge of our cities, were seldom seen. The habit of living in tepees and moving from place to place in following their game, did not permit the accumulation of filth. As a rule these people were cleanly in their habits, resorting often to the bath, or the sweat-house.

It is doubtful if in their native haunts diphtheria or typhoid fever were ever known. I never saw a case among those allowed to live after their own fashion in well ventilated tepees, with location often changed. On the other hand malarial diseases, along the water courses were quite common. But whether these aborigines had discovered that the mosquito was the producing cause, I do not know; but I do know that when, at the reservation situated on the creek bottom, they began, in the autumn of the year, to be seriously affected, they requested permission to go on a hunt to the arid uplands and mesas, when the malarial symptoms disappeared and they returned in due time fat and flourishing.

Pleurisies and pneumonias were not unknown, while catarrhal conjunctivitis as well as the granular form were frequently seen. The smoky lodges undoubtedly contributed to these diseases of the eye, as among the older men and women pterygium was frequently noted.

Venereal diseases, I think were wholly unknown until the advent of the military forces upon the frontiers in proximity to the people. Then among some tribes these ailments became very prevalent.

The Indians have no record of epidemic diseases such as smallpox, until introduced at an early day by explorers,—but when introduced, smallpox spread with wonderful rapidity and resulted in great loss of life.

The sweat-house, used by the medicine men as a valuable adjunct in the treatment of many diseases, here wholly failed, for putting a patient in a hot steam bath for a time and then subjecting him to a cold plunge, was not conducive to recovery in smallpox, and many died from the treatment. While incantations and various feats of jugglery were used by the medicine men to drive away evil spirits afflicting the sick, yet many useful means were also adopted and much skill was often used by these rude people of the plains.

In case of fracture, splints were applied, frequently in a very skillful and effectual manner. In severe internal pains, the buffalo horn was used as a cupping instrument, and in lieu of the horn the mouth was sometimes applied and powerful suction produced. I once saw a medicine man thus treat an Indian who was writhing in pain. After repeated suction over the place, he spit forth a grub and exhibited it as an evidence of his skill, and the cause of the pain. The offender was removed! The patient was relieved! The medicine man was triumphant! Who says Christian Science so-called, or faith healing, is a new thing under the sun? The Indians of the plains applied its principles long before Mrs. Eddy began her incantations.

Concoctions of roots and herbs were not infrequently used as remedies in the treatment of the sick, and sometimes no doubt with benefit. Certain roots and leaves mascerated and placed upon ulcers or abrasions were a common method of treatment of these conditions, and so of wounds. A Caddoe medicine man once sent for me in consultation. He said a youth of one of his people had been seriously injured by an arrow. The boy by a careless maneuver of a companion had been shot through the chest walls, the lung punctured, and in withdrawing the arrowhead a portion of the lung had come with it. With every inhalation, this part of the lung was inflated as it still held by considerable attachment. The medicine man suggested that if I would correct this difficulty, he would apply roots and herbs and thus effect a cure. In those days in order to obtain the good will of the people, it was necessary to concede something to their ideas and customs and possibly divide honors with them in case the results warranted. I proceeded to ligate the portion of the lung protruding through the chest walls and return the stump within the thoracic cavity, after applying carbolized oil. The medicine man applied his poultice and in due time a good recovery resulted. The portion of lung removed was about two inches wide by three in length. Considering the time elapsing since the receipt of the injury, about twelve hours, we thought the results satisfactory.

Some of the medicine men erected for themselves large and commodious medicine houses, and decorated them with symbolic paintings and surrounded all their proceedings with great mystery so as to inspire respect and a certain awe among their people. No one could enter the enclosure without removing the shoes, and it would be considered a great breach of propriety to pass between the patient and the fire, which was burning in the center of the lodge. Although stating that I had methods quite as essential which must be put in practice in order that the patient might recover, yet in an early day when prejudice existed as to other methods than their own, I have so far conformed to their customs as to put my shoes off my feet in entering the medicine lodge, just as one must do on entering the Mosque with a brohter Mohammedan. Thus gaining their good will, I have been able to use remedies suitable for the conditions, and have gained a brother as well as a patient.

These people were not long in recognizing the superiority of civilized methods. One of my first surgical cases was that of a Comanche brave, who while at a beef issue, received a gunshot wound. On the occasion of these beef issues a great number of Indians are present, from some hundreds to one or two thousand, and the heads of each family pursue their allotted cattle much after the manner of the buffalo hunt. The shooting in all directions renders the occurrence of accidents quite probable. An examination in this case exhibited a wound over the left eye, and indicated that the ball upon strik-

ing the superciliary ridge of the frontal bone, had glanced downward and entered the cavity of the eye. Dividing the outer commisure of the lid, under chloroform, I removed the bullet lodged in the eyesocket, together with the disorganized eyeball. No injury making up the orbital cavity was discovered. The patient made a good recovery and offered his medical man the best of his ponies, and ever after on meeting him, insisted on enfolding him in his arms to express his gratitude. The wonder of this people was the power of that agent, a few inhalations of which gave the patient a quiet sleep during the operation.

As a rule child-birth was attended with less difficulty among the women of these people than in civilized life, the pelvic bones being broad and well developed. There was no displacement of organs from corseting, no lack of exercise to harden and develop the muscles, no lack of fresh air to vitalize, no poodle dog to hug and kiss. Like the Hebrew women in the land of Egypt, "They were delivered ere the midwives came to them." It was not an unheard of occurrence that when these people were on a journey a woman whose full time had come, would step aside and be delivered, and after a few hours' delay rejoin her people in their onward march. The position assumed in child-birth among some of these people was upon the knees, leaning upon a pallet or couch. A case which I reported from Wichita Indian Agency, Indian Territory, in 1878, to the Obstetrical Gazette was as follows: "Was called yesterday to an obstetrical case occurring in the Pawnee Camp. The child had just been born. A large tumor remained and the husband suggested twins. On examination found uterus quite distended. There appearing want of uterine action I gave quinin and ergot, and awaited establishment of suitable contractions. The woman was lying on her back, on a pallet elevated at an angle of 45 degrees, with knees raised and feet resting on the ground in a half-sitting, half-reclining posture. When she began to feel the contractions, she turned over on the couch, resting her knees and elbows at the angle named. I noticed her making adjustments, which I did not fully comprehend and making an examination when the pain came on, I discovered there were two cords, and forcible traction was being made upon each of them. Following these cords to their termination, I found them attached to two flattened stones about the size of bricks. Around these were tied pieces of cloth, and to each stone was attached the end of a cord. Upon the occurrence of each contraction these stones were so placed against the knees of the woman that she could with slight elevation of her body draw upon the cords with as much or as little force as she desired. The novelty and ingenuity of this method of making traction upon the cord, forcibly impressed me with the ready wit of the Indian in adapting means to ends for each emergency. The woman here became her own accoucheur, and the amount of traction was always proportionate to the felt needs of the operator. But in this case her tactics did not succeed, for it was noted that as she pressed upon the cords the blood would flow quite freely. An examination disclosed adhesions, which being detached there was removed two separate and distinct placentas, each as large and complete as an average one, and with a cord inserted in the center of each. But one child was born, yet here appeared the accompaniments of two. The two cords appeared to unite near the umbilicus, some 23 or 24 inches from the placental insertion. As in a similar case published by Cazeaux (5 American Edition) occurring in the practice of Dr. Erbert, the membranes furnished a single cavity, and constituted the connecting link between the two placentas, these forming a kind of membranous bridge. The extreme rarity of like recorded cases rendered this one of much interest. While studying upon this anomaly, the attendant squaws came in, and taking up the placentas, membranes, soiled clothes, and even scraping the earth where blood had fallen upon it, wrapped all in a tightly corded package and carried away for burial. Other women came in with fresh earth and covered the floor where the couch had been. Others brought in armsful of freshly-gathered herbs and placed them upon the earth. Upon these the robes and blankets were spread and the woman was comfortably disposed, making a good recovery.

In this connection I may say that to most American Indians the menstrual period is one of uncleanness. All secretions as above noted are carefully removed, and the woman is usually relegated to a separate tepee during the entire period. With them the rituals of the ancient law seem to prevail, "Everything that she lieth upon in her separation shall be unclean. Seven days shall be set apart."

An interesting abnormality has been noted from time to time of infants born with one or more teeth, usually the two lower incisors. A case of this kind came under my care, of a halfbreed child. The mother called my attention to the fact that the child could nurse only with great difficulty. I found that the under surface of the tongue was ulcerated and inflamed from abrasions produced by passing over the lower incisor in the act of nursing. This was the earliest case wherein I was called upon to extract a tooth. The child was now about a week old and was born with this tooth well projected. I have since noted that heredity plays an important part in the frequency of the production of this abnormality. Thus the Johnson family of Kentucky records for several generations children born with well developed lower incisors.

It is not so long since that our own race has advanced from the period of burning witches and exorcising evil spirits, nor so far back in antiquity that our barbers practiced phlebotomy, that they do not still exhibit the red and white striped pole as a sign of their calling, and their ability to bleed.

It is said that the tendency of the human race is to move in cycles, that one generation forgets the achievements of a former and calls the resurrection of things and ideas known of old, new inventions. In recent excavations the finding of surgical instruments very like some of those of late construction, leads us to conclude that a people who knew the

art of embalming their dead, also knew many other things which later generations mayhap have since rediscovered. When we contemplate the state of advancement to which this culture has arrived after so many ages of endeavor, we can only wonder that the aborigines attained to so much that was practical.

VACCINES.

By ROBERT PATEK, M. D., San Francisco.

For a just estimation of vaccine therapy as proposed in recent years by Wright, two points of view must be taken; first, the biological, second, the clinical. I will take these up in turn. Now the role played by the circulatory fluids, the plasma, and the cells in natural and acquired resistance has been a problem of much experimentation. It will serve our urpose to begin with the work of Denys [1] and Leclef in 1895. They produced reliable experimental evidence that the serum of rabbits vaccinated with streptococci contained substances which acted on this microbe and rendered it phagocytable. This substance was present in normal serum in comparatively small amount. The immunized animal fights the bacteria, first, by the direct action of its serum, second, by the leukocytes. The latter always owe to the serum the commencement of their power.

These conclusions are clear from the following experiments:

(1) Leukocytes from a normal rabbit added to normal rabbit serum exhibit only a feeble phagocytic power to streptococcus. Also the leukocytes die prematurely.

(2) Leukocytes from a normal rabbit added to serum of a vaccinated rabbit energetically destroy streptococcus. The leukocytes preserve their normal duration of life.

(3) Leukocytes from a vaccinated rabbit added to normal serum show same as (1).

(4) If a dose of streptococci capable of producing erysipelas is introduced under the skin of a vaccinated rabbit the infection is prevented especially by the leukocytes.

Now this substance (group) which renders micro-organism ingestible by the leukocytes was called by Wright and Douglas [2] in 1903 "opsonin" (opsono Lat., I prepare the food for). They were working with normal serum and found,

(a) Staphylococcus emulsion plus washed leukocytes plus Na Cl solution at 37° C for 15 minutes equals no phagocytosis. When serum is added, active phagocytosis begins.

(b) Three volumes washed corpuscles plus three volumes serum at 37° C for 15 minutes, then heated to 60° C (destroying the thermolabile opsonin) cool plus one volume emulsion of staphylococcus at 37° for 15 minutes. Result is little or no phagocytosis.

(c) Three volumes serum plus one volume emulsion staphylococci at 37° C for 15 minutes. Heat 60°. Then add three volumes corpuscles 15 min, 37°, result is marked phagocytosis. Hence, action of serum is mainly to modify the bacteria in such a way as to render them a prey to phagocytosis. Simultaneously and independently this work was done by Neufeld and Rimpau.[3]

Now, Leishman [4] had, in 1902, devised a method for quantitatively estimating phagocytosis and called same the "phagocytic index." Wright modifying this method, brought forth the opsonic index. The opsonic index is determined as follows: equal volumes of (1) a bacterial emulsion in N Na Cl. and (2) Washed leukocytes, and serum to be tested are, after thorough mixture, incubated for 15 minutes at 37 . A drop of this is spread and stained. The enumeration of bacteria in 50 polymorphonuclear—neutrophiles is made under oil immersion and the average per leukocyte obtained. The ratio of this average to that for a normal serum using the same emulsion and corpuscles, constitutes the opsonic index.

Simon[5] has modified this method by determining the percentage of polymorphonuclear neutrophiles that phagocyte disregarding entirely the number of bacteria ingested. His results parallel those of Wright, and as regards accuracy and ease of counting, this technic is obviously a distinct advance.

As the term vaccine will from now on be frequently used it becomes necessary to define the term. Vaccines, as used for therapeutic purposes are emulsions of dead bacteria. There are two kinds, (1) autogenous, that is those prepared directly from the patient; (2) those prepared from stock cultures; these latter are called heterogeneous.

The preparation of an autogenous vaccine is as follows: let the case be one of furunculosis. The expressed pus is obtained as free from contamination as possible. Agar plates are inoculated, streaks being sufficiently diluted to obtain isolated colonies. The plates are incubated eighteen hours. The cultures are as a rule pure. From a single colony a transfer is made to slant agar and incubated eighteen hours. The growth is now scraped off and decanted into a test tube. The organisms are emulsified by hand shaking for ten minutes. Then equal amounts of the suspension and blood are thoroughly mixed in a blood counter, a smear of mixture made and stained, 500 reds are counted and the number of organisms encountered during this operation noted. This obviously gives the number of bacteria in a c mm. of our suspension. The remainder of our suspension is killed at 60°, 60 minutes, and diluted as desired. One-fourth per cent lysol is usually added to insure absolute sterility. This then is our standardized autogenous vaccine.

Returning now to opsonins let us first consider the accuracy of the index. That phagocytosis faithfully follows definite laws seems probable. That opsonin plays a part in phagocytosis is certain. That other factors influence phagocytosis is also certain. Whether these can be sufficiently controlled to render the opsonic index exact may be open to question.

Moss [6], 1907, working with this in mind, used a homogeneous emulsion of fresh leukocytes, well washed. This was well mixed with a homogeneous emulsion bacteria (staphylococcus aureus). Smears counted showed in twelve different portions of the slide, 50 cells to each section, the extremes to be 267 to 503, average for 600 cells equal 406. It is evident that 50 cells is too small a number; also that the counts made near the end of smears are

slightly larger than those at beginning. Assuming 406 to be correct, the error of the two extremes is 25 per cent.

Sellards [7] worked with the tubercle bacillus. He also noted the zonal distribution on the slide of the leukocytes, thus confirming Moss. Working with the same normal serum he got results ranging .4 to 2.34 for the tubercle bacillus. And in a case of tubercular peritonitis his results taken at one time range from 0.71 to 2.07. These results were obtained in the counting of 50 cells. His conclusion was that probably large differences in indices mean differences in opsonic content but at present we cannot feel that moderate differences mean anything. To count enough cells and to make enough controls to assure accuracy places the method outside of clinical application. Some of the factors which produce this inaccuracy are as follows: Strength of the bacterial emulsion used. Knorr showed that the stronger the emulsion the higher the opsonic index. Again, the opsonic index varies with the time and T° of incubation. Another unexplained variation of the opsonic index was found by Moss in diluting his sera, thus he frequently had his lowest index in the undiluted serum; the highest in 1/50 to 1/100 dilution. Thus undiluted gave him .37, 1/50 gave 1.49.

The opsonic index for an organism will depend largely on its virulence. The serum may contain a good amount of specific opsonin without giving evidence of same. In virulent organisms a specific substance is present; this can be washed out with salt solution and the organism is now easily phagocyted. This substance can now be brought into contact with nonvirulent (i. e. phagocytable) bacteria of same species. These now show a definite resistance to phagocytosis. This virulin is thermostable, resisting boiling. It is specific for the bacterial species from which derived. That it does not injure the leukocytes very markedly is shown by the fact that bacteria of other species are ingested in its presence.

Age. The opsonic power of blood disappears gradually on standing. In 5 to 6 days it is about ½ as much as the original. A temperature of 37° destroys opsonic power in about three days.

Hort [8], in the *British Medical Journal,* to test the practical reliability of the determination, sent two or more samples of serum, obtained under precisely similar conditions to two or more workers. He also sent two identical serums to same workers. The number of cases 12; the men employed had established reputations.

The results are disappointing,—thus:

	Observer A	1.34
Case 1	Observer T	.67
	Observer T	.55
	Observer A	1.06
Case 2	Observer B	.98
	Observer T	.82
	Observer B	.88
	Observer T	1.17
Case 5	Observer T	1.34
	Observer A	2.34

Just one word more in regard to the opsonic index. We have seen that it is quite inaccurate. Moss found that in normal animals, its variations showed excursions equal to those found in animals undergoing vaccination. This is of prime importance because even if the index were correct, the variations could not guide us clinically in vaccine administration. Wright recommends the giving of the vaccine when the index is low, and assumes that the rise following is one of cause and effect. That such a conclusion is unwarranted the following makes clear.

The indices of four rabbits G. H. I. J. before any vaccination ranged from

G.	.81	to	1.34
H.	.87	to	1.57
I.	.70	to	1.26
J.	.14	to	.59

During the same period the variations of two normal sera (human) as compared to a 3rd, the latter being the standard used for the rabbits, was .70 to 1.66 and .84 to 1.95.

After these preliminary observations, all of the rabbits were inoculated subcutaneously with aureus. The indices now taken, varied in an apparently lawless way and no deductions could be drawn from them. The whole thing may be summed up by stating that if these results are trustworthy it would not seem possible to make use of the opsonic index as a means of diagnosis or as an indication for treatment by vaccine.

Specificity. As to the specificity of opsonin, I will inform you at the outset, that in normal serum we have common opsonin so-called, while in the serum of vaccinated animals we have added to this a specific opsonin.

Klein [9] worked with typhoid bacillus. It is of interest to note that he found great difficulty in estimating the index, because the typhoid bacillus was so quickly digested after being taken up by the leukocyte. He injected living organisms into rabbits and compared the serum of such animals with normal.

The immune serum on heating 55° to 58° for ½ hour showed no loss in opsonic power for typhoid. On the contrary the opsonin of normal serum was thermolabile.

	Immune Serum	Heated Opsonic Index	Unheated Opsonic Index
Dilution	1/192	2.87	2.32
	1/768	.638	.53

	Common Serum	Heated	Unheated
	1/12	4.7	.2
	1/24	.65	.04

To test this specificity further he tried to absorb the immune opsonin by saturation with other bacteria; the opsonic index for other bacteria was also determined not only with an unheated normal serum but also with a heated one.

Phag. Index	Typhoid Serum		Normal Serum	
	Heated	Unheated	Heated	Unheated
against aureau	7.5	6.3	6.7	.51
against strept.	6.2	2.4	6.7	1.8
against Tb.	1.9	.2	1.9	.29

We see at once that the immune serum had no higher opsonic power for other organisms tested than had normal serum, and heat removed the same amount of opsonin in both sera. Therefore the

typhoid immune opsonin is specific; at least against the organisms studied.

And now a final word of comparison between opsonins and certain of the other substances important in immunity.

1st. Relation to complement: We have seen that in the heated sera the opsonic (specific) power was retained. Thus it is evident that the opsonin acts without the intervention of complement as complement is completely destroyed at the temperature used. The complement may also be removed by saturation without impairing opsonization.

Like the complement and the toxin the opsonin has a haptophore and opsinophore group. The haptophore group can be bound by various salt solutions, as Ca. Ba., etc.

2nd, Relation to amboceptor: It is sufficient to note that the amboceptor requires the intervention of complement in order to act and thus differs in an essential character from the opsonin.

3rd, Relation to leukocytosis:

A second important difference between amboceptor and opsonin is brought out by Moss in his vaccinated rabbits; the opsonic content of their serum was only slightly raised and then not long sustained, while the amboceptor could be increased almost indefinitely by repeated vaccination.

In their research on the therapeutic effect of yeast in tuberculosis, Huggard and Nurland [10] found that after a preliminary rise the leukocytes remained constantly below normal. As the opsonic index was at first low and later high, it was apparent that there was no relationship between the two. The same results were obtained by Bullock and Ledinghaus.

Source of opsonin: All authors agree that the opsonin exists in the blood and not in the leukocytes. The absence of any relationship between opsonin and leukocytosis might be regarded as some evidence against Metchnikoff's belief that the leukocytes furnish the opsonin to the serum.

Clinical. Wright [11] published a report of his first cases in the *Lancet*, 1902, and it is of sufficient historical importance to quote a few lines from the same. Haffkine had observed that patients given antiplague vaccines (injections of dead cultures) during the incubation period, ran a milder and briefer course than the unvaccinated. Wright having this fact in mind wrote as follows:

"If it holds true that vaccines have a therapeutic value in the incipient stages of bacterial invasions which may afterwards assume a septicemic form it must, *a fortiori*, hold true that inoculations conducted with bacterial vaccines may render useful service in bacterial invasions which manifest themselves from first to last in the form of localized inflammatory processes."

He put this to the test in six cases of aureus infections, selecting them because of their chronicity and because of the failure of other methods. The cases grouped themselves as follows: furunculosis, sycosis, infection of finger with secondary bubo in arm and boils.

While we view with some doubt, his opsonic findings, the impressive fact is that five of his cases made complete and fairly rapid recoveries. The sixth improved but was never cured.

He used autogenous vaccines. He noted that aureus could be substituted for albus and vice versa, and this has been confirmed; but the best results are always obtained in this group of cases with autogenous vaccines.

I have used autogenous vaccines in two cases of acne, in one without result, Dr. Grosse finally resorting to the X-Ray and obtaining a complete cure. A second case, in a boy, improved but recurred.

Doses. The doses for aureus and albus should start in an adult at 250 M. and increase to 1000 M. or even 2000 M.; the interval should be 7 to 10 days between doses; the number of doses depends on the progress noted.

Age of Vaccines. In a case of chronic boils, due to aureus, the result was really most striking; the patient, a doctor, had had boils on the back of the neck. He received one dose 250 M. near site of lesion. Considerable pain present during the first twenty-four hours. The indurated area, softened, healed and there was no recurrence in six months.

Dr. Ryfkogel used this vaccine in a second patient; result, cure.

It will be well to remind you that vaccines are potent for about two months only.

Cole and Meakins [12] report the results in fifteen cases of gonorrheal arthritis treated with vaccines. They found no difference in effect when patient was treated with homolgous or heterogenous vaccine. Their doses ranged from 240 M. to 1000 M., the number of doses given ranged from one to eight. The interval between doses seven to ten days. The injections are given subcutaneously; the regions selected are usually either interscapular, gluteal or anterior surface of thigh. Wright advised that the vaccine be injected near the point of infection (if local) as this caused a flow of bacteriotropic or opsonic substances toward a point of lowered bacteriotropic pressure. This, by the way, is what Bier's hyperemia accomplishes, namely a continued washing of the part with more lymph than would ordinarily come to it. And this, too, is why abscesses should be punctured. The fluid of abscesses contains little or no opsonin. Removing the pus by puncture and bathing the part by Bier cup with new lymph, gives when combined with vaccine the ideal treatment in light of our present knowledge. This, too, has been used to explain the good results following simple exposure and removal of the fluid in tubercular peritonitis.

Coming back to Cole's gonorrheal cases; these cases all recovered without impairment of function. Some of the cases had resisted all other forms of treatment and changed for the better at once under vaccination. That the vaccine in this group of cases played an active role in bringing about cure is undoubted.

Several points of interest arose in the cases. Case 1—Apparently cured of his gonorrheal arthritis, returned six weeks later to the hospital. Patient died of lobar pneumonia. His elbow was for all clinical

purposes well, yet at autopsy a pure culture of gonococcus was obtained from the elbow. The joint itself showed signs of a recent acute inflammation.

These good results have been obtained by other observers. Hartwell reported 31 cases, all with good functional results.

Vaccines in Acute and Chronic Urethritis. The use of the vaccines (specific) in acute urethritis is said to shorten the process. In chronic cases, where the gonococcus is present with secondary invaders, the vaccine will remove the gonococci from the urethra but between the damaged mucous membrane and the secondary invaders, the catarrh continues. Dr. Grosse has a case illustrating this clearly. The patient's flora was plated out, and Dr. Ryfkogel and myself made homologous vaccines for him. Now plating again we found our first organisms gone and others taking their place, in other words, we had by vaccination removed certain saprophytes, thereby giving others the upper hand, the discharge showing little or no change. It is therefore clear that little can be expected from vaccines in the type of case described, unless the gonococcus is present.

Loxton [13], reports 3 cases in which he removed the gonococcus from the urethra by vaccination.

As regards vaccine treatment in gonorrheal vulvovaginitis in children. Butler and Long [11], reporting an epidemic of 12 cases, state, "Vaccine therapy has a place in the treatment of gonorrhea and appears more efficient than local antiseptics."

Dr. Grosse has a patient with an enlarged prostate; he has a colon cystitis. The homologous vaccine dose 100 M., 7-day intervals cleared his urine markedly. From a large amount of pus to a mere trace; odor became inoffensive, and subjectively the patient was much improved, especially as regards frequency. But the urine always contains living colon; and this absence of bactericidal action has also been noted by Gerahty [15] in an experience with five cases of bacteriuria.

Tuberculosis. The question of vaccines in this condition involves the whole subject of tuberculosis therapy. I will make no effort at this, but merely draw your attention to a few fundamental facts. Tuberculosis must be divided into local and general. The local includes such conditions as tuberculosis of glands, bone, skin, etc. In this group of cases, vaccines have been very successfully employed. They must, however, always be combined with the usual hygienic methods. The question of dosage and frequency is most important, but the doses should vary approximately, ranging from 1/1000 .0025 mgs. and the interval 7 to 10 days is the experience of most clinicians.

Wright states that the bad effects seen in overdosage are due to the negative phase. By the negative phase is understood a condition of lowered opsonic content. The mechanism theoretically bringing it about is as follows: The vaccine sets up at the site of the tuberculosis lesion a local reaction. If this be too marked the system is flooded with toxins, debris, etc., and the opsonin used up too rapidly, hence the lowered opsonic content. With small doses this negative phase may be almost completely suppressed. Be this explanation correct or not the clinical picture of over-dosage is constant and striking. The type of organisms whether bovine or human is also very important.

In pulmonary tuberculosis and in the sinuses, the factor of secondary invaders plays a part; just how great remains yet to be worked out. But the value of tuberculin in this condition is vouched for by many men of wide experience.

Cerebro Spinal Meningitis. We have noted that opsonin is too variable to be depended upon for diagnostic purposes. As regards this disease, an exception to this statement must be made. Rankin and Houstin [16] report their experience with 63 cases (*Lancet,* 1907). They found phagocytosis so marked with the serum of affected individuals that it was impossible to count the bacteria in the crowded leukocytes. And this was in great contrast to normal serum and in their mind was of the greatest diagnostic value. These results were obtained at the 6th day, with one exception, where it occurred on the 7th.

They bring out a rather important point in regard to serums of the Flexner type. They found in many of these no opsonin or agglution. From such a serum little can be expected. Age probably accounted for the loss of potency.

Empyema. (a) Gallbladder. Wright and Reid [17] prepared homologous vaccines in two cases of cholycystitis with persistent sinus. Sinus healed under vaccine treatment.

(b) In thoracic empyema, with persistent discharge, closing of the sinus with permanent healing has been obtained with homologous vaccines.

Erysipelas. Shorer [18], in Bellevue, reports 37 cases, vaccines from 4 strains being used. He thought the disease was somewhat shortened, but found the vaccines did not prevent recurrence or emigration.

Pyerrhea Alveolaris. Hitherto an incurable disease, seems capable of cure in a considerable percentage of cases. While many organisms are obtained on planting, the streptococcus and the staphylococcus seem to be the organisms of importance. They can be frequently obtained from the patient's blood. In 5 cases reported in the Lancet [19] all showed definite reactions to the homologous vaccine.

At present Doctor Adolph Baer has a case of pyerrhea alveolaris under treatment. At the time when first seen all the teeth were loose, six being so freely movable that extraction seemed the only thing to do. Pus could be freely expressed from the sockets of all the teeth. The pus on plating showed among other organisms the streptococcus. A vaccine was prepared from this. The first dose approximately 20 m. injected subcutaneously in the scapular region, gave both a local reaction, manifested by marked pain in the jaws, and a general reaction, indicated by general malaise. This reaction was brief. The patient has received two further doses at weekly intervals, without reaction. The usual hygienic medication of the teeth has also been employed. Result: pus can only be expressed

from one tooth. The teeth are now quite firm with the exception of one tooth which may be lost. The patient can now firmly close the jaws, though this was impossible previously because of the pain. His general condition is improved. Whether or not he will go on to complete permanent recovery remains to be seen.

Malignant Endocarditis. Bullock has reported with great detail one case of malignant endocar ditis seen in consultation with Sir Wm. Barr. The patient recovered with a homologous vaccine obtained from culture of own blood. The organism was the streptococcus.

Rosenow [21] was less fortunate, he lost twelve cases in the same way, no recoveries. The pneumococcus was the invading organism in most of his cases.

A word in closing. That vaccines have a therapeutic value, in certain cases, you will, I think, all agree. It is to Wright reporting his first cases in 1902 that the credit for this addition to our rational therapeutics is to be given, but it is a strange trick of time that Hahnemann, writing decades before, laid down as his chief tenets the minimal dose and similia similibus curantur.

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A CLINICAL LECTURE ON WEAK-FOOT.*

By JAMES T. WATKINS, M. D., San Francisco.

To show how common have become acquired distortions of the foot, especially those associated with the several manifestations of weak-foot, it may interest you to hear that of nearly 800 young men lately examined by me as candidates for positions on the police force almost all showed some foot deformity and more than 30% of them were rejected for defective feet alone. The causes for this almost universally present distortion must be sought in the conditions which obtain at early age. The worst shoes to be obtained in the market are those worn by children. I have never seen a good child's shoe. The flexible feet of growing children are maintained by vicious shoeing in abducted, cramped positions while their component bones mutually grind improper facets upon each other. This fact explains the observation of Blodget that of 1,000 cases of painful weak-foot treated in Boston, while the objective symptoms disappeared in nearly all cases, an anatomical cure practically never occurred. The static error consequent upon mutually distorted bones obtained to the end of the chapter. Again, it is to be remembered that many flat feet present no subjective symptoms while conversely feet with particularly high arches may be excruciatingly painful. Further, Osgood has shown that while in the normal foot the strength of the adductor supinator group is to the strength of the abductor pronator group approximately as 10 to 8, in the pronated or weak-foot the strength of the first group is to the second approximately as 9 to 10. The foregoing observations, taken together with the facts that some of you have sent me patients who had worn for years plates given them by experts and yet who had got gradually worse, patients who have since recovered from their subjective symptoms without plates (you being the witnesses thereto) have led me to the following conclusions:

1. In the great majority of flexible weak feet the cause of the condition should be sought in a disturbed muscular equilibrium.

2. Children and young persons with flexible feet, or feet which can be made flexible, should never be given plates, but should have their shoes so modified as to enable them to assume that position in which the muscles work at the best advantage and in which there is the least ligamentous strain.

3. That in the great majority of cases there exists a constitutional predisposing cause calling for the attention of the regular family physician.

4. That where feet are permanently misshapen or only partially flexible one or other form of plate may be needed.

5. That to follow any kind of routine treatment is unscientific and prejudicial to the best interests of the patient.

Turning now to our patient, you will observe he is of the overgrown, long-limbed, loose-joined, rickety type. This is the sort of a person in whom you see the genu valgum staticum of Schede and the Italians, and the late appearing coxa vara of Albert. Examining his feet we note their circulatory disturbance, as shown by congestion and sweating; the muscular changes, as shown by the fibrillary twitchings, the uncertain voluntary motion, and should we measure it, the changed relations between the relative strengths of the adductor and abductor groups; note, too, the too great flexibility, as shown on passive motion.

Ideally this boy should be taken off his feet and put to bed. His general asthenic condition should be looked to. His muscular control should be brought to the maximum efficiency by graduated resistance exercises, best accomplished by the use of the Baumgartel or Zander machines, and vigorous massage. Hot and cold douchings and the hot-air oven would play their part. Gradually he would be got upon his feet wearing the shoes I am going to show you. He should be instructed in proper walking positions and recommended to wear broad inelastic stockings and if possible to walk barefooted in the loose sand daily. At not time should he render his feet unduly tired.

An examination of the deficiencies of such a foot reveals the need for the corrective features which should be embodied in an appropriate shoe. The foot is abducted—the poison of muscular rest—therefore the shoe should assist it to assume the position of adduction, the attitude of muscular activity. This is accomplished by introducing into a straight last shoe an insole of leather, which will exert a thrust up

* Given at the Polyclinic Gathering.

ward and especially outward upon the scaphoid and astragalus. By thrusting the foot over against the outer side of the shoe this makes room for the front of the foot to adduct during muscular action and prevents rotation downward and inward of the astragalus on the calcis. In this way the former is prevented from slipping off the back of the latter. Most of the trouble occurs in the calcaneo-astragaloid point. To further counteract the tendency of the calcaneus to roll over on its inner side, and to diminish the strain upon the inferior calcaneo-scaphoidal ligament, we raise the whole of the inner side of the insole, raise the inner side of heel and of sole, and flange the heel inward. But the long shank of shop-made shoes was not constructed with a view to supporting the added weight thrown on it by this corrective insole. Left to itself the shank would sag downward and cause the insole to become inefficient. This defect is remedied by carrying the heel forward one inch under the inner side of the shank. In this way the weight is transmitted directly through insole and heel to the ground. Further than this the patient is encouraged to undertake adduction and clawing exercises and will later be taught rising on the toes in addition.

Because the majority of painful feet receive an appreciable measure of temporary relief from almost any form of instep supporter, incompetent persons, usually in the shoe trade, are tempted to prescribe for this condition. And for the same reasons the conscientious specialist is too often unable to obtain from the patient the faithful performance of those muscle building exercises which can alone bring about a complete and permanent removal of the disability.

Polyclinic Gathering.

The second case I wish to show is this little girl. She is eight years of age. We are told that ever since she was born she has shown evidences of paralysis of her right leg and arm. The child is an orphan, and no further history is obtainable. The condition of her arm is said to have greatly improved, as has, to a less degree, that of her leg. While clinically she presents the picture of an infantile paralysis, before attempting operative interference we will refer her for an opinion to our colleagues of the nerve clinic. So eminent an orthopedist as the late Professor Haffa operated three times upon cases which Oppenheim later showed to be of a nature where operation was contraindicated. The lesson to be derived from their controversy is that no doubtful borderline case should be brought to operation until it has been subjected to a careful examination by a competent neurologist.

Whatever her original lesion was, it would appear to have left this child with a drawn up heel—pes equinus. For this condition she was taken to a general surgeon who, we are told, operated to relieve it. Inspection now discovers a scar over the middle of the tendon of Achilles, and by manipulation we find, as you can readily perceive, a definite break in the continuity of the tendon. Either the tendon did not unite after tenotomy or the scar has subsequently stretched. To-day the child presents a hollow foot—talepes calcaneus, which is also valgus and which is reported to be getting gradually worse. Observe that as she uses the foot in walking the deformity is exaggerated. Now that the group of muscles inserted into the calcaneus is out of commission, the combined action of the muscles which pass under the sustentaculum tali and under the external malleolus is to cause the heel and forefoot to approach one another. Note further that Meyer's line,—a line drawn through the middle of the patella and the middle of the ankle joint, which when prolonged should pass through the fourth toe or the third interspace—now intersects the forefoot at the middle of the first metatarsal bone. That is, the foot is markedly pronated, and there is a tendency for the astragalus to rotate downward and inward off the back of the calcis, taking the leg with it. This condition, which is at first an exaggeration of the physiological attitude of rest, is certain to become aggravated as she gets heavier. Further, changes in the soft parts will tend to make the distortion permanent. The patient presents then in its earlier stages the distortion which we recognize as talipes calcaneo-vulgus,—the most intractible deformity of the foot known to orthopedics.

Pending the report of the neurologist, if we assume the case to be one of infantile paralysis, and the remnant of muscular power left to be inadequate for the replacement of the sural group, there are three operative procedures open to us, Goldwait's operation, the procedure recommended by Royal Whitman, and the operation devised by Robert Jones of Liverpool. The object of all three operations is to correct the deformity and to maintain the foot in proper relation to the leg by obliterating all motion which cannot be controlled. I may interpolate that operation alone offers any chance of relief for that group of cases to which the one we are considering belongs.

Goldwait suggests that we proceed as follows: With a curved external incision, which is practically the incision of Kocher, he enters the calcaneo-astragaloid joint, and carefully denudes the surfaces of both bones of their cartilage. That accomplished, through the same incision he opens the joint formed by the upper surface of the astragalus with the tibia and fibula. The opposed surfaces of this joint are also denuded. In order to obtain a more accurate approximation of these denuded surfaces an oblique osteotomy of the fibula extending into the ankle joint is performed. In this way a careful approximation of the denuded surfaces and subsequent anchylosis of the supra and infra-astragaloid joints is sought.

Whitman would proceed in this way: Through practically the same incision the astragalus is removed. A sufficient portion of the outer side of the calcaneus and of the cuboid is removed to permit them to enter the mortise of the tibia and fibula from which the cartilages have been peeled off. The sustentaculum tali is also removed. Then the foot is displaced backward on the leg so that the internal malleolus comes to lie in the hollow behind the scaphoid, made by the removal of the astragalus, while the external malleolus covers the calcaneo-cuboidal articulation. The foot is put up in plaster of Paris in full plantar flexion and the peroneal tendons implanted into the Achilles tendon close to the calcis.

Robert Jones has suggested that the operation be done in two steps. In the first step he corrects the calcaneus by making a three-inch incision along the inner side of the foot through which he removes a wedge of bone base upward upward from the upper surface of the astragalus and the scaphoid. By obliterating the excavation formed by the removal of this wedge any calcaneus deformity is corrected. Four weeks later through a posterior longitudinal incision a wedge is removed from the astragalus sufficiently large to permit the foot to be brought to a right angle with the leg. The tibia and fibula are denuded of cartilage and the whole immobilized for another month. Should there be some life in the calf muscles, instead of the second step, Mr. Jones

shortens the tendo Achilles and posterior capsule of the joint and removes the flap of redundant skin. Later massage of the gastrocnemius is prescribed.

Three years ago I performed an operation upon one of these patients which combined features of the two first operations. The immediate result obtained was gratifying. I will try to find the patient for you and present her at a subsequent meeting.

The third case is as follows: Otto, German, age 37. A layer of hardwood floors by occupation. Personal history negative. Gonorrhea five years ago. On April 3rd, 1890, slipped, was carrying timbers up a hill; felt a wrench in inner side of left knee. Sat down for twenty minutes and was all right. Three days later there was pain in same place, pain continued constantly, could move leg a little. Seven days after the first attack the leg began to swell. There was no fever but the leg looked white. Cold towels were put on by the doctor. Went to a hospital where cold compresses were used for two weeks. Leg reduced to normal size. The next morning it was massaged and the swelling returned. Knee injected with unknown composition under chloroform anesthesia. A week and a half later pus appeared so operation was performed. Nine incisions. Gangrene was feared. Patient was in the hospital for fourteen weeks. Three days after being discharged from the hospital the wounds opened again and pain returned on the inner side of leg and knee. Swelling with pus appeared on the inner side of the knee, curetted, wound healed. For one year the wounds remained healed and then the wound on inner side of thigh opened during the next two years. Then it was perfectly well except for slight limitation of flexion for six years. In 1898 rheumatism appeared on the inner side of the thigh above the knee. Every spring and fall the rheumatism returned, sometimes there would be slight swelling. In 1904 it began to open in one of the old incisions. For two weeks it was open under the knee, discharged pus, very painful until pus appeared on surface. Even deep respirations increased pain in knee. It then healed in two weeks. Thereafter the opening of sinuses in popliteal space occurred in spring and summer for four years, until this May. In June, operated, incisions in inner side of knee and outer aspect of thigh. Pus appeared, but this healed. Iodoform was injected into these wounds. An old wound opened and discharged iodoform. Healed up everywhere until the end of September. Since then has opened twice. Openings accompanied by high fever.

He comes to us to know what we can do for him. I would like very much to have you look at him and examine him. I present also Dr. Freytag's X-ray of the man's leg. Please note the deformed appearance of the patella, the remarkable thickening of the whole lower end of the femur and the indistinct, almost ragged, definition of the bone in the region of the popliteal space. On manipulation note that motion is present through perhaps 40°. Full extension is prevented by a contracture of the hamstrings; flexion is limited by the adhesion of the patella to the femur. A probe introduced into the only sinus remaining patent, and which is in the popliteal space, detects at a considerable depth the grating of a particle of carious bone. It would be a simple matter to curette out the carious bone, to divide the hamstrings in order to obtain full extension, and to free the patella from the femur and keep it free by injecting sterile olive oil, after the procedure of Baer. However, the man proposes to continue at his present vocation of a layer of hardwood floors,—in that event he is sure to have a return of his "deformity" no matter how successful we may be in correcting it. With regard to his carious bone, the question arises as to the nature of the lesion; if for the moment we exclude lues, is or is not the man tuberculous? His local condition does not point that way, but his general appearance does. It would be well to have his chest gone over and a tuberculin test made. The latter has a negative value. Should this man's knee lesion prove to be tuberculous, I would advocate radical operative interference. Otherwise I believe he would be better off left alone except for a curetting of the carious bone at the bottom of his sinus.

Discussion.

Dr Levison: The subject of flat-foot is one of great interest. Four or five years ago flat-foot was practically unknown to the rank and file of the medical profession. It was known only to the orthopedic surgeon and the man who sold instruments. To begin with, the name flat-foot is a misnomer because people with badly pronated and abducted feet oftentimes have no flat-foot at all. This is a point not generally understood. The general practitioner is familiar with the symptoms of this condition and he has the patients take off their shoes and stand in front of him and if the arches are high he believes that the foot is all right; whereas, as a matter of fact the height of the arch is of no importance in causing the symptoms from which these patients suffer. In other words, the one factor which causes the suffering of the patient, is the weight of the body, which instead of falling through the middle of the patella and the ankle, drops to the median side of the foot. As a consequence, the arching of the foot does not play the role that it is supposed to play; hence, when a patient is examined for the purpose of determining the presence of flat-foot, the clothes should be removed from the feet and legs above the knees. The patient should then stand up at the other end of the room and should be inspected from the front and the back; in this way only can a pronated foot be determined.

With regard to the etiology, Dr. Watkins has spoken of the fact that a long illness is a predisposing factor in the development of flat feet; my experience has confirmed this. Pregnancy, in my experience, is also a factor. Many women who have had apparently normal feet prior to their confinements, will consult their physician and will complain of severe backache. It is my opinion that many women have been treated for uterine conditions when the feet which were primarily at fault, were overlooked. I have seen several patients relieved by plates, who, following the puerperium have suffered from backache. In backache and headache, the feet are generally lost sight of. I can recall a patient who came to me for an intractable headache. His eyes had been examined and he had taken a trip around the world advised for neurasthenia, presumed to have been brought on by overwork, and it was only as he stood undressed before me, that I was able to recognize the fact that his feet were bad. I did not have much confidence in the opinion that his feet were the cause of his headache, but plates were ordered, since which time his headaches have not returned.

Another case was that of a girl of 18 whom I had operated upon for appendicitis; six weeks following the operation she returned on account of backache which was quite severe. It was seen that she had pronated feet for which plates were ordered. Her troubles subsided almost immediately following the wearing of the plates. Another factor having an important relation to the pronated foot, is the varicose ulcer and its associated varicose veins. These veins are generally removed by operation and they frequently recur, as do the varicose ulcers which are treated in many ways. Everything is done toward relieving these conditions but it is seldom that any attention is paid to the feet. In my private work, I do not treat varicose ulcers for many times they will heal without treatment if the feet are cared for. Varicose veins will frequently

act likewise. It is important that massage of the calves of the legs and of the feet be given. Exercises of the tibialis posticus are important. These can be given by having the patient raise himself on the outer side of the foot during which time he is to raise the body so that he is standing on his toes as well as on the outer border of the foot. These exercises are of the greatest importance in stimulating the venous circulation, which when properly looked after will often result in the cure of the varicose ulcers.

A REVIEW OF THE TREATMENT OF GONORRHEAL INFLAMMATIONS BY THE USE OF SERA AND VACCINES.

By GEORGE E. EBRIGHT, M. D., San Francisco.

Deeming the time expedient to take an inventory of stock in this department of our therapeutic armamentarium I have reviewed the literature upon the subject in the last two years. The interesting metastatic manifestations of gonococcus infections, notably the arthritides, are presenting a very promising province for the exploitation of vaccine therapy—promising in consideration of its abstract principle—sufficiently promising in concrete instances to sustain the interest of the clinician and to induce him, despite much disappointment, to suspend his judgment till a riper time.

Experimentation has been carried on along two lines, somewhat parallel in their essentials and similar in their results: the use of dead gonococci on the one hand and the use of antigonococcic serum on the other. In January, 1906, Rogers and Torry of Cornell (*Jr. A. M. A.*, January 27, 1906) reported upon the use of serum in the treatment of gonorrhea, in which are claimed cures in acute Neisser infections of the prostate, the epididymus, and joints. Two years later, Herbst of Chicago, (*Jr. A. M. A.*, May 23, 1908) using the same technic as Torry and Rogers arrives at a diametrically opposite conclusion regarding those metastatic infections that are acute. They all agree that serum is of no avail in acute urethritis but Herbst further finds that no other acute inflammations react favorably. He agrees with them regarding chronic joint inflammations as did also Uhle and Mackinney (*Jr. A. M. A.*, July 11, 1908). In such lesions the serum appeared to be of decided advantage. But the serum is no better in this respect than dead cultures, and the latter offer no dangers from anaphylaxis. Moreover the steps necessary to obtain the serum from the ram are more involved than the preparation of the dead cultures, and as the theoretical considerations are met in the use of either, it is probable that experimentation will be limited to the simpler of the two.

While there have been reports on the use of vaccines by Ballenger (*Jr. A. M. A.*, May 30, 1908), Vail (*Jr. A. M. A.*, November 23, 1907), Shropshire (*Alabama Med. Jr.*, May, 1908), and a few others, by far the most elaborate exposition of the subject has been made by E. E. Irons of Chicago in two very interesting articles (*Archives Int. Med.*, Vol. I, No. 4, and *Jr. Infectious Diseases*, Boston, June, 1908), in which he adds 31 cases of joints to the 15 previously reported by Cole and Meakins (*Johns Hopkins Hospital Bul.*, 1907, 18, p. 223). In the preparation of vaccines a heterologous strain is preferred, as a homologous strain is neither practicable nor necessary. Irons' earlier doses were 20 to 50 million organisms, but subsequently he preferred 100 to 500 million given at intervals of three to seven days. There is now a tendency to revert to smaller doses of 10 million and upwards.

Ruth Vail in a series of normal individuals found the opsonic index for gonococci to be an average of 1.0. Irons studied the opsonic index of 15 cases of gonorrheal joints and found the average below 1.0. This rises sharply after the injection of vaccine though sometimes falling at first. Dr. Vail who used only small doses did not observe the negative phase either clinically or microscopically. Irons, on the other hand, describes a reaction similar to the tuberculin reaction, after large doses, and this reaction corresponds to the negative phase. The reaction is characterized by fever, often only slight, an increase of pain and tenderness in the inflamed joints, occasionally an increase of swelling and a variable degree of malaise. It takes place within 8 to 12 hours and lasts about 24 hours. He has also noticed a local skin reaction in some cases at the site of the injection. I have endeavored in a number of patients with acute gonorrheal urethritis and arthritis to obtain this skin reaction after the manner of von Pirquet in tuberculosis. To this end a slight scarification was made on the arm of the patient and a drop of dead culture rubbed in. The results were failures. The extent to which the reaction following the subcutaneous injection of the vaccine is available for diagnostic purposes, requires determination by more extensive observations. There is one rather remote danger to be borne in mind in the use of this material which rests upon the occasional occurrence of gonorrheal iritis. Should a patient so afflicted be given a dose of serum or vaccine sufficiently large to produce a general reaction, the focal reaction in the inflamed iris may assume very grave proportions. This occurred in a case that was brought to my attention.

The only Neisser inflammation which responds to the use of dead gonococci with sufficient uniformity to place the treatment on anything like a secure plane is that of the joints. Whether better results are to be expected in chronic than in acute cases is a point upon which recorded observations do not yet allow a satisfactory decision. As to the permanent position of gonorrheal vaccine as a therapeutic agent the more conservative observers indulge only in guarded statements, but it is easy to detect a feeling that in the treatment of these arthritides the use of dead bacteria marks a very decided advance over the older methods. Other rational treatment is by no means to be discarded. Massage of the prostate and aspiration of the joints are still to be used in connection with the vaccines. It will be remembered in this connection that massage of the prostate in a chronic case where the opsonic index is low will at once cause a sharp positive phase, and the same holds true of manipulation of inflamed joints.

The action of dead cultures of gonococci in cases of arthritis in the relief of symptoms, especially pain,

is often very prompt, sometimes dramatically so as the following instance illustrates: A teamster, 21 years old, came to our wards having had urethritis one month and very severe pain in both knees for four days.

Examination showed that both knee joints contained much fluid, were very painful and so exquisitely tender that the slightest jar caused the patient to wince pitiably. One knee joint was aspirated and 40 cubic centimeters of turbid fluid was withdrawn in which gonococci were easily demonstrated.

The next morning the relief following the removal of the fluid had gone, the aspirated joint was as tense as before, both knees being greatly distended with fluid and causing as much suffering as ever. Salicylates in large doses had had no effect and were discontinued. Ten million dead gonococci were given subcutaneously in the arm and the interne instructed to withdraw the fluid from both knee joints the following morning if the condition was no better. This, however, proved to be unnecessary. By the end of twenty-four hours the clinical picture was entirely changed. The pain and tenderness had gone and the joints instead of being hot, hard and tense were cool and relaxed, the fluid having greatly receded. By the end of six days the fluid was still demonstrable but the patient was walking about the ward. He was given ten million more dead gonococci and within a few days no exudation in the joints could be detected. Recovery was considered complete in 16 days after the first injection.

MAJOR EMERGENCY OPERATIONS WITH REFERENCE TO FRACTURE OF THE SKULL AND WOUNDS OF THE ABDOMEN.*

By WALLACE I. TERRY, M. D., San Francisco.

During the year Sept. 26, 1907, to Sept. 26, 1908, I have performed 45 major emergency operations at the Central Emergency Hospital, and it is my privilege to make some report of the cases to this society. As the total number of cases treated at the Emergency Hospitals during that time was approximately 20,000, it is to be understood that the 45 cases represented only the urgent major surgical conditions.

The cases may be roughly grouped into five classes, viz: 1. Acute Appendicitis; 2. Strangulated Hernia; 3. Severe Injuries of the Extremities; 4. Fractures of the Skull; 5. Wounds of the Abdomen.

There were two cases of acute appendicitis, both of which recovered.

Of the four cases of strangulated hernia one died —a man aged 69 years in poor physical condition with a very large scrotal hernia which had been irreducible for two days. At the operation a large coil of small intestine was found in the sac—no gangrene—intestine was reduced and hernial opening closed. Patient died quite suddenly four hours afterwards.

There were ten cases of severe injuries of the extremities demanding immediate operation. Of these three patients died—a crush of the arm requiring amputation died after sixteen days from septicemia —a crush of both thighs requiring double amputation died in twenty-four hours from shock—a crush of one thigh requiring amputation died three days later with gangrene of the stump. Of the seven patients who recovered five required major amputations and two were conservatively treated.

Fracture of the skull furnished sixteen cases of which ten died. This mortality rate seems unusually high, but in explanation I would state that operations were only performed when imperative, the far greater proportion of such cases having been attended by their own physician. As a consequence the operated cases were of the most severe type and in a number of them operation was done with little expectation of a favorable outcome. The gravity of these cases is further shown by the fact that in all the fatal ones a basal fracture was present, as demonstrated at the operation or by autopsy. In several instances the middle meningeal artery was ruptured at the foramen spinosum. The average duration of life after operation in the ten fatal cases was forty hours, one patient having survived six days. Of the six cases which recovered two had ruptures of the superior longitudinal sinus.

A few words in regard to diagnosis may not be amiss. The differential diagnosis between acute alcoholism and fracture of the skull has been and is still a matter of great difficulty in a small proportion of cases. Where the two conditions coexist only careful observation over a considerable number of hours will enable one to arrive at a correct diagnosis. Blame should not too lightly be put on the emergency surgeons for an error in diagnosis when the period of observation is short and the difficulties of the case are considered. Lumbar puncture is of much value in some of the doubtful cases but too much weight should not be laid on it, as blood cells may not be present in the spinal fluid in a real case of skull fracture or on the other hand blood may be present as the result of puncturing a vessel. It should not be omitted, however, in suspicious cases. A study of the eye reflexes and of the fundus is often of great value. It should be remembered, however, that pupillary changes are often rapid and apparently contradictory in many of the borderline cases—at one moment we may find marked dilation of one pupil and soon afterwards both pupils may be equal and responsive to light.

In this connection I desire to mention that in two cases I have observed an irregular dilation of one pupil which later became regularly dilated showing that it was probably not due to an old syphilitic iritis nor to synechiæ. As the observations were brief and the history relative to any antecedent eye trouble not obtainable, I do not attach any special importance to them. Examinations of the fundus should be made by one thoroughly familiar with the normal and pathologic appearances, for the determination of beginning changes requires much practice. Suggillations, especially in the re-

* Read before the San Francisco County Medical Society.

gion of the mastoid, are suggestive of basal fractures, but may appear too late to be of diagnostic importance. More often hemorrhages or the flow of cerebro-spinal fluid from the nasopharynx or ears will give positive indications of skull injury, provided of course that purely local causes for the hemorrhages can be excluded.

So far as treatment is concerned there is little new to be said, except as regards Harvey Cushing's subtemporal decompression in basal fractures and the administration of hexamethylenamina. The idea of giving the brain an opportunity to expand and the extravasated blood or serum to drain away before the respiratory or other vital centers are fatally compressed seems rational, and Cushing's method is simple, easy of preformance and will, in my opinion, be followed by a fair proportion of recoveries in what would ordinarily be considered hopeless cases. A straight incision in the direction of the fibers of the temporal muscle with splitting of the muscle permits ready access to the temporal and sphenoid bones and after decompression and drainage the temporal muscle protects the skull defect. Should the pathological findings on one side be insufficient to account for the symptoms, one should not hesitate to make a subtemporal opening on the other side. In his recent paper (*Annals of Surgery*—May, '08), Cushing reports 13 recoveries in 15 cases of basal fracture treated by this method.

The use of hexamethylenamina, after fractures of the skull to prevent meningitis has been advocated by Cushing following the discovery by Crowe that formaldehyde, one of its constituents, is found in the cerebro-spinal fluid soon after its administration. It should be given in large doses where we have reason to fear infection of the meninges.

There were thirteen abdominal wounds in this series of cases and of these ten were gunshot, one a stab wound, one a crush of the intestines and one a spontaneous rupture of the rectum. Nine cases terminated fatally after periods varying from a few hours to seven months. The organs involved in the fatal cases included the lungs, diaphragm, liver, stomach, pancreas, small and large intestine and the spinal cord, while in the four recoveries, the lungs, diaphragm, liver, stomach, large intestine and bladder were involved.

One gunshot case is sufficiently unusual to justify separate comment.

Mr. M. was shot in the abdomen with a small caliber bullet at midnight Feb. 10, 1908. The wound of entrance was at the outer border of the left rectus muscle at the costal margin—no wound of exit, but a prominence in the left triangle of Petit. Marked shock, rigid abdominal walls, bloody vomitus and the direction of the wound made the diagnosis of perforation of the stomach quite certain. At the operation which was performed about two hours after the injury, both the anterior and posterior walls of the stomach were found to be perforated and also the tail of the pancreas. The stomach wounds were sutured and the lesser peritoneal sac and pancreatic wound drained through a posterior incision just below the left kidney. The patient then came under the care of Dr. Emmet Rixford and apparently recovered after the first few weeks, except for a fistulous opening at the wound entrance. This fistula persisted up to the time of his death seven months after the original operation.

At the autopsy by Coroner's Physician John R. Clark, to whom I wish to express my appreciation for the report of this and other cases, a general peritonitis with multiple abscesses of the liver was found. It is my belief that the pancreatic wound was the principal factor in the production of the late peritonitis though the condition of the organs was such that this point could not be determined at autopsy.

A case of subcutaneous rupture of the intestines is also of interest. Mr. D., a carpenter, fell from a ladder about 20 feet, landing on his back. A heavy panel fell on top of him, striking edgewise on the left side of the abdomen. The skin was not broken but the abdominal muscles were ruptured on the left side. At operation it was found that a loop of small intestine was cut across in two places about two feet apart up to the root of the mesentery. The descending colon and sigmoid were stripped from their mesentery but not ruptured. Much fecal matter and blood in the abdomen. An excision of that portion of the small intestine between the two ruptures followed by an end to end anastomosis was rapidly done and the descending colon brought out of the wound. Death in twenty-four hours. At autopsy besides the above mentioned injuries the psoas and iliacus muscles were found to be pulpified and the left ureter crushed.

A case of rectal perforation presented simply the picture of a general peritonitis with a history of having been sick for two days. At operation a perforation of the anterior wall of the rectum nearly ½″ in diameter was found. The presence of cicatrices in the descending and sigmoid colon make it probable that an old dysentery or lues was responsible for the perforation.

As regards gunshot wounds of the abdomen the consensus of opinion favors immediate operative intervention when the wound has been produced by a bullet of large caliber traveling at a comparatively low velocity. The opposite rule prevails in military life where the bullet is small, has a hard jacket and the initial velocity is high, for in many instances, as shown by the records of recent wars, the visceral perforations close spontaneously and there is scarcely any soiling of the peritoneal cavity. In civil life the wounds are ragged, fragments of clothing and skin are carried in deeply and the contents of hollow viscera are more apt to leak into the peritoneal cavity.

In gunshot wounds of the stomach, the prognosis is materially influenced by the character of the contents of that organ. In a fasting state the gastric secretion is relatively sterile, but when, as often happens in civil life, the patient has eaten mixed foods poorly chewed and washed down with alcoholic beverages, the insult to the peritoneum is great.

The question of irrigation of the peritoneal cavity in the presence of extravasated intestinal contents is still debatable. There are many surgeons who insist that a dry toilet of the peritoneum is the better method, while some of the advocates of thorough irrigation have recently stated their convictions. Blake of New York seems to obtain as good results by washing the peritoneal cavity with normal salt solution, as do those who follow the opposite method. Personally I am yet unable to decide to my own satisfaction which is the better method.

Discussion.

Dr. Hobdy: In the matter of peritoneal toilet I am firmly convinced of the efficacy of the wet method, not only washing out thoroughly, but after making the peritoneal toilet as thoroughly as possible, leaving in a certain amount of fluid in the peritoneal cavity. The cases which I have seen under this treatment, have shown better results than when an attempt has been made to clean a soiled peritoneum by the dry method.

Dr. Barbat: One thing which has attracted my attention in injuries to the head is the disproportion between the symptoms and the amount of injury to the brain. I have seen several of these cases recently. In the case of a patient who had been hit by a street car, there were seven consultants, none of whom would venture an opinion as to the locality or extent of the brain lesion, but we decided to explore and find out. An opening was made over the site of injury and a linear fracture of the skull found extending from a little above the top of the ear to the base of the skull. On opening the skull the whole temporosphenoidal lobe was found to be pulpified, due to the rupture of a branch of the middle cerebral artery. Several hours before operation this man was able to get up on his elbow and ask for the urinal, and was apparently perfectly rational. I have noticed in several cases that individuals have been able to converse rationally with large amounts of brain tissue destroyed. We have a great deal to learn before we will be able to diagnose correctly whether a patient has an extradural or subdural hemorrhage, or is suffering from a destruction of brain tissue due to intracerebral hemorrhage.

Dr. Somers: I was very glad to hear this paper by Dr. Terry on the subject of fractures of the skull and other cases that come under the observation of an emergency surgeon. Of the various groups of cases that come under observation in emergency work it appears to me that these cases of fracture of the skull are the most interesting. A man that is dealing with this class of cases is constantly bumping up against the question as to whether a man is merely drunk or dying from some more serious condition. I notice that Dr. Terry spoke with some little feeling about the difficulties of diagnosis in this class of cases. Where emergency work is not well organized, cases of this sort are constantly slipping through the fingers of the emergency surgeon to the great joy of the newspapers. I have not noticed anything recently in regard to "drunk or dying" cases, but a few years ago a great many such seemed to come before our notice. Often the only way that we can make a diagnosis is to keep the cases under observation for a number of hours, or even days, perhaps, and the only way that the service can prevent the slipping through of these is to realize and insist upon the fact that a man who is drunk is suffering from a poison; that he is poisoned and as such is properly in the hands of the medical profession and should not be turned over to the police until he is sober. As regards the procedure where diagnosis of fracture of the skull is made, I believe that as soon as that diagnosis is made an operation should be performed,—the skull should be trephined. The necessity of trephining is well illustrated by a case which I remember of a small boy who fell down the second story of a building and whom I saw a few hours after he fell. He had regained consciousness but for several days did not attain complete mental equilibrium. After careful study it seemed to me that he was suffering from a fractured skull. This case fell into my hands after I had had my experience in emergency work and following the routine of my experience, I advised operation. A linear fracture across the parietal bone was found without any depression or separation. However, there seemed to be considerable oozing from that line and upon trephining, I found very distinctly, a portion of the dura mater caught up between the two fragments of bone. In other words, when the child fell, the bone was fractured, the parts separated, the dura mater came between and was caught there. By a simple opening the dura mater was liberated and the child recovered. These two points in reference to skull cases, I would emphasize, viz. —where alcoholism is a complicating symptom, that case must be kept under observation whether the lesions are found or not, and secondly, the necessity of trephining wherever a case of fracture is diagnosed, for there is always the danger of pinching the dura mater even in a linear fracture.

UROPHERIN-S.

Uropherin-S_7, $LiC_7H_7N_4O_2 + LiC_7H_5O_3$, is a double salt of theobromine-lithium and lithium salicylate.

Actions and Uses.—The properties, actions, uses and dosage of this compound are practically the same as those of "theobromine-lithium benzoate" (see Uropherin-B). Manufactured by E. Merck, Darmstadt (Merck & Co., New York).

UROTROPINE.

A name applied to Hexamethylenamina, U. S. P.

UROTROPINE—NEW.

A name applied to Hexamethylenamine Methylencitrate (which see). Manufactured by Chemische Fabrik auf Actien, vorm. E. Schering, Berlin (Schering & Glatz, New York).

VALYL.

Valyl, $C_4H_9.CO.N(C_2H_5)_2 = C_9H_{19}ON$, is a compound of valeric acid and diethylamine.

Actions and Uses.—Valyl acts as a sedative, antispasmodic and nervine, similar to valerian. Dosage. —Owing to the liability of valyl to oxidize when exposed to the air, it is supplied only in the form of gelatin capsules, each containing 0.125 Gm. (2 grains), the dose being 2 or 3 capsules, administered during or immediately after meals, or otherwise with a little milk. Manufactured by Farbwerke, vorm. Meister, Lucius & Bruening, Hoechst a. M. (Victor Koechl & Co., New York).

HOME NURSING COURSE FOR WOMEN.

The nurses' auxiliary of the California branch of the American Red Cross has undertaken an exceedingly valuable work. A series of lectures have been arranged for housewives and women generally, intended to give the woman at home an idea as to the care of members of the family when taken sick, without in any way infringing upon the territory of the trained nurse. Miss Frances S. Hirschey, 449 Cole St., San Francisco, is the Secretary, and full information can be had from her upon application.

PHYSICIANS' MUTUAL AID ASSOCIATION.

This exceedingly valuable organization was started in California some few years ago, and has not met with the support which it really should. It provides assistance to physicians who are members in case of need and, on the assessment plan, pays a small death benefit. It is inexpensive to keep up, and it should receive a more hearty support from our members.

Write to Dr. J. E. Janes, Secretary, Pasadena, Cal., and find out about it.

UNIVERSITY COURSE IN HYGIENE.

The State University has established this year a course in hygiene at the Summer Session from June 21st to July 31st. The work is in charge of Dr. Ernest B. Hoag, Medical Director of the Pasadena City schools, and Margaret Henderson, assistant in bacteriology. There are courses on school hygiene, medical inspection in schools, elements in bacteriology and bacteriological diagnosis. The last two are from 9:00 to 12:00 in the morning, Monday, Tuesday, Wednesday, Thursday and Friday. The first is on the same days at 2:00 in the afternoon, and the second at 3:00 in the afternoon. These courses should be very attractive.

The Relief of Dr. Carroll's Widow.

Washington, D. C., March 29, 1909.

To the Medical Protession:—The following resolution was adopted by tne Legislative Council of the American Medical Association at its meeting in Washington, D. C., in January, 1909:

"Resolved, That a committee composed of one member of the Medical Department of the Army, one of the Medical Department of the Navy, one of the Public Health and Marine-Hospital Service, one member of the District of Columbia Medical Society, and one member to represent the profession at large, members of the council, be named by the chairman, and instructed to present to the different medical services of the government, the District of Columbia, and the profession at large the conditions of distress under which the widow of our hero brother, Major James Carroll, is placed, and suggest or help to devise such plan and action as may speedily bring relief."

The chairman appointed the following committee: Major M. W. Ireland, U. S. Army; Surgeon W. H. Bell, U. S. Navy; Surgeon John F. Anderson, U. S. P. H. and M. H. S.; Dr. John D. Thomas, District of Columbia; Dr. A. S. von Mansfelde, Nebraska.

At the death of Major Carroll, Sept. 16, 1907, his family was left practically unprovided for. There was a small insurance policy, and a short time prior to his death Major Carroll had begun making payments toward the purchase of a home in Washington. A mortgage of $5,000 remains unpaid on the house and a further debt of $2,300 secured by notes payable at the rate of $50 a month. Congress allowed Mrs. Carroll $125 a month, and on this amount depends the support of herself, the aged mother of Major Carroll and seven minor children. It is utterly impossible for her to make the payments on the house, and unless assistance is speedily forthcoming she will lose it.

It is certainly needless to repeat to the members of the medical profession of this country the distinguished service of Major Carroll as a member of the yellow-fever board in Havana when he submitted to an experiment to prove that the disease was transmitted by a mosquito. He suffered a severe attack of yellow fever and for a time his life was despaired of. This illness left him with a disabled heart, which eventually cost him his life. It is believed that every physician is willing to contribute toward saving the home of the widow and orphans of this hero.

In response to this resolution, your assistance is invited toward the attainment of the worthy object expressed in the above resolution.

The following contributions to the Carroll fund have been received:

Officers of the Medical Corps, U. S. Army..	$1,500.00
Officers of the Medical Dept., U. S. Navy...	400.00
Officers of the U. S. P. H. and M. H. S.....	300.00
Officers of the District of Columbia.....	210.00
Mrs. Frances E. Hand, New York City.....	50.00
Dr. Eugene A. Crockett, 298 Marlborough St., Boston	5.00
Dr. Edmund A. Christian, Supt., Eastern Michigan Asylum, Pontiac, Mich.....	1.00
Dr. W. E. Clark, Frederick, S. D.....	5.00
Dr. George W. Gay, 665 Boylston St., Boston	10.00
Dr. L. Hektoen, Memorial Institute for Infectious Diseases, Chicago.....	5.00
Dr Emil King, Fulda, Minn.....	1.00
Dr. John A. Koch, Quincy, Ill.....	5.00
Fountain and Warren Medical Society, Attica, Ind	12.95
	$2,504.95

M. W. IRELAND, Chairman.

[Contributions for this fund are earnestly requested from physicians. Make checks, drafts, etc., payable to Major M. W. Ireland and send them to him at the office of the Surgeon-General, War Department, Washington, D. C. Acknowledgment of subscriptions will be made in "The Journal."]

Reprinted from The Journal of the American Medical Association, April 3, 1909, Vol. LII, p. 1122.

COUNTY SOCIETIES

BUTTE COUNTY.

The regular meeting of the Butte County Medical Society was held March 9th at the offices of Dr. N. T. Enloe. Members present, Drs. N. T. Enloe, P. F. Bullington, D. H. Moulton, H. M. Parker, H. Morel, M. Stansbury, W. L. Gatchell, E. F. Gatchell and Edw. Baumeister, visitor.

A paper on treatment of Ophthalmia Neonatorum was read by H. M. Parker, and discussed by other physicians. The subject of Medical Defense as a feature of the State Medical Society membership was discussed and the society voted to endorse the proposition. The society also voted to subscribe for two foreign journals. Dr. H. Morel to translate for the society such articles as were desired, one journal to be therapeutic and the other treating on surgery. Voted to hold the April meeting at Oroville if time of meeting and transportation could be arranged. Following the meeting the members were the guests of Dr. Enloe at supper at the Hotel Diamond.

ELLA F. GATCHELL, Secretary.

SAN JOAQUIN VALLEY SOCIETY.

The San Joaquin Valley Medical Society met in the Chamber of Commerce rooms in Stockton, March 9th. The morning hours were turned over to the Central California Health Officers' Association. The following papers were read:

"Tuberculosis, with some suggestions on treatment.—C. C. Browning, M. D., Monrovia, Cal.

"Pure Food Law and its Operation."—Prof. M. E. Jaffa, (Director State Food Laboratory), Berkeley, Calif.

"California Sulphured Fruits and their effects on the Human System."—Albert A. Atkins, M. D., San Francisco, Calif.

These papers were well received and the discussion on them was favorable.

In the afternoon the program of the San Joaquin Valley Medical Society was taken up and the papers read were as follows:

"A Report of Several Cases of Nephritis with unusual features," C. R. Harry, M. D., Stockton, Cal.

"A Plea for Early Operation on the Stomach with Cal.

"The Malarial Zone," D. F. Ray, M. D., Stockton, Cal.

"Rheumatism, and its relation to diseases of the throat," B. F. Walker, M. D., Stockton, Cal.

The members of the Society were taken to lunch in the Elks' Hall at noon and in the evening a banquet was tendered the San Joaquin Valley Medical Society by the San Joaquin County Medical Society. The members of the profession in Stockton did everything in their power to make the members of the Society enjoy themselves while in Stockton. In addition to the aforementioned lunch and banquet, the members enjoyed an auto ride around the town and over their section of macadamized roads.

The following officers were elected for the next meeting:

Dr. J. R. Walker, president; Dr. R. W. Musgrave, 1st vice-president; Dr. R. E. Dixon, 2nd vice-president; Dr. C. T. Rosson, 3rd vice-president; Dr. D. H. Trowbridge, secretary; Dr. W. W. Cross, assistant secretary; Dr. T. M. Hayden, treasurer.

The next meeting will be held in October at Han-

D. H. TROWBRIDGE, Secy.

SANTA BARBARA COUNTY.

The Santa Barbara County Medical Society met in regular session at the Chamber of Commerce, March 9th at 8 p. m. Dr. Eugene A. Dial in the chair; the Secretary, Dr. Barry, at his desk. The following members were present: Drs. Barry, Brown, Dial, Hindley, Holt, Sheaff, T. A. Stoddard; visitors,—J. H. Hester, veterinary surgeon, Miss A. L. Frisby, from visiting nurses' association and others.

The subject for the evening was "Pediatrics" (a symposium arranged by Dr. W. L. Holt). The following papers were presented:

1. The Problem of Breast Feeding—W. L. Holt, M. D.
2. Surgical Treatment Acute Anterior Poliomyelitis—R. Brown, M. D.
3. The need of a Visiting Nurse in Santa Barbara—Miss Frisby.
4. The Use of Goat's Milk—J. H. Hester, V. S.

Some interesting clinical cases were presented, and the papers read discussed. The Society is just entering upon a new year and we are hopeful of increased interest and improved attendance.

W. T. BARRY, M. D., Secretary.

SONOMA COUNTY.

Sonoma County Society met in regular session on April 2nd at the City Hall, Petaluma. Dr. E. Gray resigned as Delegate, and Dr. W. J. G. Dawson was elected to fill out his term.

Dr. Geo. H. Evans of San Francisco, spoke on the subject of the White Plague. He referred to the serious danger which existed a year ago from Bubonic Plague, and called attention to the fact that while only 54 persons died from Bubonic Plague, 880 died in San Francisco from consumption.

Dr. J. Henry Barbat discussed the question of tuberculosis in bones and joints. Both papers were highly appreciated and extensively discussed.

Dr. A. R. Graham, Petaluma, was reinstated, and Drs. J. E. Maddox, Sebastopol, and F. N. Folsom, Forestville, were elected to membership. Applications were received from Dr. M. B. McAuley and Dr. Fred Leix.

The next meeting will be held in Healdsburg, May 7th, 1909.

G. W. MALLORY, Secretary.

NEW AND NON-OFFICIAL REMEDIES.

Articles accepted for N. N. R.:

Enzymol (Fairchild Bros. & Foster).
Sabromin (Farbenfabriken of Elberfeld Co.)
Medinal Tablets, 5 grains (Schering & Glatz).
Pituitary Substance (Anterior Lobe) (Desiccated) Armour & Co.
Pituitary Substance (Posterior Lobe) (Desiccated) Armour & Co.
Parathyroid Gland (Desiccated) Armour & Co.

Articles accepted for N. N. R. Appendix:

Compressed Tablets Anesthesin 2½ grains *(Sharp & Dohme).
Solution Atoxyl 10% (Sharp & Dohme).
Solution Atoxyl 10% with Novocaine 1% (Sharp & Dohme).
Compressed Tablets Atoxyl and Quinine Comp., (Sharp & Dohme).
Compressed Tablets Benzosol 2½ grains (Sharp & Dohme).
Compressed Tablets Benzosol and Codein (Sharp & Dohme).
Compressed Tablets Blaud with Atoxyl (Sharp & Dohme).
Compressed Lozenges, Orthoform, 1 grain (Sharp & Dohme).
Compressed Tablets Pyramidon 1½ grains (Sharp & Dohme).

Articles reconsidered and rejected:

Salit (Heyden Chemical Works).

Transfer of Agency:

Stovaine (formerly sold by Walter F. Sykes, New York, now sold by the Parmele Pharmacal Co.)

A PUBLIC HEALTH CAR.

The following models and charts will be arranged by Doctors Foster and Snow, and are installed in a remodeled chair car, and were on the siding at San Jose, two blocks from Hotel Vendome, during the meeting of the State Society.

Models of:—

1. A kitchen operating room.
2. Ventilation of a room, 2 illustrations.
3. Room arranged for isolation of communicable diseases.
4. Sand filter for water supplies.
5. Garbage Incinerator (pit and cone method).
6. Septic tank.
7. Butcher shop and tenement of tuberculosis patient.
8. Room in disinfection.
9. Tent for Tuberculosis case.
10. Frame for Tuberculosis case.
11. Five other fresh air contrivances.
12. Polluted surface well.
13. Polluted lake.
14. Series, 6 models, polluted stream.
15. Average California dairy, (one half as they exist, other half showing improvements that should be made).
16. Farm house, showing conditions, following tuberculosis and typhoid.
17. Disposal of human excretion series.
18. Cuspidors, etc.
19. Tombstone series.
20. Miscellaneous small models of various sanitary devices, etc.

CHARTS. Showing occupations, vital statistics of California, etc. About 20 charts 30 by 40 inches and 100 charts 20 by 30 and 14 by 22 inches individually.

AMERICAN PROCTOLOGIC SOCIETY.

This Society Will Hold Its Eleventh Annual Meet- at Atlantic City, N. J., June 7 and 8, 1909.

Headquarters and place of meeting, Haddon Hall. The profession is cordially invited to attend all meetings.

TO MEMBERS OF THE TUBERCULOSIS ASSOCIATION.

To the Members of the California Association for the Study and Prevention of Tuberculosis:—At the suggestion of Mr. C. B. Boothe, the American Association for International Conciliation will be glad to send the documents of the Association as published to the members of the California Association for the Study and Prevention of Tuberculosis who signify their desire to have this done.

The documents, which are issued monthly, are designed to furnish brief but authoritative statements of various aspects of international relations and are distributed without charge, post-paid, to all persons upon the mailing list of the Association.

F. P. KEPPEL, Secretary,
Sub-station 84, New York City.

PUBLICATIONS.

New and Nonofficial Remedies. Articles Which Have Been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association, Prior to January 1909. Chicago: Press of the American Medical Association, 103 Dearborn Avenue. Paper, 25c; cloth, 50c.

This is the first regular edition of the Annual New and Nonofficial Remedies, and it contains a list of the remedial preparations approved by the Council on Pharmacy and Chemistry of the American Medical Association. Instead of adhering strictly to an alphabetic arrangement a classification has been adopted which permits an easy comparison of remedies of similar origin and properties. Mixtures are to be found in the appendix and a number of non-

proprietary preparations have been added which, for various reasons, have not been admitted to the Pharmacopeia. The descriptions in the appendix have been made as brief as possible and the articles are classified under the names of the manufacturers. Therapeutic indications are not given, as it is assumed that the physician is able to apply his knowledge of the pharmacologic properties of the ingredients without aids from either the Council or the manufacturer. The non-proprietary remedies admitted to the body of the book are described as accurately and carefully as a painstaking search of the literature would permit.

The descriptions of processes of preparations, chemical and physical, and of the physiologic action contain much information which can not fail to be of immense value both to physicans and to pharmacists.

Over 200 different remedies are described, and after mastering the Pharmacopeia the practitioner and the student should become thoroughly familiar with this presentation of the newer materia medica.

Essentials of Medicine. A Text Book of Medicines for Students Beginning a Medical Course, for Nurses, and for All Others Interested in the Cure of the Sick. By Charles Phillips Emerson, M. D., Late Resident Physician the Johns Hopkins Hospital, and Associate in Medicine the Johns Hopkins University. J. B. Lippincott Company.

"Many are published, but few are chosen," might well be said of the many medical text-books which adorn the shelves of our stores and libraries, most of which, excepting of course our well-known standards, enjoy but a very scant popularity. Emerson's work is going to be one of those chosen, for it really and truly "fills a long-felt want." To be sure it does not bring any new facts, nor present anything not found in the usual books placed at the disposal of the student. That is not its purpose. In it we find a very happy combination of anatomy, physiology, pathology, bacteriology, hygiene, diagnosis and medicine,—all so well expressed, so simply written and so logically put, that anybody with but a high school education can understand every word of it. A great many people interested in their own bodies, their own illnesses, or even in medicine itself, unable to devote months to the reading of the usual works on these subjects, surely will hail this book with delight. Besides it teaches just what the profession should want the layman to know, i. e., what disease is, its prophylaxis, and what the physician can do in case of illness, not to mention the difference between a poor and a good doctor. As Emerson says, it is especially for the students of medicine, who frequently lack perspective in their medical studies, who do not learn the A. B. C. of the disease before proceeding to its more difficult study, as well as for nurses who know a great deal in a general, indefinite, inaccurate way, that he has written the book. Those physicians, whose hospital positions entitle them to lecture to nurses, would do well to see what Emerson's experience has taught him to be essential, rather than to continue wasting time and energy, as many do, upon a lot of details which the nurse can never understand or never use. And lastly, we are certain that there are many older men who for years have done but little reading, who will conclude that this book really gives a refreshing presentation of what constitutes our modern conceptions of disease.

R. B.

Pain: Its Causation; Diagnastic Significance in Internal Diseases. By Dr. R. Schmidt. Translated by Karl Vogel and H. Zinsser. Appleton, 1908.

This book is a serious attempt to analyze the causes of pain. It is evidently based upon a wide clinical experience and contains much that the diagnostician will find of distinct service. A short chapter based upon the work of Head and Mackenzie has been added, and Head's diagrams as well as many serviceable figures illustrating the chief sites of special pains are appended. The translation has been well done, and we heartily commend the book.

Retinitis Pigmentosa With an Analysis of Seventeen Cases Occurring in Deaf Mutes. By William T. Shoemaker, M. D., Philadelphia. Laboratory Examinations of the Blood and Urine by John M. Swan, M. D. The J. B. Lippincott Co.

After having read this monograph one can well sympathize with the donors in awarding the Alvarenga prize to Dr. Shoemaker. Seventeen cases are analyzed minutely with their histories, local and general examinations and laboratory findings of the blood and excreta. Each case is considered first individually and then all are summarized collectively. A full digest of the literature is given and all pertaining to the etiology, symptomatology, prognosis and treatment of this interesting though comparatively rare condition is considered. Though practically nothing new is added to the existing knowledge of the subject Dr. Shoemaker has left nothing unsaid. The illustrations are excellent. A work of this character is an example of painstaking thoroughness and a credit to American literature.

W. S. F.

Subcutaneous Hydrocarbon Protheses. By F. Strange Kolle, M. D., Author of "The Recent Rontgen Discovery"; "The X-Rays, Their Production and Application"; "Medico-Surgical Radiography," Etc., Etc. The Grafton Press, New York.

Dr. Kolle remarks in his foreword that this volume was written to systematize our knowledge of this important branch of plastic surgery. His work is a digest of the literature of paraffine injections to date, to which is added his own experience of several prothetic operations.

The book has no table of contents but is supplied with a very good index. Beginning with a short history of the subcutaneous use of oil and liquefied paraffine, Dr. Kolle gives the general indications for its use. In his precautions he wisely counsels the operator against the hypercritical patient who not satisfied with a normal appearance may influence him to further efforts, thereby undoing the excellent result. Kolle writes emphatically against the use of a general or local anesthetic and favors oft repeated small injections. In very exceptional cases a spray of ethyl chloride may be used over the site of the needle prick.

The various untoward results are considered in order with the author's recommendations for avoiding same. He feels that emboli, and particularly of the retinal vessels, are due to faulty technic or the use of paraffine of high melting point. A paraffine that is semisolid at 70° F. injected as a white cylindrical thread should avoid absolutely this unfortunate complication. The paraffine, its preparation and the instruments are all fully described.

A chapter is devoted to the sterilization of the patient and instruments; and then the regions of the body amenable to this form of correction are considered seriatim. The book is worth possessing and should prove an invaluable guide to one engaged in this work.

W. S. F.

Lectures on Principles of Surgery, by Stuart McGuire, M. D., Professor of Principles of Surgery and Clinical Surgery, University College of Medicine, Richmond, Va. Southern Medical Publishing Company, Baltimore, 1908.

In a book of 480 pages Dr. McGuire publishes the lectures delivered to his class. Not a single illustration illumines the text and there is little to interest the general reader outside of the arrangement of the subject matter which is excellent. He who reads critically will have reason for questioning many of the author's statements. The making of general statements in surgery is the hardest of tasks and, while it is evident that the writer has endeavored to simplify his subject in this way, he has gained his end only by a sacrifice of scientific accuracy. In the preface it is stated that the book is intended for the use of students and practitioners who desire the most recent views of surgical pathology, and yet the author briefly dismisses the Bier hyperemic treatment. In his conclusions he says, "At the present time the clearest indications for the treatment by hyperemia are found in cases of chronic inflammation when they are tuberculous in nature," a statement which must be held open to serious objection.

Has the purely didactic lecture a place in present day surgical teaching? If we look at the matter from the historical standpoint we will find that it carries the weight of authority. It was the method of Hippocrates, of Galen, of Celsus, of Guy de Chauliac, of Paracelsus. The keen observer, Ambroise Paré, published his greatest work, "Journeys in Diverse Places," in 1585 in response to an attack made upon him by Etienne Gourmelen, no less a personage than the Dean of the Medical Faculty of Paris. Gourmelen had written a book in which he had appealed to tradition to show that the use of the cautery for stanching blood after amputations was vastly superior to Paré's method of ligation. In his ironical rejoinder the barber surgeon says, "Moreover you say that you will teach me my lesson in the operations of surgery which I think you cannot do, for I did not learn them in my study or by hearing for many years the lectures of physicians." And then he recounts his enormous experience in city, in military camps and on battlefields, from which he concludes that, "the operations of surgery are learned by the eye and by the hand."

Paré was the first great surgical clinician and, though his life was not given to class instruction, his books teach the great value of close and accurate observation, a system which established independent thinking and threw aside the weight of authority which had bound surgeons to the Galenic wheel for fourteen hundred years. Surgery must be taught in operating room and in clinic. He who seeks knowledge must be immediately brought in contact with the text-book which he is to study for the rest of his life—the patient. We still bow too low to authority. We read too much; we see too little. The teacher is a guide to individual effort. If the student feels the need of a more connected picture than the clinical material at his disposal can give, the instructor must of necessity be forced to elaborate. But to describe the "set up" of an operating room in a course of didactic lectures is the last straw; teaching nursing by means of correspondence is on the some plan. R. R.

CHANGE OF ADDRESSES.

Anton, F. L., from Pac. Mut. Bldg. of Los Angeles to Exchange Bldg., Los Angeles.

Beckett, W. W., from Pac. Mut. Bldg. to Exchange Bldg., Los Angeles.

Barber, D. C., from Security Bldg. Los Angeles to Byrne Bldg., Los Angeles.

Bonynge, C. W., from Coulter Bldg., Los Angeles, to Union Trust Bldg., Los Angeles.

Brainard, H. G., from Pacific Mut. Bldg., Los Angeles, to Exchange Bldg., Los Angeles.

Brown, Newell J., Jr., from Stagg, Cal., to Ludlow, California.

Colliver, Jno. A., from Bradbury Bldg. to Laughlin Bldg., Los Angeles.

Colburn, John R., from Delta Bldg., Los Angeles, to Pacific Electric Bldg., Los Angeles.

Byington, Frank S., from Citizens' National Bank to Wright & Callander Bldg., Los Angeles.

Cook, John B., from H. W. Hellman Bldg., Los Angeles to Grosse Bldg., Los Angeles.

Copeland, John C., from Florence, Cal.. to 202½ So. Broadway, Los Angeles, Cal.

Cowles, C. D., from 1101 N. Adams street, Los Angeles, to Wilcox Bldg., Los Angeles.

Dale, H. M., from 3801 S. Main street, Los Angeles, to San Fernando Bldg., Los Angeles.

Dickinson, J. C., from 2316 So. 7th street, Los Angeles, to Security Bldg., Los Angeles.

Dudley, Wm. H., from Pacific Mutual Bldg. to Exchange Bldg., Los Angeles.

Frasse, Irwin N., from Los Angeles to Soquel, Santa Cruz County, Cal.

Garrison, Chas. G., from 905 So. Main street, Los Angeles, to 215 W. 16th street, Los Angeles.

Hall, Edwin H., from County Hospital, Los Angeles to 428½ South Spring street, Los Angeles.

Hatch, Raymond G., from Laughlin Bldg. to Wright & Collander Bldg., Los Angeles.

Haynes, Robt. W., from H. W. Hellman Bldg., to Union Trust Bldg., Los Angeles.

Holcombe, Arthur L., from Compton to 701½ Broadway, Los Angeles.

Houghton, A. D., from Mason Bldg. to Baker Blk., Los Angeles, Cal.

Hunter, Geo. G., from Pac. Mut. Life Bldg. Los Angeles, to Exchange Bldg., Los Angeles.

Jenkins, J. F. T., from 2400 Hoover street, Los Angeles, to 1050 W. 24th street, Los Angeles.

Jenkins, J. E., from 2400 Hoover street, Los Angeles, to 1050 W. 24th street, Los Angeles.

Johnston, J. L., from I. W. Hellman Bldg., Los Angeles, to Bullard Bldg., Los Angeles.

Lindley, Walter, from 1414 So. Hope street, Los Angeles, to California Hospital, Los Angeles.

Lowentrout, O. B., from Bryson Bldg. to Union Trust Bldg., Los Angeles.

McCollough, A. M. F., from Trust Bldg. to Wilcox Bldg., Los Angeles.

McNab, Thos. R., from Trust Bldg., Los Angeles, to Pacific Electric Bldg., Los Angeles.

Moore, Ross J., from Pacific Mutual Bldg. to Exchange Bldg., Los Angeles.

Morton, Geo., from Hollywood to Wright & Callender Bldg, Los Angeles.

Newberry, Frank J., from O. T. Johnson Bldg. to Wright & Callender Bldg., Los Angeles.

Norton, Frank L., from Mason Bldg. Los Angeles, to County Hospital, Los Angeles, Cal.

Pahl, Peter C. H., from Lissner Bldg., Los Angeles, to Good Samaritan Hospital, Los Angeles.

Philp, Wm. S., from Pacific Mutual Bldg., Los Angeles, to Exchange Bldg., Los Angeles.

Rea, R. R., from Lankershim Bldg., Los Angeles, to Chamber of Commerce Bldg., Los Angeles.

Reynolds, J. T., from 430 So. Broadway to Bryne Bldg., Los Angeles.

Ross, M. H., from 16th and Main streets to Harwood Bldg., Los Angeles.

Shaffner, Thos L., from Bryson Bldg., Los Angeles, to 145 So. Spring street, Los Angeles.

Smith, Geo. B., from Pasadena to Hotel Van Nuys, Los Angeles, Cal.

Smith, Rea, from Bradbury Bldg. to O. T. Johnson Bldg., Los Angeles.

Stinchfield, H. C., from O. T. Johnson Bldg. to Wright & Callender Bldg., Los Angeles, Cal.

Taylor, Chas. S., from Douglas Bldg. to 403 South Hill street, Los Angeles.
Trevalyn, Geo. H., from 943 Potter Park to 533 So. Grand Ave., Los Angeles, Cal.
Wade, W. L., from 314 W. 4th street to 143 East Adams street, Los Angeles, Cal.
Wagner, A. F., from 505 E. 15th street to 516 East Washington, Los Angeles.
Watson, Chas V. P., from 2652 W. Pico street to 2502 W. Pico, Los Angeles.
West, Fred'k B., from 407 W. 7th street to Mason Opera House Bldg., Los Angeles.
Hillegass, Geo. W., from Bacon Blk., Oakland, to 592 28th street, Oakland, Cal.
Mitchell, F. P., from 466½ 13th street to Bacon Blk. Oakland, Cal.
Morris, Morris M., from Auditorium Bldg., Los Angeles, to ——?
Purves, John, from Blake Blk. to Central Bank Bldg., Oakland, Cal.
Hibbard, W. E., from Bradbury Bldg., Los Angeles, to Security Bldg., Los Angeles.
Billingsley, U. C., from 6th ave. and California, to 3503 Mission street, San Francisco.
Egeberg, Julius C., from 1403 Golden Gate Ave. to 910A Devisadero, San Francisco.
Eidenmuller, Wm. C., Sr., office 333 Kearny street.
Frink, Geo. K., Merchants' Exchange Bldg., S. F.
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Glover, Cosmos A., from 845 Golden Gate Ave. to 1284 Market, San Francisco.
Graham, G. F., Shreve Bldg., San Francisco.
Howard Katherine I., from 1542 California to 1418 Larkin street, S. F.
Jacobs, Louis Cline, from 2598 Howard street to 830 Market, San Francisco.
Keenan, A. S., from 2790 Harrison to 24th and Harrison street, San Francisco.
Kenny, William, from St. Luke's Hospital to Alms House, City.
Miller, Thurlow S., from 1196 McAllister to Chronicle Bldg., City.
Mitchell, John B., from 1913 Van Ness Ave. to Shreve Bldg., San Francisco.
Montgomery, W. O., from Lane Hospital to Polk and Vallejo streets.
Muller, Fred'd C., from 850 1st ave. to 2486 Fulton street, San Francisco.
Panson, Chas. A., from Mt. Zion Hospital to 350 Post street, San Francisco.
Ryan, Louis X., from 776 Hayes street to 617 Fillmore street.
Ward, Jas. Wm., from 1380 Sutter to 393 Sutter, San Francisco.
Lindsey, P. S., from 439 3rd street to 1224 3rd street, Santa Monica.
Yates, Elizabeth M., from 442 4th to 501 4th street, Santa Monica.
O'Brien, Jas. W., from 918 6th street to 200½ K street, Sacramento, Cal.
Gavey, Walter, Kennett, Shasta County, Cal.
Zobel, Alfred J., from 352 Lake street, San Francisco, to 240 Stockton street, S. F.
Johnson, P. V. K., from 1913 Ocean View to Wright & Callender Bldg., Los Angeles.
Kent, R. W., from Sonora to Columbia, Cal.
Sawyer, Wilbur A., from San Francisco to 2345 Telegraph ave., Berkeley.
Haworth, Morris W., from Vacaville to Elks' Bldg., Sacramento, Cal.
Sanders, Geo. L., 529½ K street, Sacramento, Cal.
Riehl, Fred'd W. F., from Alameda to 420 Kearny street, San Francisco.
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Cutter, Jas. B., from Kerckhoff Bldg. to 496 R. F. D., No. 11, Los Angeles.
Booth, Jas. P., from Mason Bldg., to 1220 W 6th street, Los Angeles.
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Pottenger, F. M., from O. T. Johnson Bldg. to Union Trust Bldg. Los Angeles, Cal.
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Barrett, G. M., from 1796 Post to 240 Stockton street, San Francisco.
Mize, G. H., from 2580 Mission street to 350 Post st., San Francisco.
Robertson, H. M., from Riverside to 1317 N. Main street, Santa Ana.
Glazer, E. F., from 2508 Clay street to 391 Sutter street, San Francisco.
Smith, Jas. Franklin, from 1700 California street to 86 Post.
Somers, Geo. B., from 2500 Fillmore street to 135 Stockton street.
Seymour, Jas H., from 24th and Castro to 4093 24th street, City.
Jullien, E. H., from 1059 O'Farrell street to 240 Stockton street.
Martindale, John H., from Auditorium Bldg. to Hotel Leighton, Los Angeles.
Price, Marshall F., (retired), from address unknown to 1702 Bonnie Brae, Los Angeles.
Shiels, Jno. Wilson, from 1380 Sutter to 323 Geary.
Smith, Arthur M., from Douglas Bldg. to Wright & Callender Bldg., Los Angeles.
Leadsworth, John R., from Los Angeles to Loma Linda, Cal.
Atkinson, A. A., from address unknown to Dorris, Siskiyou, County, Cal.
Russ, Raymond, from Shreve Bldg. to 240 Stockton street San Francisco.

NEW MEMBERS.

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McCue, Jas E., Central Bank Bldg., Oakland.
Williamson, Mark A., San Rafael, Cal.
Dwire, Francis B., Los Angeles, Cal.
Johnson, P. V. K., Los Angeles, Cal.
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California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

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IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be Typewritten.

Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

VOL. VII JUNE, 1909. No. 6

EDITORIAL NOTES.

PURELY ABUSE.

The American Medical Association has stimulated medical organization and medical betterment in every portion of the United States, during the last ten years. To say that it has distinctly improved the standard of medical education and medical efficiency, is to put the case mildly. It has built up the foremost medical journal in the world. It has, for the past five years, steadily worked toward the clearing away of a mass of imposition, fraud, dishonesty and trickery that has been foisted upon the medical profession by grasping commercialism. In no single instance has any honest cause, any honest interest, any honest endeavor or any honest enterprise been attacked or molested; the dishonest have merely been disclosed in the nakedness of their dishonesty. But this dishonesty is wealthy; the nostrum manufacturerers, collectively, represent an enormous amount of illgotten fortune—and no small part has upon it the blood-taint. The nostrum interests have done everything in their power to stop the course of exposures in the A. M. A. *Journal;* to stop the truth-telling. At every point they have failed, and as a last resort they are now attempting to discredit the Association, through its Secretary and its Board of Trustees. They have found that they cannot fight the whole Association; they have no arguments with which to fight the work of exposure, for only the truth is told and only dishonesty exposed. Therefore they have devoted their energies to attacks upon Dr. Geo. H. Simmons, who, as Secretary, Editor and a member of the Organization Committee, has done a large part of the work of building up the Association. What matters it that Dr. Simmons was a Homeopath, twenty-five years ago? We have many honored Homeopaths in our own State Society to-day; what would it matter if he were still a member of that school of medicine? Is it *results* that count in this world, or is it attitude and position? The latest attack is an attempt to show that Rush Medical College granted Dr. Simmons a regular degree after he had devoted but little time to actual study in that school. That was in 1891-2, a time when every school in the country was lax and when almost the full course was granted as a credit to Homeopathic graduates who had been in successful practice. Hundreds of cases might be discovered in which regular degrees had been granted in similar circumstances by prominent schools. We do not know that the facts alleged are true, but even assuming that they are, what about it? It is results that count; what a man has done; how he has made good. One is reminded of the remark attributed to Lincoln when told that General Grant drank large amounts of whiskey; he said he would like to discover the brand and send some of it to the other Union Generals. So, too, it would be a mighty good thing for the medical profession of the United States if we could find a few more Homeopaths of the same sort who obtained regular degrees in the same way. And, incidentally, it would also be a good thing if we could get rid of some disgraces to medicine who sell themselves to such unsavory interests as are attacking the Association. Do not be fooled.

A NEW SHAME.

And now comes "The Pacific Coast Hospital Association," "A progressive modern enterprise that combines money-making with a great public benefaction." The offices of the institution are in the Union Savings Bank Building, Oakland, and it seems to be presided over and generally managed by one McCullough Graydon. A booklet just received is most illuminating. The scheme, of course, is the same old "dollar a month" medical-treatment-contract business. This present "Association," however, interjects a somewhat novel feature into the nasty business. The booklet is a booster for the company in its efforts to sell 20,000 shares of stock at $1.00 per share, which the promoters undertake to demonstrate will pay at least 7% and probably much more. Indeed, simple arithmetic is artfully employed to show that "on a gross income of $60,000 per year we have net earnings of over 20% on (probable) outstanding capital. In due time this $60,000 must become $200,000 or even $300,000—with net returns of 50 to 75% on the capital invested." This is indeed, to use the words of the booklet, "commercializing medical service"; it is also commercializing human life, prostituting a profession, probably robbing the poor and doing many other and various things, for is it in the range of possibility that 300,000 people in this vicinity will join such an institution—or even 30,000? We are told that the subscriber will have the very best of

medical attention; but who are "the very best" medical men who are to do the attending? As set forth in the booklet, the Oakland "physician in charge" is Dr. W. L. Channell, a graduate of Cooper, 1905; the individual filling the same office in San Francisco is Dr. A. J. Remmel, a classmate of his illustrious fellow official of Oakland; the Berkeley "physician in charge" is Dr. C. H. Freeman, U. C., 1894; the subscribers in Richmond will have the proud honor of being attended by Dr. H. V. Prouty (E), Calif. Med. Col., 1904. Of course you are all familiar with these names which have "gone ringing down the corridors of time" as foremost in the medical profession. "The work of our physicians is disinterested and conscientious. They receive a regular salary—not a fee per visit. . . . We secure, at a moderate cost, the services of excellent physicians; we give them the desired opportunity for varied practice and a large acquaintanceship. . . . Such service is no longer 'non-ethical,' since railroad companies and other large employers, as well as hospital societies, employ salaried physicians." Of course we get back to the same old thing—the illustrious examples of medical commercialism. "In San Francisco the French Hospital and the German Hospital societies are notable examples." And the poor subscribers do not know what they are getting; it is always the people who pay for their ignorant desire to get something for nothing; but in the end, they get just what they pay for.

INSURANCE NERVE!

The extreme modesty of insurance companies has been pointed out more than once. A few years ago Mr. Hughes, now Governor of New York, discovered a number of different diseases of insurance companies, all of them involving enlargement of the gall. But a new one is in the field. It was almost bad enough when they insisted upon fixing the amount they would pay for medical examinations and made that amount a ridiculously small sum for a considerable amount of work. Most of the companies that tried to force the $3.00 fee have gone back to the $5.00 minimum. We believe the Travelers has not publicly announced the fact, but nevertheless, it is paying $5.00 to all of its examiners in this territory. But that is merely by the way; the real joke is the open-hearted liberality of the National Life Insurance Co., of the U. S. A., A. W. McCleave, Medical Director. This philanthropic concern sends out a circular blank to physicians who, in some way, it knows or believes to be attending the family of a prospective policy holder. It offers to pay the physician the magnificent sum of one whole, large, round dollar if he will fill in the blank and forward the same to the company. And what the company wants for its dollar is a mere nothing. It just would like to know whether there is any hereditary disease in the family, with full particulars; the personal history of the applicant, with full particulars; whether or not he has had any recent illness, his habits and whether he is considered a good subject for life insurance. Now, that is truly modest and one can but wonder why the insurance company should so recklessly offer a dollar for such a trifling thing. Possibly, if the right sort of letter were to be written, the company might find the physician glad to pay something for the privilege of acting as an honorary assistant medical referee. And then, a rivalry might be built up and one physician might be led to bid against another for this privilege. The prospect is very attractive for speculation. But why give away so much money? Why should an insurance company spend all its money so recklessly, and in one place? No wonder they are all poor and objects of charity!

MEDICAL DEFENSE.

Last year, at a meeting of the House of Delegates, a committee was appointed to investigate the question of the State Society undertaking the defense of its members in malpractice suits, and to report at the San Jose meeting. Unfortunately, the chairman, Dr. W. S. Fowler, was prevented from attending the San Jose meeting and no report was introduced. The matter was therefore referred to the Council and at a meeting of that body on April 22nd, a special committee of the Council was appointed to take up the work and report back at an early date. This report will probably be made to the Council in June, as it is the desire of every councilor to have the work begun as soon as possible. The plan has been in operation in a number of states for varying periods of years and in every instance has been most successful. The Council desires to receive the views of county societies and of individual members and requests that they be sent to the Secretary, Butler Building, San Francisco. This work could undoubtedly be undertaken at a minimum cost to the members; one or two dollars a year ought to amply cover it and secure as good as, if not better, protection than can be had from an ordinary insurance company. The vast majority of such suits are pure and simple blackmail, and it has been the experience in other states that an individual will hesitate before bringing a suit against the united medical profession of the state when he will not stop or hesitate about suing an individual or a corporation. It is mainly a question of what plan to follow in financing the proposition. All the money that comes in from ordinary sources is required for the regular expenses of the Society, organization work, etc. Would it be worth while to you to secure absolute protection in malpractice suits—to know that the suit would be fought to the last ditch at no expense to yourself, by the payment of one or two dollars additional each year? This money would go into a special fund to be used for defense and for no other purpose. If the idea strikes you favorably, set forth your views and send them to the Secretary to be presented to the Council.

DIVISION OF FEES.

In Illinois there has been going on for some time a discussion of the aggravated evil of dividing fees between the surgeon operating upon the patient and the physician referring the patient to the surgeon. The evil exists, doubtless, everywhere; it is a contemptible and a dishonest practice. But is it not a question of whether one can legislate honesty into the individual? Here in our own state there are many well known surgeons of whom it is commonly understood that they will give a large portion of the fee charged for an operation, to the physician who sends the patient to them. They have cultivated agents, as it were, in many towns and counties and these agents know that their "commission" will be paid promptly. The judgment of one who will accept this "commission" must certainly be warped by the warm glow that cometh from the dollars to be received; he can not refer a patient to the patient's best advantage, for he is afflicted with monetary mental astigmatism. The patient is wronged for he is being deceived and deceit is about the most detestable of all forms of petty crime. The surgeon is prostituting a noble and a liberal profession to pure commercialism. These things are admitted by every honest man, and the fact that the very men who participate in the underhand transaction "keep it dark," is conclusive evidence that they, in their hearts, also admit the dishonesty of it. Who that is guilty of the practice has sufficient real belief in the honesty of his deeds to come out openly and acknowledge that he is "splitting fees"? Is there a single one? If so he has not yet been heard from! If the physician wishes to do so, and he not only can but should, let him charge his fee for being with his patient and assisting at the operation; but let the patient know exactly what he is being charged, and what for. Is there not some way in which the shame of this vulgar transaction of "splitting fees" can be brought home to those who are guilty and the dishonest practice stopped or checked?

CURIOUS CHANGES.

It is most singular how, under the operation of either the Federal Pure Food and Drug Law, or the various state pure food and drug laws, the statements in regard to drugs or medicinal preparations will change. A case in point is furnished by the Parker Chemical Co., which puts out a certain something called "diozo." A "diozo" circular of the unregenerate days says "Diozo kills germs in three minutes"; "Diozo is a solid germicide (not a liquid)." It was—and may be is—supplied in a paper carton with instructions to "hang it up; that's all" and then presumably some subtle thing emanates from the package and kills germs thus furnishing "health insurance at a cost of less than one cent a week." Again we read that "Diozo is superior to all liquid disinfectants because it evaporates slowly, and cannot spill." But now stepped in the State Hygienic Laboratory which, most impertinently, asked some questions. The solid cake, when tested, did not seem to do much of anything and even a solution of it "failed to kill bacteria in thirty minutes." Alas! alas, for the "health insurance at less than one cent a week." But is the company stumped? Not at all. They changed the formula and advised the laboratory that they were getting up a new carton with new directions, to wit, "to crush the cake into powder and dissolve it in one gallon of water, allowing it to stand for 24 hours and then use the liquid as a disinfectant." What has become of the superior advantage of a *solid* over a *liquid* article? But "it has not been our intention to deceive the public in regard to 'diozo' "; certainly not, no nostrum faker ever wanted to deceive the dear public; of course not; the idea is preposterous. They were just mistaken and carried away with benevolent enthusiasm; when they really investigate their wonderful product they "find that in order to really kill germs the atmosphere of the room would have to be saturated to such an extent with disinfecting gases that it would be also deadly to human beings,—therefore we are now preparing new circulars reducing our claims as to the disinfecting properties of the vapors produced by the cabinet." How singular this change of attitude when only a few short weeks ago the concern stated in its circular "The diozo disinfector is the most powerful known to science. It kills deadly disease germs, yet its vapors may be inhaled without harm and are even beneficial in cases of infection." It is heartrending to see people with no "intention to deceive the public," and with such overwhelming philanthropy, falling into these trifling errors of fact, doubtless carried away by their own enthusiasm in the cause of poor, suffering humanity. Alas!

ENCOURAGE THE NURSES.

The Nurses' Association of San Francisco County has had, for some time, a Central Directory through which nurses are furnished at a moment's notice. It is a very useful part of their organization; useful to them and useful to physicians as well, for no nurses are members of the Association unless they have graduated from a good and reputable institution and are in every way in good standing. It certainly should be up to the State Medical Society to encourage, in every way possible, the betterment of nursing and the perfecting of the nurses' organization. For this reason the JOURNAL again bespeaks your aid in helping the Nurses' Association and its Directory. Nurses are sent from the Directory not alone to patients in San Francisco, but to any portion of the state. In order to aid you in remembering to make use of the Central Directory, and that you may have a constant reminder of it and its whereabouts, you will find on the last cover page of the JOURNAL an announcement of the Directory and its address. Remember to look up the telephone number when you want a nurse.

PRESIDENT'S COMMISSION.

A casual perusal of the Report of the Committee on Social Betterment of the President's Homes Commission explains why such a loud howl went up when the report was presented to the Congress. Some fifty or sixty pages of this volume are devoted to nostrums, "patent medicines" and fake "cures," and this, quite naturally, was found objectionable to a number of our most honorable members of Congress who are interested, or whose friends are interested in many of these fakes. There are, for instance, 38 preparations listed which contain habit-forming drugs (opium, morphine, cocaine, etc.). A study of 1,217 families in the city of Washington disclosed the fact that they spent $2,032.39 per annum for "patent or proprietary medicines" and from this it is deduced that not less than $62,000,000 are spent annually in the United States for this purpose; which is no insignificant sum, by the way. We learn from the report that the patent office has issued, up to October 31st, 1908, 2,140 patents and 8,398 trademarks on drugs, chemicals and medical compounds. Referring to the Council on Pharmacy and Chemistry of the A. M. A., the report says: *"This Council has rendered, and will continue to render, most meritorious services to the cause of humanity."* (And this is the work—these "meritorious services" —which the Proprietary Association, with the assistance of Lydston, of Chicago, is trying in every way to stop or undo.) The soothing syrups are given a dose of truth and a few deaths are cited; in passing, one but wonders if any Congressman is interested in soothing syrups. Diphtheria cures, drunk cures, consumption cures, catarrh cures, skin cures, rheumatism cures, cancer cures, epilepsy cures and abortifacients are given a most dignified, polite and official send off into the realms of fraud and criminality—and this from an official, government publication! Ye Gods and little fishes! No wonder that the honorable Congressmen howled! No wonder that there was a protest against the circulation of this report! No wonder, also that the files were exhausted within the first two days, that no more copies are to be had except those in the hands of the Commission. The work of the American Medical Association and the work of *Collier's Weekly* have at last received the endorsement of a special Commission appointed by the President of the United States. Does it matter much what the Lydstons or the Proprietary Associations have to say? Think about it.

NOTICE.

We are going to try to issue the Register and Directory in July, this year. Will you please send in your own or any other change of address known to you. The accuracy of the work largely depends upon the co-operation of the members.

BIND YOUR JOURNALS.

You can do it for about sixty cents a volume. We are now ready to furnish any member with a good, practical binder in which each number of the STATE JOURNAL can be placed as it is received, and thus protected from wear and tear—and at the same time a binder which, at the end of the year, becomes a permanent binding of the most durable quality, merely by the application of a little paste or mucilage. Why not invest the sixty cents? The Society makes no profit on these; they have been secured for your benefit. The STATE JOURNAL contains all the official announcements of the State Society and its proceedings, and in addition the official reports, etc., of most of the county societies. This binder is in every way simple, easy to use and practical; it is also strong enough to withstand all ordinary wear for many years. Each number can be inserted in less than one minute; the whole volume can be closed up and made a solid, lasting binding, at the end of the year, in about the same amount of time. Send sixty cents to the JOURNAL office and we will mail you one of these binders with full instructions that a child could follow without difficulty. Bind your JOURNALS; you can do so for sixty cents.

ANTISEPSIS AND ASEPSIS IN SURGERY.*

By W. W. BECKETT, M. D., Los Angeles.

From the wide range of subjects, for a brief address before this society, it seemed to me that I could select none more appropriate than the title of this paper.

Lister more than forty years ago first recognized and put into practice the principles which underlie all modern wound treatment.

In literature and in science there have been occasional startling and unforeseen bursts of progress. These epoch-making periods have not been confined to literature and science alone. There stand out in the past history of our art of surgery three great epochs. One was when Pare, a French barber-surgeon, about the middle of the sixteenth century substituted the ligature for the red-hot knife, the actual cautery and boiling oil; the second when Morton demonstrated that human beings could be painlessly operated upon under the influence of an anesthetic; and the third and greatest when Lister introduced the antiseptic principle in wound treatment.

Lucas Championniere was right when he said that there are only two periods in surgery. One before Lister and one after Lister.

Antiseptic surgery has been defined as surgery directed against sepsis, or against septic organisms, which have already entered the wound, the aim being the eradication of these organisms from the wound; and aseptic surgery as surgery in which means were taken to prevent the entrance of pathogenic organisms into the wound. We now employ these terms —"Antiseptic" and "Aseptic" surgery quite differently—antiseptic surgery being methods of wound

* President's Address, Thirty-Ninth Session of the State Society, San Jose, April, 1909.

treatment in which antiseptics are used and aseptic surgery being methods where no antiseptics are used.

Before Lister had commenced his bacteriological work in connection with antiseptics, medicants used in wound treatment had been used more or less empirically, believing that the union depended upon the virtues of the balsams, lotions, liniments, ointments and other local applications. Lister based his treatment of wounds upon the researches on fermentation by Pasteur. Carbolic acid at this time was used as a local dressing for wounds to lessen the discharge and fetor of suppurating surfaces. Lister taught that its beneficial influence was due to its germicidal action, and its consequent power against the sources of disturbances which existed in the dust of the surrounding air.

It is hard to realize the changes brought about by antiseptic and aseptic surgery. The terrors of the surgical practice of those former days, before Lister, such as unavoidable suppuration, pyemia, septicemia, erysipelas, tetanus and hospital gangrene, are so rare now, that some of them, notably hospital gangrene, can now safely be said to not exist. It is said that in those pre-Listerian days eighty per cent of all wounds treated in Nussbaum's clinic in Munich were attacked with hospital gangrene. Erysipelas was a common occurrence. Open wounds were not sutured lest the retention should encourage erysipelas. Healing by primary union did not exist. Eleven out of seventeen patients subjected to amputation died of pyemia. It was customary to perform amputation immediately for compound fractures, otherwise purulent infection, hospital gangrene, or septicemia led to a fatal termination in a few days. The usual rate of mortality in compound fracture was forty per cent. In St. Petersburg the mortality rate reached sixty-eight per cent. In major amputations the mortality was about thirty-three per cent. The operating room was frequently crowded with students fresh from the dissecting-room. Each ward has its set of sponges, and these were used indiscriminately for dressing the wounds, and at the operating table. There was no such thing as absorbent cotton in those days. Lint was used instead. Linseed meal and charcoal poultices were used to cleanse and sweeten wounds and to promote "healthy suppuration." "Laudable pus" was a sign of a healthy condition of the wound. Stout silk ligatures were employed to tie blood-vessels and were left hanging out of the wound to be pulled at from time to time until they were separated by the process of suppuration. What a change has taken place since that time. Dennis reports one thousand cases of compound fracture treated by himself with a mortality of less than one-half of one per cent. The death rate from sepsis in clean cases, in our best hospitals, is to-day almost nil.

The doctrine of the four elements, earth, air, fire and water, constituted the sole dictum of the ancient philosophy which under the designations of heat, coldness, dryness and moisture were thought to explain the various phenomena of disease. Air was supposed to play the most important part in the production of disease. Hippocrates taught that air entered the different cavities of the body and produced pain and every known malady. According to Hippocrates, the gas expelled from the stomach was nothing more nor less than atmospheric air. The same air when charged with miasm might enter the system and poison it, giving rise to many diseased conditions. The difficulty of healing all open wounds he considered to be due to the coldness of air. Magnatus as early as 1576 advanced the view, that the air was charged with miasms which infected every part of the human system wherever they might find entrance. He noticed if a hole was made in the end of a new-laid egg through which air was permitted to enter, the contents of the egg was sure to undergo putrefaction. From this simple experiment he argued that the inflammation and suppuration seen in all open wounds was due to their exposure to the open air. He did not specify any particular constituent of the atmosphere, but thought the air was the carrier of the poison. Ambrose Paré called attention to the poisonous properties of the air of sick-rooms and camps. That atmospheric air caused all the trouble in external wounds became the recognized belief of the day, and from that time on the chief care of the surgeon was to exclude the air from all such injuries as much as possible. Surgeons had recognized the fact that simple fractures, dislocations and all wounds where the surface remained unbroken, healed very rapidly, with little inconvenience and small risk to life, while in compound fractures and where the air had free access to the injury, inflammation and suppuration were sure to follow. In 1783 Benjamin Bell, an English surgeon, first drew attention to the evil effects of admitting air into open abscess cavities, and advised the use of drainage tubes for evacuating their contents, without permitting the ingress of air. Delacroix improved on the method of Bell by inventing the aspirator. John Hunter, the celebrated Scotch surgeon, considered that the healing of wounds by scabbing was the natural process. Many mechanical appliances were used to assist Nature in this scabbing process. Layers of cotton, dried blood, anything that would cover the wound and exclude the air was made use of. Lister in his search for some satisfactory substitute for this natural process of scabbing was led to discover the true principle of antiseptic surgery. He first used lint saturated with carbolic acid and blood to form a coating over the surface of the wound. Sheets of lead or block tin were firmly fixed over the application to prevent the evaporation of the carbolic acid.

Before the invention of the microscope it was impossible to determine whether or not the air contained any living organisms. Pasteur in 1857, after a series of brilliant experiments, established the fact that it was not the air as a whole or any of its constituent parts which disturbed the healing process of wounds, but minute living organisms conveyed by the air.

Other eminent men through varied experiments confirmed the conclusion of Pasteur. In 1867 Sir

Joseph Lister first published his procedure in the treatment of open wounds by the new or antiseptic method. In March of the following year Lister began to treat wounds by this new method. His first cases did not come up to his expectations, yet he did not become discouraged, but continued the treatment with more care and was soon able to prove that by this method of treatment of compound fractures, the danger from subsequent suppuration was not only obviated, but a cure was hastened. He also extended this form of treatment to abscesses. His object was to evacuate the pus without admitting air. He prepared a twenty-five per cent solution of carbolic acid and boiled linseed oil. With a bistuory whose blade had been dipped in this solution, he opened the abscess. A piece of cloth which had been saturated with this carbolized oil was placed over the opening and the contents of the abscess pressed out beneath the cloth. After the hemorrhage was checked, a piece of lint saturated with the antiseptic oil was placed as a drain through the opening into the abscess. The wound was dressed so as to exclude the air and to promote the process of scabbing. This treatment was followed in incised, punctured, lacerated and contused wounds, and finally to amputations and all the different branches of operative surgery. Professor Paget, a distinguished contemporary, said: "The covering of a wound, as in a compound fracture, with material soaked in a solution of carbolic acid, excludes all the external air, or at least those organic materials in it that would be injurious. Thus the wound is rendered practically airtight and may heal without suppuration, simply by scabbing over."

Lister had two objects in view, to keep the morbific organisms in the air from coming in contact with the wound, and to destroy those that had already found entrance. This was the last step in the evolution of antiseptic surgery.

Buried ligatures were first used in 1867. Lister first experimented by tying the left carotid artery of a horse with silk which had been steeped in a strong solution of carbolic acid, the ends cut short and the wound dressed antiseptically. Healing occurred without suppuration. Six weeks afterwards the horse died and the parts were examined. The vessel was completely cicatrized. A few weeks afterwards he tied the external iliac artery in an old lady suffering from an aneurysm of the femoral artery. In this case he used silk soaked in carbolic acid. The wound healed primarily. At autopsy about one year after, the knot was still present, enclosed in a thin walled capsule. The use of animal ligatures was next tried. Leather catgut and tendon had been used and abandoned, but it was hoped with antiseptic methods better results might be obtained. In 1868 Lister ligated the right carotid of a calf with catgut that had been soaked in carbolic acid for four hours. The wound healed by first intention. A month later the calf was killed. On dissection the catgut was found to be absorbed.

Following out the same antiseptic principle, the carbolic acid spray was used to avoid the risk of air infection. About the same time antiseptic gauze was used for dressings, and rubber drainage tubes were employed. From this time on there was a gradual advance up to the present methods of wound treatment.

The excessive use of antiseptics and moist dressings produced a great deal of wound irritation and proved in many cases to be very unsatisfactory. This soon led to sterilization by heat and the use of dry sterilized gauze for dressings. Lister was probably the first to use dressings sterilized by heat. Lister, till he gave up operating in 1896, continued the same method of skin sterilization that he had adopted thirty years before. This consisted in washing the skin just before the operation with a 1 to 20 watery solution of carbolic acid. He used a 5 per cent solution of carbolic acid for hand disinfection and for the sterilization of instruments. The instruments were placed in this solution just before the administration of the anesthetic. These are very simple methods when we compare them with the technic which is now in general use. To attain the best results it is necessary to have a well-appointed hospital and a permanent staff of assistants. Then a definite system can be carried out, and in a large series of consecutive cases, if the results are not satisfactory, it is possible to locate the cause of failure and to make such changes as may be necessary to bring about better results. The more simple the method the better, if it is effectual. As far as possible there should be a uniform system practiced by the surgeon, assistants and nurses. It is only in well-appointed hospitals that this can be carried out. The surgeon is to a great extent dependent upon the care and thoroughness with which others do their work. He cannot supervise every detail. He is at the mercy of those in subordinate positions, whose lack of knowledge or carelessness may defeat his best endeavors. He must take for granted that their work is carefully and scrupulously done.

Aerial infection has been a much-discussed subject from the time Lister introduced his carbolic spray to the present time. As to the danger of air infection, there is a difference of opinion on the part of those who have investigated the subject.

Investigations made of surgical amphitheters of different hospitals by the exposure of Petri plates do not differ materially as to the variety and number of bacteria present in the air. They all show that air infection is a possible danger and should not be disregarded.

It has been recently stated that sweat is never sterile, yet it has been demonstrated by Harrington that sweat made to flow from well cleaned, and as far as possible, sterilized hands and forearms, encased in sterile glass cylinders, and heated by appropriate means, that not in a single instance could a bacterial growth be obtained.

There is much greater danger through saliva from talking into the wound. Dr. Charles Harrington says: "The mouth cavity is a singularly unclean place, for the secretions of the mouth are

likely to be richer in bacteria than the foulest sewage, and they may be exceedingly virulent."

The details for aseptic operations vary according to the ideas of the individual surgeon. The following are the methods we have pursued during the past several years. Street clothes are removed in dressing rooms and replaced by duck suits and tennis shoes. Everything that is brought into the operating room is sterilized either by boiling or steam heat under pressure. Gauze dressings, sponges, pads, gowns, sleeves, towels, sheets and caps are exposed in a steam sterilizer at eighteen pounds pressure for three-fourths of an hour. Sterile catgut and kangaroo tendon are purchased from some reliable dealer. The floor of the operating room is thoroughly mopped and the walls, furniture and fixtures wiped with moist cloths. The operating room is thoroughly fumigated with formalin after septic cases. Draughts are minimized. Septic material is thrown into a well-trapped hopper with sufficient disinfectants. Clean cases always precede septic ones.

The patient, the day before operation, is given a full warm bath and the operating area is shaved and thoroughly cleansed with soap and water. Sterile gauze is used instead of a brush for this purpose. A sterile gauze pad is placed over the seat of operation and held in place by a suitable bandage. When the patient is placed on the operating table, the operating area is thoroughly sponged with Harrington's solution and then gently scrubbed with alcohol. The hands and arms of surgeon and assistants are thoroughly scrubbed with hot running sterile water and soap; sterile gauze being used for scrubbing instead of a brush. Nails are trimmed and cleaned and hands again washed until satisfied they are clean. They are then immersed in Harrington's solution for about thirty seconds and then rinsed in alcohol. Next they are rinsed with a bichlorid solution, 1 to 5000, and the gloves put on. Thin rubber gloves are used in all operations and for dressing wounds. The gloves are sterilized by boiling or by steam heat under pressure. Gloves undoubtedly lessen the danger of infection and prevent the hands from becoming soiled with septic material. Silk wormgut, silk, pagenstecher thread, wire, and all instruments, except cutting instruments, are sterilized by boiling for ten minutes. Edged instruments and needles are immersed in lysol for ten minutes. Caps are worn to prevent dust, dandruff and bacteria from being brushed off into the wound. Sleeves are pinned to the gown and a sterile towel over the front of the gown. These are changed after each operation. Gauze is worn over the nose and mouth. The hands and instruments are frequently washed in warm sterilized salt solution during the operation. All drains are sterilized by boiling, except rubber tissue, which is soaked in bichloride 1 to 1000 and afterward washed off with sterile salt solution.

Great care is taken in the cleansing of all open wounds, especially those of compound fractures. The skin surrounding the wound is thoroughly scrubbed with soap and sterile water, then sponged with Harrington's solution and washed off with alcohol. The wound is washed out with sterile salt solution, all foreign substances removed and then thoroughly washed with a 10 per cent solution of lysol; the bleeding checked so as to leave the wound as dry as possible and the wound closed. Drainage is employed if there is any oozing or where cavities exist. Abscesses are drained and the cavities filled with a two per cent solution of formalin in glycerin.

In clean cases the wound is dressed with dry sterilized gauze, which is held in place with adhesive plaster or suitable bandages. The wound is dressed the fourth day and the superficial stitches removed. The retaining sutures are removed the eighth day.

We realize that these methods are not perfect, but if they are religiously carried out, good results will be obtained.

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AMEBIC DYSENTERY.*

By J. D. LONG, Passed Assistant Surgeon U. S. P. H. & M. H. S.

Heretofore Amebic Dysentery has been considered almost entirely a disease of tropical countries; it is true that during the past ten years, isolated cases have been reported by observers in various portions of the United States, e. g., Baltimore, Chicago, St. Louis, New Orleans and also in Montreal, Canada, and while it seemed to the observers that these cases had in some unexplainable way originated in the cities where found, there still lingered the feeling that they had really in a more or less roundabout way gotten their infection from the tropics.

In 1907 while on duty at the U. S. Marine Hospital, the writer found three cases of dysentery which, as far as could be determined from the history of the cases, originated in San Francisco or vicinity; the thought then occurred that probably the disease had secured a foothold here, on account of the large number of persons arriving here each year from countries where the disease is known to be endemic. Before it was possible to study the matter further, other duties intervened and the matter was dropped till last year.

About December 1, 1908, a case of dysentery was admitted to the hospital in a man who had lived continuously in San Francisco and vicinity for a number of years. His symptoms had lasted for less than two years. Routine examination of stools was then begun, with the result that since December 1, 1908, a total of forty (40) cases of dysentery have been found, in all these cases living motile amebae have been demonstrated in the stools, and in some cases other parasites, e. g., trichocephalus dispar, un-

*Read at the Thirty-Ninth Annual Meeting of the State Society, San Jose, April, 1909.

cinaria, anguillula stercoralis, ascaris lumbricoides, trichomonas and cercamonas intestinalis, taenia saginota, and bothriocepholus lotus.

Out of the total number of forty (40) cases fourteen (14) have so far as we can determine originated in this country. One case had never been outside of the State of California; others had been here for periods of from five to twenty-seven years and during these periods had not been outside of the United States except on vessels plying between ports on the Pacific Coast. It is possible that some of these cases were infected in tropical countries, and that some of the others were infected here, as any patient who had been in tropical country within three or four years, was considered to have been infected there.

As a result of observation made during the plague campaign, and as a result of almost six years' experience in the Philippine Islands, with opportunities for observation of agricultural methods in Singapore, China and Japan, I have no hesitation in saying that dysentery has obtained a foothold here. As you all know the vegetable gardens are in the hands of and under the control of Chinese, Japanese and Italians; the Chinese and Japanese at least are aware of the fact that human excrement makes an excellent fertilizer, by mixing it with water and sprinkling it from an ordinary sprinkling can over the tops of the growing vegetables. In the Philippines we used to find in the huts of the Chinese gardeners a jar in which was carefully collected the urine and fecal matter of the gardener and such assistants as he might have. Inasmuch as a large percentage of Chinese, Japanese, Filipinos, etc., have dysentery it may readily be seen how the disease could be distributed. Musgrave produced typical Amebic dysentery with abscess of the liver in a monkey which had been fed on a culture made from the fifth water that had been used to wash a bunch of lettuce. There are not many cooks who wash lettuce, watercress or celery five times in as many changes of water.

Further, amebae have been cultured from lettuce grown in this vicinity; also from tap water and from the water collected from a small creek. Whether they were pathogenic amebae or not was not demonstrated; they were morphologically not to be distinguished from the amebae found in stools, and it is claimed by Musgrave, that any type of ameba may become pathogenic with appropriate environment.

The question is of vital importance to state and country and more detailed investigations should be made for the purpose of determining exactly where the infection lies and how it can be most quickly corrected.

Examination of the chemical analyses of the potable waters of this region shows a fairly high content of organic matter. A very small amount of organic matter is needed in the artificial cultivation of amebae, only .2 gram of beef extract to the liter, hence a few cases of dysentery on a watershed might be responsible for a good many more among the users of the water.

The cases presented varying symptoms, a few only had diarrhoea, or mucous and bloody stools, probably over half gave symptoms of constipation, some came in with slight jaundice, fever from 101°-104°, pain in region of liver, and a more or less marked increase in the area of liver dulness.

Two had abscess of the liver on admission and died later on; one of these was infected in San Francisco.

I believe that an examination of the stool will clear up the diagnosis of many a case presenting symptoms of gastric or intestinal disturbance, obstinate or recurring constipation, jaundice, hepatitis, etc.

The treatment consists in the daily administration of quinine enemata, beginning with a 1-8000 solution and gradually increasing the strength and quantity until two liters of a 1-500 solution are taken once daily, if there is fever, enlarged liver, jaundice and a leukocyte count of from 15,000 to 25,000 with the polymorphonuclears running between 75% and 85%, we have been using ipecac in thirty grain doses daily, administered in salol coated capsules, with excellent success.

In favorable and uncomplicated cases two months at least of treatment are required; the treatment may then be stopped and if daily examination of liquid stools for ten days or two weeks show no amebae, the case is probably cured.

The matter of eradication and prevention is an extremely important one and may be best divided into several groups:

1st, Legislation. Legislation should be enacted making it an offense punishable by imprisonment without the alternative of a fine for any one owning, controlling or managing a vegetable garden to use human feces, or urine in any manner as a fertilizer, each succeeding offense to be punished with increasing severity.

2nd, Inspection. All gardens, truck farms, etc., growing or producing vegetables for sale for human consumption should be rigidly inspected sufficiently often to see that no human excrement is used as a fertilizer and licenses should be issued to the persons controlling the gardens, all cases or crates containing their produce for shipment to have the number of their license upon it, so that if the City Bacteriologist should find amebae or other pathogenic organisms on said vegetables, the garden where they were grown would be known and could be investigated.

2. Education of the people—that fresh vegetables should not be eaten unless very thoroughly cleaned or cooked, and that drinking water be boiled; filtration will not serve as amebae grow through filters sooner or later.

3. Inspections of watersheds to be made and all sources of possible infection to be removed therefrom. It may be that before many years methods of purifying water will be found, whose cost is not prohibitive and the question thus be solved. French writers are now claiming great things from ozone at a cost of about $14.00 per million gallons.

5. An effective and satisfactory way of disposing of sewage, so that it will be rendered incapable

of producing disease. In a country like this which might be considered as semi-tropical, where frost seldom and snow never comes, the septic tank properly constructed and managed, offers a possible solution, probably not much, if any, more expensive than the present sewage systems, with the advantage that the sewage when it reaches water courses or the ocean can produce no disease of any kind.

It may seem to some that some of the statements made above, are overdrawn and improbable, and that it is not necessary to take the precautions recommended. In reply it can be stated that it is true that all cases of amebic dysentery do not die of the disease, nor do all cases have abscess of the liver, but these facts do remain, the vitality of anyone having dysentery is so lowered as to make the patient very susceptible to intercurrent disease, particularly tuberculosis. We find tubercular processes quite frequently at autopsies on dysenterics. Further, should the disease get a firm foothold it will be as difficult to eradicate as is tuberculosis. Personally, if quick results were desired, I would much prefer to handle an epidemic of Asiatic cholera, plague or smallpox, or any two of these, than to attempt to eradicate amebic dysentery in anything like a reasonable time.

LATENT TUBERCULOSIS: ITS SYMPTOMS, TREATMENT AND PROGNOSIS.*

By DR. MAX ROTHSCHILD, San Francisco.

The attention of the general practitioner ought to be called to a complex of symptoms which is not generally well enough known,—the latent tuberculosis. It might be advisable to give first the history of a number of typical cases that have been under the writer's observation during the last 6 or 8 years, then to give a résumé of these and other similar cases that have been under treatment and afterwards to give a short description of the mode of treatment which seems most efficacious.

Case 1: Miss A., San Francisco. Stenographer, aged 24. One cousin and one aunt died of tuberculosis. Patient herself has never been sick with the exception of children's diseases. Menstruation regular with normal loss of blood. Patient complains of tired feeling and general exhaustion which appears even after very light work. It is the greatest effort for her to perform the duties of her position. She wakes in the morning without feeling rested or refreshed and is so tired in the evening that she can scarcely wait to get through with her dinner so that she may get to bed. No expectoration, no cough, no night sweats, no shortness of breath.

P. C. Patient looks rather delicate, has deep, dark rings under her eyes. The mucous membranes look rather pale. She is well developed, heart normal, lungs normal with the exception of some interrupted breathing in right and left lower lobes. Liver, spleen and kidneys normal. Digestion normal. Blood shows about 80% hemoglobin, about 4,200,000 reds and a normal amount of white cells. Pirquet and Moro reactions both positive. While the temperature of the patient is usually normal and most of the time sub normal in the early morning, patient had a temperature of 99.8° about 24 hours after an intravenous injection of 1-3 mgr. of Koch's old tuberculin.

Diagnosis, latent tuberculosis.

Treatment, Blaud's pills internally, intravenous injections of tuberculin and atoxyl twice weekly beginning with 1-5 mgr. of tuberculin and increasing to 1 mgr.

After about three months' treatments patient had gained 18 pounds, general condition much improved, the fatigue having entirely disappeared.

Case 2: Mr. B., Portland. Real estate dealer. Thirty years of age. Referred by Dr. Weeks. Father and sister died of tuberculosis. Best weight of patient was 162 pounds. In the last 3 or 4 years he has gradually lost in weight, now weighing 140 pounds. Patient has no outspoken symptoms of any kind. He "just feels tired and lazy," as he expresses it, with no desire to work and great exhaustion after any efforts of any kind, physical as well as mental.

Examination shows a well built man with rather pale mucous membranes. With the exception of harsh expiratory breathing over the right apex and a light anemic condition (homoglobin about 80 to 85%) patient appears to be perfectly normal. Moro reaction positive. Twenty hours after an injection of 1-3 mgr. of tuberculin intravenously, temperature 100.2°.

Diagnosis, latent tuberculosis.

Treatment consisted, as in all similar cases, of intravenous injections of tuberculin and atoxyl. Patient gained 20 pounds in four months, then he returned to Portland where he has been working hard ever since. He is perfectly well and enjoying better health than he has for many years.

All cases of latent tuberculosis that have been treated by me, altogether 22 in the last 6 years, showed about the same picture and reacted in the same way to treatment. The symptoms in all cases are very much alike. The prominent features are,—

1st, tuberculosis hereditary in the family.

2nd, exhaustion more or less pronounced after light physical efforts of any kind without any other apparent cause.

3rd, positive Moro reaction, or reaction after an injection of tuberculin of sufficient strength.

4th, light anemic condition. Sometimes interrupted breathing or harshness on ausculation of the whispering voice over some part of the lung.

5th, patients have either lost in weight or are far below the weight which persons of their respective sizes should normally have.

In most cases of latent tuberculosis, the Moro reaction is sufficient for diagnostic purposes and if this reaction is positive an injection of tuberculin will not be necessary for diagnostic purposes. The Pirquet gives the same results as the Moro reaction. It is most interesting that in cases of real latent tuberculosis, the Calmette reaction is usually negative. If this reaction should be positive we have usually to do with a case of active tuberculosis, and so it seems to be possible to draw a line, with the help of these reactions, between the cases of latent tuberculosis and the cases of incipient tuberculosis. My results harmonize with those published by Wolff-Eisner; however, these reactions have to be studied a good deal longer before positive facts can be stated in this respect.

The effect of tuberculin treatment in cases of latent tuberculosis resembles very much the effect

* Read at the Thirty-Ninth Annual Meeting of the State Society, San Jose, April, 1909.

of a good tonic. I have given to some patients, who have suffered from a light anemia without the hereditary element of tuberculosis in the family history, and without a positive Moro reaction, or a reaction after an injection of tuberculin, tuberculin intravenously, but there was no result from the treatment and in some of my cases of latent tuberculosis I have given for a while intravenous injections of atoxyl alone, without a marked improvement which became very evident as soon as I had added tuberculin to the atoxyl. It is needless to say that in the treatment of latent tuberculosis proper food and a proper mode of living are important. The patients have to combine rest with a certain amount of exercise in the open air. They ought to sleep outside or use a window tent. The best and quickest results are obtained if the patients are treated exactly as though they were suffering from an incipient tuberculosis; only the amount of tuberculin should be larger and should be increased more rapidly.

In regard to the prognosis of latent tuberculosis, it is possible that with a proper mode of living and good care, the sickness may disappear. On the other hand, and this is usually the case, an active tuberculosis develops sooner or later and then of course, it means a harder fight for patient as well as for the physician. The Moro ointment ought to be on hand in the office of every physician, the test is so simple and can be made so easily. Since the reading of a paper on this subject by Dr. Alderson and myself at the November meeting of last year of the San Francisco County Medical Society, a great many publications on the value of the Moro reaction have appeared, and all writers recognize now the importance of this test.

So, if a patient comes for examination with the symptoms mentioned, especially with an element of hereditary tuberculosis in the history, a Moro test ought to be made. With the exception of one single case that was observed by Dr. McClennahan of Belmont, I have not heard or read of any case in which general symptoms appeared after a Moro reaction. The method is practically harmless. It is needless to state that the diagnosis of latent tuberculosis is of the greatest importance, as well for the individual in question as for the community at large.

Discussion.

Dr. Harry E. Alderson, San Francisco. Regarding the query made by the gentleman who last spoke in discussing Dr. Rothschild's most interesting paper, I wish to say that unsatisfactory results with the tuberculin salve may be due to various causes. The salve must be fresh and it must be kept cool. It is well to keep it in a refrigerator. After six weeks it loses much of its effectiveness. That prepared by Mulford & Co. and the Cutter Laboratory have been very satisfactory. Any reliable pharmacist will make a good tuberculin salve. One difficulty is that the so-called "anhydrous lanolin" as dispensed by different druggists, varies greatly in quality. It must be a good, pure preparation, and the Koch's old tuberculin must be thoroughly rubbed up in it,—at least one-half hour's work being necessary. As for recognizing the skin phenomenon, mistakes are made in overlooking slight reactions. Often a reaction will consist of but two or three papules, and these are not always easy to recognize. The individual papule is usually slightly larger than a pin head, acuminate and pale and often a lanugo hair can be seen at its apex. Sooner or later a tiny crust usually appears on its summit. At times the papules are larger, more rounded and edematous, resembling small urticarial lesions. The reaction appears within forty-eight hours and sometimes before thirty-six hours. Sometimes it is quite lively and consists of one hundred or so papules on an inflammatory base. The lesions gradually fade away, passing through the various shades of yellow in about ten days but occasionally the process lasts twice as long. Sometimes it results finally in marked desquamation.

A DOSIMETRIC METHOD OF ANESTHESIA BY INHALATION.*

By CARL R. KRONE, M. D., Oakland.

The first efforts at dosimetry in inhalation anesthesia were made by Dr. Oscar H. Allis of Philadelphia in 1874 when he described his ether inhaler in the *Philadelphia Medical Times*. Still clearer did he establish his standpoint in an article on Anesthetics and Anesthesia which appeared in 1891 in the Cyclopedia of the Diseases of Children, edited by John M. Keating, M. D., first edition, third volume, pages 915 f. f. I quote: "When I administer chloroform and accomplish the desired effect in four minutes, when I consider that in this time there have probably been but sixty full respirations and that I have used but sixty minims of chloroform, then it is that I realize the value of a minim of the agent;—a single minim properly administered has definite anesthetic value." So far Allis.

In 1891 when I was in, and just fresh from, medical college the article quoted made so deep an impression on me that I determined to follow its teachings. I strenuously adhered to the principles laid down by Allis in the following eighteen years of the practice of inhalation anesthesia. I found it not a simple matter to determine the "definite anesthetic value of a minim of chloroform."

A dosimetric method of general anesthesia by inhalation must fill the following requirements:

1. This method must offer a means by which chloroform and ether can be subdivided into smallest parts without loss from evaporation. The subdivision of the agent must be under ready control so that the smallest convenient parts (drops) can be exhibited at accurate time intervals.

2. Chloroform and ether can be inhaled only in the form of vapor suitably mixed with air; therefore means for evaporation and for admixture of air or oxygen must be introduced. The method must provide apparatus whereby the vapors derived from definite quantities of the liquids may be transferred into the airpassages without loss.

3. A scale for ascertaining progressive degrees of anesthesia must be arranged.

4. Absolute accuracy in the foregoing requirements being impossible, approximate results can be

* Read at the Thirty-Ninth Annual Meeting of the State Society, San Jose, April, 1909.

deducted only from observations made in a series of consecutive experiments.

Ad 1. The first requirement I met by devising a combination measuring and dropping cylinder. For chloroform this cylinder holds 25 c.c. and 0.25 c.c. can be accurately estimated. For ether I use a 50 c.c. cylinder on which 0.5 c.c. can be accurately estimated. It is necessary that there should be a space of 5 c.c. for the small cylinder and of 15 c.c. for the ether cylinder above the measuring column. The dropping stopper consists of a cork perforated by a seamless brass canula of smallest size (1/16″), which as it leaves the cork is bent off at an angle of 30 degrees. By placing this cork into the mouth of the filled measuring cylinder and inclining the latter at an angle of from 30 to 60 degrees from the horizontal it is relatively easy to drop at will equal individual drops of chloroform and ether from the end of the canula by varying the inclined position of the cylinder. After a few drops have been issued in this manner the dropping ceases in accordance with well known physical laws. Air can be admitted to the interior of the cylinder by holding it a little more horizontally when one or more airbubbles enter by the canula and pass through the chloroform column into the elevated part of the cylinder; after this dropping can be resumed.

Ad 2. Requirement two was met by the use, in chloroform anesthesia, of what I called a "headpiece" and a "facepiece." The headpiece consists of a towel not less than 26″ long by 16″ wide, folded in four layers lengthwise, and fastened around the head so as to cover the eyes and the tip of the nose with its lower margin and the forehead above. By this headpiece two preorbital nasolateral spaces are included, which are left open only below toward the mouth. The facepiece, 8″ by 5″ is made from No. 1 absorbent gauze, 8″ by 20″, folded in four layers. It is laid over the lower exposed part of the face, its upper margin resting upon the lower margin of the headpiece and its lower margin supported by the chin, while laterally it applies itself closely to the contours of the cheeks. Thus placed the facepiece defines a preoral subnasal space or breathing chamber, it serves as a perfect evaporating surface for chloroform and small tonic quantities of ether, and permits the exchange of fresh and exhaled air. A glass delivery tube, introduced under it, provides for a continuous low pressure current of oxygen from a washbottle and tank, which current can be regulated by opening the tank faucet just wide enough to pass 40 to 60 oxygen bubbles through the washbottle. As far as I know I am the first to thus automatically and constantly supply low pressure oxygen directly to the breathing chamber and keeping the patient independent of the vitiated atmosphere of the operating room. I think it proper here to mention that the passages from the breathing chamber to the larynx must be kept free from mechanical obstruction by mucus and also patulous; this can be accomplished by the continuous use of a suitably placed mouthgag and the support of the lower jaw against it, the suspension of the tongue with tongue forceps, rarely, or its support by a lateral prone position of the head, in all instances.

The insufflation method is the only one by which vapors derived from definite quantities of ether can be transferred without loss into the air passages. My apparatus consists of a 100 c.c.m. cylinder on which 0.5 c.c.m. can be accurately estimated. The mouth of the cylinder is closed with a rubber stopper perforated by two metal tubes. One canula goes just through the stopper and serves for the exit of the ether vapor, the other serves as a sleeve for a long movable canula. Through this long movable canula air is introduced forcibly with an atomizer bulb of suitable dimensions. To make vapors from definite quantities of ether it is only necessary to blow the air through and read off from the scale the amounts evaporated during the unit of time, say every five minutes. The rapidity of evaporating can be regulated by allowing the air to merely pass over the surface for minimal amounts; when higher vapor densities are required the canula is lowered into the liquid deep enough to cause more evaporation by the more forcible agitation of the liquid. A rubber sleeve holds the canula in any position required. In order to transfer the vapor into the airpassages and mix it on its way with oxygen I attach the delivery canula to one leg of a metal Y-tube. To the twin leg of the same Y-tube the delivery tube from the oxygen wash bottle is attached. To the third leg a rubber tube is affixed which conducts the mixed vapors into the naso-pharynx of the patient by way of the nostril through a bent glass tube and rubber catheter of suitable size and length. It is evident that with this apparatus waste can be avoided provided care is taken to introduce the vapor during inspiration and no more of it than can pass into the lungs in one inspiratory period. If it is desirable to administer the vapor warm it may be passed through a metal coil tube and the latter immersed in a vessel of warmed water.

Ad 3. I suggest a progressive scale of five degrees of anesthesia but time restriction permits only their enumeration.

Status tolerans.
Status somnolens.
Status anaesteticus.
Status narcosis.
Status comae.

The first three only are useful in practice, the last two must be avoided.

Ad 4. For my last 300 cases I adopted a uniform method of recording and also a special averaging sheet. Readings are recorded every five minutes. I have found it safe and convenient to produce the somnolent stage in five minutes and the stage of surgical anesthesia in ten minutes. By increasing the vapor density very guardedly and slowly at first I succeeded in almost entirely avoiding a state of excitement. By averaging the records I find that the following doses are normal:

Somnolence in one period (of 5 minutes) was induced with 1.50 c.c.

Anesthesia in two periods (of 5 minutes) was induced with 4 to 5 c.c.

Anesthesia was maintained for one hour with 1.75 c.c. per period.

Anaesthesia was maintained for two hours with 1.50 c.c. per period of chloroform.

Anaesthesia was maintained for one hour with 15.00 c.c. per period of ether when evaporated from an Allis inhaler.

Anesthesia was maintained for one hour with 8.60 c.c. per period of ether when evaporated in my insufflation apparatus.

Oxygen was always administered by my low pressure continuous method except when it could not be provided.

Untoward chloroform effects did not occur, pneumonia never followed, vomiting was greatly reduced and seemed to follow the hypodermic administration of morphin, codein or heroin after the anesthesia. In over 5000 cases I have induced anesthesia with chloroform and had not a single immediate chloroform death, and no death from chloroform within three days in which the condition of sepsis or severe surgical shock was not also a determining factor.

I firmly believe that chloroform is safe when given by my dosimetric method when not more than 0.00 c.c. are given in any two consecutive five minute periods. When surgical anesthesia can not be maintained with that amount, ether should be administered by my insufflation method.

I furthermore solemnly declare that any intelligent person can learn to administer chloroform and ether safely if he will use my methods and follow my directions in 100 cases.

OSTEO-ARTHRITIS.*

By S. J. HUNKIN, M. D., San Francisco.

It is with some trepidation that I offer for your consideration the subject of osteo-arthritis, and especially the particular form of osteo-arthritis, which most frequently attacks the vertebræ, the sacro-iliac joints and the hips. It is a subject, however, of vast interest to the general practitioner, although it receives but scant attention from him. I repeat that it is, or rather should be of vast interest, for it is so common an ailment that it occurs almost daily in the practice of each one. As an illustration of its frequency, it is safe to state that the great majority of all sciaticas, outside of the cord cases, are osteo-arthritic in origin, that probably most lumbagoes and possibly most neuralgias are due to the same cause, and that most chronic joint troubles which are non-tuberculous, have a similar etiology.

Before being able to discuss the subject to any purpose, it is necessary that we have a somewhat clear understanding of the terms used. While, at present, I am not familiar with any classification which is as lucid as we would desire, still, the partial classification of Goldthwaite offers, at least, an outlook, a platform from which we may observe, and it is simply as an aid to our mutual understanding that I call it to your attention.

*Read before the San Francisco County Medical Society, Jan., 1909.

Goldthwaite's classification of chronic non-tubercular joint diseases describes five special types:

1. Villous arthritis.
2. Atrophic arthritis.
3. Hypertrophic arthritis.
4. Infectious arthritis.
5. Chronic gout.

Villous arthritis is a condition seen so often accompanying, and a part of, so varied a pathology and arising from so many causes that one looks upon it as a very possible concomitant of any lamed joint. We see it in the hip with tuberculosis, in the ankle after repeated sprains and in the knee with weak feet.

Of chronic gout I have seen little and know little. Instances seldom come under my observation.

The disease being considered then would include in the above classification both the atrophic and the hypertrophic types and to some extent, perhaps, would lap over into the infectious group.

To return then to the osteo-arthritis at issue. In the larger joints this is usually of the hypertrophic type, although the types are often concomitant. The various forms may often be noted in the different parts of the same joint. When not in the same joint, it may be seen in some other joints of the same patient, so the difference of type is not so real as it appears from the classification. Generally speaking, the hypertrophic form develops in the larger joints by preference, while the atrophic form attacks, by choice, the smaller joints. There is no definite rule, however, some of the most typical hypertrophic nodes, appearing in the fingers. In the typical form of hypertrophic osteo-arthritis, as it appears in the hips and in the spine, the edges of the articular cartilages thicken, soften, enlarge, proliferate and later ossify. In this manner, nodes, ridges, spurs or osteophytes are formed. The ossification spreads often by recurrent attacks, extends to and takes in more and more of the ligaments and fibrous structures. The nodes impinge on and, perhaps, interlock with each other and rarely so melt, as it were, into one another, and so extend along and around the ligaments and fibrous tissues, that a bridge of bone develops and true bony anchylosis results. Such bony outcroppings can be readily felt around many joints, and in and around many others are evident in the X-Ray plate. Radiograms, demonstrating these conditions, are offered for your examination. The skeletal changes presented are so definite that they can not be confounded with the lesions shown in the plates of tuberculous joints, or in those of rheumatism, specimens of which are also offered, labeled, for comparison and differentiation.

To give the term rheumatism to conditions presenting such bony changes is a sad misnomer and to designate pains, provoked by the impingement of nodes upon one another, or on nerve roots, or on nerve trunks rheumatic is a travesty on our pathological knowledge and a disgrace to our art. From our standpoint rheumatism does not affect bones. Enlargements or any other changes in true osseous structures are not due to rheumatism and are not

affected by so-called rheumatic remedies. Rheumatism is never chronic in a single joint, but is an acute poly-articular thing—osteo-arthritis, while it may be poly-articular in varying degrees is always chronic. Rheumatism is an acute disease, with an especial predilection for the joints, but not for the bony structures, caused in our opinion, by a specific bacterium, or by its toxine, or possibly by one of many bacteria, or by their toxines.

Osteo-arthritis is essentially a chronic disease, also attacking the joint structnres and involving especially the osseous tissues, giving rise generally to overgrowth in size and usually also particularly in the larger joints to increase in the density. Atrophic changes, however, may also be present at the same time and, perhaps, generally are present to a greater or lesser extent. Often, degenerative changes exist at the same time and may progress to the erosion of the joint cartilages and more or less joint destruction.

The etiology of the condition is not clear in my mind and may be variable. We know that nerve changes often co-exist and may play a part; possibly the changes in both nerve and bone are due to similar causes. We know that errors in metabolism are usually present. We know that history of infections is frequent. I have thought that worry has often been a co-condition, although I admit this last may possibly be simply a result. To me, it appears probable that the process has some analogy to what occurs in gout.

In this disease we believe that for some reasons, associated rather closely with metabolic errors, urates become in excess in the body and are deposited along the cartilages and, especially so, in and around the cartilages of some particular areas. It seems probable that some condition of the colloids in these areas determines the crystallization of these salts, or possibly some state of the colloids in other areas maintain them in solution, notwithstanding their excess, and they are only precipitated where this colloidal state is not maintained. Why this peculiar condition, whatever it may be, should exist particularly around the cartilages and then preferably in special areas we do not know, but the fact is evident. Therefore, I believe that in osteo-arthritis there exists some body or bodies in the blood, also favored or produced by metabolic errors or by some bacterium, by a toxic product from intestinal putrefaction, by toxemias of any kind not properly oxidized or destroyed, and then perhaps, some other colloidal changes in and around the articular cartilages favor their deposit and, as a consequence, the production of this irregular osseous overgrowth or degeneration. The nerve change may even play a part in the development of the clinical picture. This much we do know: That changes in and around the joints exist with lesions of the cord, which are much like the usual osteo-arthritic changes.

Regarding the influence of toxemias, we know, as a rule, that after the osseous nodes are palpable to the examining finger, any toxemia, even as simple as that which accompanies a common cold, that occurring from a simple sore throat, or even that resulting from a sluggish bowel action; any of these, give at once pain in the joints, swelling and tenderness of the nodes, and favor the bony overgrowth. We know also that acute exacerbations often appear during or soon after infections with typhoid or pneumonia; also, after wound or surgical infections. The analogy to rheumatism is not very great, while the resemblance to gout seems more close than would appear at first thought.

Diagnosis. In the knees and elbows, the nodes, ridges, or osteophytes can usually be felt and seen. In the hands and feet they can always be felt and seen. In the hips and shoulders, they can often be felt by the fingers, and oftener are evident in the X-Ray plate. In the hypertrophic form, not alone can the overgrowth be noted, but also the great increase in density. Pain is always a symptom, at least, when the patient presents himself. That is the patient generally comes on account of the pain (although typical nodes are often found, giving no concern to patients who come for other reasons)—pain on motion—pain at the very beginning of motion which may lessen after a while and then again increase towards fatigue. When in the hips, sciaticas are often complained of. When in the spine, sciaticas, crural pain, numbness in the feet and legs, cold feet, neuralgia in various regions; depending, of course, upon the lesion location, are usually suffered. Other lamed joints, outside of that complained of, are found on search, although, perhaps not giving any symptom.

Motion is always limited, usually very much limited. This limitation of motion, especially in the hip and spine, should be determined with some care, for the normal excursion of these joints is apparently much greater than is ordinarily supposed. It is common for us to find a hip with less than 50% of normal motion, after having been assured the movements were all right, and it has occurred and more than once that we have been told that the motion was about normal when the joint was practically fixed. The joint motion should then be determined with some care, noting in the hip that the apparent motion is not taking place in the spine and that in the shoulder it is not at the sterno-clavicular joint. Given then a chronic painful joint, having limited motion, deformity, and this also should be determined with some care; with thickenings or nodes felt with the fingers or determined by the X-Ray plate. Find evidence of similar, although not perhaps so pronounced lesions in other joints and your diagnosis is fairly secure—differentiate from tuberculosis which can hardly be mistaken for it, and no further question can arise.

Given a patient with sciatica, or crural neuralgia, of some standing, possibly changeable from side to side, sometimes better and then again worse, affected to some extent, perhaps to a greater extent, by the weather and, generally also by sudden jars. Examine the back and note its changed curve and that its range of motion is markedly limited. Note that the lordotic curve, instead of ending at the 10th or 11th dorsal vertebra runs up to the 7th or 8th dorsal, perhaps higher. Sit your patient on a table and see how near he can come to putting his head

between his knees. Turn him over and let him lie belly down, and have him throw his head backwards and lift himself on his elbows and then see if his spine comes up straight, with practically no increased curve, no sag and no motion. Flex his knee on the thigh gradually and see if the pelvis also rises. Try first one side and then the other. Roll him over on the back and measure the extent of the hip motions and if you find them limited differentiate from tuberculosis (and this should be easy) and you can again make a positive diagnosis. Get a radiogram, if possible, and you will often see the shadow of the impinging nodes and perhaps more often will be able to note the large, black, dense, hypertrophic vertebræ or hip joints. These cases may go on for many years, with no noted special symptom (although a superficial examination during that period would have demonstrated the restricted movement) no special symptom, except, perhaps some little stiffness after a strained position or perhaps some fleeting pains which the patient refers more or less jocularly to advancing age, or more positively to rheumatism. The stiffness, the checked motion steadily increases, and then some day perhaps with a cold, a sudden extra turn, or bend, or lift, or during a so-called bilious attack, the patient has pain in his back, along one or both sciaticas, in the crural nerves, in the knee, or perhaps, has intercostal neuralgia. The pain in the back may be exceedingly acute, even excruciating, or may be represented by the so-called "Crick in the Back." The attack is called rheumatism. The patient usually gets a remission under treatment, or with no treatment, but recurrent attacks more and more lame him, and later we have the picture presented. The disease has a tendency to crippling deformity and the patient often becomes house-ridden and perhaps bed-ridden. The extreme cases are not rare, those of the character described are common, while the number of slight and moderate cases are legion.

I shall not weary you by detailing case records, but to impress upon your minds the character of what I have attempted to depict will relate two typical cases, in instances of which relief can be confidently expected. A young dentist had for some years been suffering with pain in back and hips. This gradually increased until he was practically incapacitated. Medical attention has been discouraging. Examination showed both hips much restricted in motion in all directions, but especially in rotation. The spine was rigid, the normal curves were much lessened; the usual lordotic curve being replaced by a curve of much greater circle and ending as high as the 4th or 5th dorsal vertebra.

Treatment. Under anasthesia, forcible manipulation was made until the lower spine, at least, was freely movable and then correction enforced until the normal lordotic curve was exaggerated and he was placed in a P. P. jacket to maintain the over correction. He was laid up about a week and was then around. After three or four weeks was about his work in a steel brace, and has been since and now is practically free from pain.

Another type case. A man forty-five years of age was seen some five years ago and found then to have osteo-arthritis of the spine. He has been working ever since. He tells me now that during the last two years he has had several attacks of "Crick in the Back" which was relieved by liniments and hot applications. Four days ago he was seized with severe pain in his back and thighs and had to be taken home. He was drenched with perspiration and was given morphin. The pain continued until the second day in spite of repeated doses of morphin. The pain was promptly relieved when he was laid belly down on the floor, and lordosis forcibly produced. He has now a rigid spine with much spasm in the erector spinæ. Motion in the hips is lessened in every direction and he presents the usual picture of osteo-arthritis. At present the patient is in bed and an attempt is being made to give him a normal curve. He is, however, still not at all convinced of the pathological process underlying his attack and will probably suffer several reminders before he will submit to anything more than temporary control.

At this time I desire to call attention to what I think may be a new test for hip motion, and which, I believe, denotes joint restriction and interference with full function earlier than other signs. The subject lies on the back on a table; both hips and knee are flexed to a right angle, the other leg remaining in full extension, and it is the abduction and adduction from this flexed position, especially the adduction, which constitutes the test. Adduction will often be found much lessened, perhaps, almost entirely prohibited, even when Marsh's test says that the hip motion is normal. I have tried this test over many years and find it always present, when other tests determine hip restriction and many times when no other physical sign offers, and have learned to depend upon it as the most reliable sign of hip joint interference.

A CASE OF ADACTYLIA INVOLVING BOTH HANDS AND THE LEFT FOOT WITH RIGHT AMELUS.*

By FRANK P. GRAY, M. D., San Francisco.

On Dec. 29th, 1908, Mrs. J. F., primipara, aged 20, came to the obstetric ward of Lane Hospital, when nearing the end of the first stage of labor. She was found to have a vertex presentation of a medium sized child, in R. O. P. position, with very imperfect flexion. She had been in labor two hours and forty minutes when dilation was complete, and the water bag ruptured spontaneously. The head at once began to make short (posterior) rotation; flexion and long rotation being produced manually with great difficulty.

The second stage had lasted two hours and twenty minutes when the head escaped, and the right hand was found closely pressed against the chin. This was doubtless the cause of the imperfect flexion. The further course of labor was normal. The cord was

* Read before the San Francisco County Medical Society, January 12th, 1909.

not around the neck, and no adhesions or amniotic bands were observed. There was spontaneous primary respiration, with very vigorous cry, and active motions. The circulation was good. The placenta was delivered after 15 minutes by "modified Crede" manipulations. It appeared normal in all respects. It measured 14x15.5 c. m.

The cord appeared normal, of medium size, 50 c. m. long and pulsated vigorously. Its attachment was marginal. There were no places which seemed to have been constricted. The secundines were sent to the pathological laboratory where they were carefully examined by Dr. William Ophuls, who pronounced them normal. The child was a male, well nourished, measuring 42 c.m. and weighing 6 1-2 lbs.

The following abnormalities were observed, viz:

1—Total absence of the right leg from 3.5 c.m. below the knee down.

2—Absence of the major portion of the tarsal and metatarsal regions, and three outer toes of the left foot with flexion of the remaining portions of the foot upon the tibia.

3—Absence of the thumb and two fingers of the right hand with the metacarpal portions belonging thereto.

4—Absence of the thumb and all the fingers except the little finger and of all the metacarpal parts of the left hand.

5—The presence of a small nevus on the upper lip just below and semicircularly around the nasal septum; another on the forehead at the base of the nose, and one on the occipital region.

The palate and maxillae are normal. The eyes appear the same as of any sound babe. No abnormal movements have been observed. Feces and urine were evacuated promptly, and the child nursed vigorously from the start.

The mother of this child was a half orphan, her father dying during her infancy from causes unknown to her. Her mother is living and well. She had borne four children of whom two died in infancy, one at twelve years old from pneumonia, and she alone survived. She does not know of any marks nor abnormalities in her family. She was separated from her mother when six years old. As a child and young girl she was healthy. Began to menstruate at about fourteen years old, was regular and normal in her periods and suffered no marked inconvenience until pregnant.

The father of this child is 26 years old, and reputed to be in good health. Nothing is known, however, as to his family in any way.

The history of the early months of gestation has been gone over very carefully, since the causes of these deformities must have acted in the very early weeks. She asserts that her pregnancy resulted from several different assaults. The last and the one probably responsible for her impregnation she describes as a "fight." The fact that she did not at all suspect that she was pregnant until almost time for her second menstrual date following this would indicate that the mental impression was not extraordinarily profound. She suffered from vomiting severely the first and second months, possibly aggravated by a retroversion of the uterus for which she was rather vigorously treated after the fifth or sixth week. The treatment included reposition, under ether; insertion of a hard rubber pessary which was worn for one week; the use of tampons, and finally abandonment to processes of nature.

The subsequent course of her gestation was entirely uneventful, although she was, of course, depressed by the many unhappy events of her few years.

THE DIFFERENTIAL DIAGNOSIS OF TUBERCULAR MENINGITIS.*

By GEORGE E. EBRIGHT, M. D., San Francisco.

Typical cases of tubercular meningitis are naturally divided into three stages: A first prodomal stage of indefinite symptoms that lasts from four or five days to two or three weeks. This first stage ends with the advent of one or more symptoms of cerebral irritation which mark the beginning of the intermediate stage and characterize its course which may last from three to ten days, to pass into the final stage of coma, the duration of which is usually two days to a week. Thus the disease will last, in the majority of cases, about three weeks.

The diagnosis is comparatively simple in the intermediate period, marked as it is with the manifestations of meningeal irritation. It is frequently much less simple when the patient is seen for the first time in the comatose condition after many of the preceding symptoms have disappeared. But the greatest difficulties of diagnosis lie in the early stage before marked conditions appear that point to the central nervous system, and also in these cases that do not adhere in their course to the usual type but pursue an anomalous course either in time or symptoms or both. The variation from type is especially seen in the first two years of life when the various stages are not sharply divided and in which after a convulsion an infant may sink into coma and present the picture of the third stage of the disease. In some parts of Northern Europe the entire duration of the disease is usually less than a week.

Considering the first stage: The onset of the trouble is as a rule gradual. The child becomes drowsy and lacks inclination to play. There is a change in disposition often observed. A child that in health is too lively to want to be petted will be content to lie in its mother's lap and be rocked or caressed. The sleep is disturbed and restless and there may be grinding of the teeth or night cries. The appetite suffers early and constipation is the rule. Vomiting without apparent cause is common. The tongue is coated. Moderate fever is present and if the child is old enough it may complain of headache. Sometimes younger children will put the hand against the head in a suggestive way.

It must be confessed that in these symptoms there is very little to justify a diagnosis of tubercular meningitis if it is suspected. The unfortunate thing is that they do not often enough arouse a suspicion of meningitis, so that the lesser corroborative signs are apt to be overlooked. These corroborative considerations are lesser only in prominence but not in importance. For instance the trouble is apt to be attributed to gastritis or intestinal disturbance but catharsis results in normal stools with only passing or no amelioration of the symptoms. If the respirations are watched while the child is at rest or asleep frequently more than the normal irregularity of rhythm may be seen. Or the pulse while it may be more than the normal rate may

* Read before the Cooper College Science Club, Dec. 7th, 1908.

still be below the average pulse-temperature ratio for the degree of fever present. A slow pulse is very suggestive of brain disease even in the first few days. A slight irregularity of the pulse is apt to appear very early and to increase as the disease progresses. It must be remembered that normally the effect of respiration on the pulse of a child is easily exaggerated and is to be taken into account. In young children the fontanelles may be seen to bulge before cerebral symptoms appear or in elder children the corresponding increase in the muscle tone of the limbs of the beginning exaggeration of the knee reflexes speak for higher than normal intracraneal pressure. If in addition attacks of vomiting occur without apparent cause or if the patient indicates a pain in the head, the symptom complex becomes quite suggestive of meningitis. If, futher, there is a history of tuberculosis in the parents, especially according to one observer (M. Thiemich) healed tuberculosis, then the matter of tubucular meningitis becomes more than a suspicion. If now the spinal fluid should be found under high pressure, clear in appearance or only slightly turbid and containing as much as 0.5% of albumin, a positive diagnosis is possible. The night cries might suggest hip disease and that must be ruled out. In children under a year old persistent vomiting with an elevated temperature and in whom there is no sufficient cause for the trouble in the stomach or intestines, tubercular meningitis comes into question.

Chronic nephritis of the interstitial type sometimes occures in children and may be evidenced by headaches, neuralgias, disturbances of vision and respiration. Uremia with vomiting is especially apt to suggest meningitis. But the high arterial tension and hypertrophied left ventricle point to the kidneys.

In the second stage with symptoms present directly referable to the central nervous system, such as ptosis, strabismus, nystagmus, pupillary changes, cervical rigidity, Kernig's sign and retracted abdomen, it is not hard to arrive at a conclusion, especially as lumbar puncture enables us to make a microscopical differentiation. The question of meningismus does, however, sometimes arise. I saw in Professor Mueller's clinic in Munich a man of about twenty-five who came to hospital with severe headache and vomiting, rigid neck and Kernig's sign, but in whom the spinal fluid was normal while the urine revealed an acute nephritis and the recovery was rapid under diuretics and restricted diet.

In older children when the onset of meningitis is abrupt it is more apt to be the epidemic form than tubercular. Likewise chronic basilar meningitis is usually due to the meningococcus intracellularis. Tubercular as well as epidemic meningitis may have periods of remission of symptoms or even apparent recovery so that a diagnosis is impossible without examination of the spinal fluid.

In pneumonia, meningismus is a more or less frequent accompaniment, though I have never seen it to a very marked degree. Typhoid in children may closely resemble early tubercular meningitis. After failure to find the deciding factors in a suspected case of typhoid fever in a child the spinal fluid will frequently show the presence of tubercular meningitis. It is in such cases that the von Pirquet reaction may be of value, before resorting to lumbar puncture.

A highly important group of cases that through error may easily be suffered to die under the impression that they are the victims of meningitis is that one of intestinal poisoning very ably described by Kimball of New York in the June number of the *Archives of Pediatrics*. It comprises children who present constipation, vomiting, convulsions, coma, sometimes amaurosis, strabismus or nystagmus and who usually react promptly to free intestinal irrigation even after catharsis had been apparently of no avail.

In conclusion, a brief mention may be made of the diagnostic points which seem to me to be all too frequently overlooked in the performance of lumbar puncture in tubercular meningitis. Categorically they are as follows:

1. The intraspinal pressure is high in the irritative stages. Its measurement should be made with a mercury manometer, in view of the inaccuracy of other methods.
2. The fluid is usually clear or slightly turbid, and may present a fine filmy coagulum on standing several hours. This coagulum is highly characteristic.
3. The albumin content is high. It may even be 0.7% and is usually about 0.2%.
4. As in all meningitides, Fehling's reagent is apt not to be reduced.
5. Tubercle bacilli can be found in 30-50% of the cases and always after death in the spinal fluid.
6. Lymphocytosis is usually present in the fluid except in the later stages, when polynuclear cells may predominate possibly on account of a mixed infection, though more likely because that protective function represented by the multiplication of the lymphocytes in tuberculosis and tuberculin reactions has been overcome and lost.

Discussion.

Dr. Hirschfelder: There is not very much to be said in addition to what Dr. Ebright has told us this evening as to the diagnosis of tubercular meningitis. Until the fluid has been removed and tubercle bacilli found, or a chemical examination of that fluid has been made, it sometimes is a matter of great difficulty to diagnosticate these cases. Of course, the history of tuberculosis in the family, the presence of enlarged glands in the patient, or other tubercular condition, will suggest tuberculosis. But in many cases the differential diagnosis between a non-tubercular meningitis or a sporadic form of cerebro-spinal meningitis, or even abscess of the brain following an affection of the ear, may be very difficult until a spinal puncture has been made. The Kernig symptom is not always present in meningitis, and it is more apt to be absent in the tubercular meningitis than in the cerebro-spinal form. In examining for the Kernig sign the examination should be made according to the method of Kernig. When Kernig first called attention to this sign he taught that the patient should be sitting up in bed, and while in this position the lower leg should be extended at the

knee, and where the Kernig symptom was present a complete extension was impossible and painful. It has likewise been observed that when that symptom has been tested a dilatation of the pupil is very apt to occur. In tubercular meningitis the Kernig sign is not quite as frequent as in the non-tubercular meningitis. Occasionally one will be very much deceived by the rigidity of the neck and the presence of the Kernig sign and will suppose a meningitis is present when absent. We had an illustration of that about two weeks ago in the clinic. A man was brought in with the history of a running ear of one year's duration without any other symptoms. About one week before entering the clinic there was a history of a chill and some fever and headache. He entered the hospital one night and the pupils were found to be equal. There was rigidity of the neck and a well-marked Kernig sign. The next morning the rigidity of the neck was even more marked than the night before and the Kernig symptom was also well marked. There was a complete paralysis of the right oculomotor nerve with right dilatation of the pupil, and thinking that in all probability it was a case of meningitis, we made a lumbar puncture. The fluid was not under pressure, but about 30 cc. were removed. It was turbid and contained a large number of polymorphonuclear leukocytes, the albumin content not being determined. The examination by the interne showed the presence of something that looked like meningocoeci, which a further examination proved to be nuclear detritus. Thirty cc. of Flexner's serum was injected into this patient. However, the patient died, and at post mortem no meningitis was to be found, but a very large brain abscess due to the trouble in the ear.

On the other hand, I remember a case at the old City and County Hospital of a child coming in without the Kernig sign and without the rigidity of the neck, but with running of the ear. A brain abscess was suspected. The child died before any operation was done. At post mortem no abscess of the brain was found, but there was an extensive tubercular meningitis. The examination of the fundus of the eye is likewise of great service in making a differential diagnosis between tubercular and non-tubercular meningitis. It may then be possible to find a tuberculosis of the choroid. The tuberculin ophthalmic reaction is also of importance. The lumbar puncture is the most important test and should always be resorted to. In the large majority of cases with sufficient care the tubercle bacilli can be found. Dr. Ebright has called attention to the fact that the polymorphonuclear leukocytes are sometimes found in a tubercular form, especially after the condition has lasted for some time. On the other hand, in the more chronic forms of the epidemic cerebro-spinal meningitis you likewise have lymphocytes present, so that a diagnosis based upon this fact is not always positive. The method that I have always seen used has been to test the extension of the leg at the knee in a horizontal position; finding it perfect, the patient then sits up, and with the feet hanging over the edge of the bed the extension is again tested. Where the Kernig symptom is present at about 45°, more or less, the extension becomes impossible. That differs from the method of Osler, who makes his Kernig while the patient is lying down, flexing the leg to a right angle, than extending the lower leg at the knee. This method has been investigated carefully by some one whose name I have forgotten, who made a determination of the angle by which the whole leg can be flexed at the hip joint, and he found that this joint varies very decidedly in normal individuals.

Dr. Wiel: I wish simply to make a remark with regard to the Kernig sign. What Dr. Hirschfelder has said is of great interest to me with regard to the method of test for this sign. It has been my fortune to have seen a number of different technics for determining the Kernig sign. I remember that Dr. Hirschfelder and I had some discussion with regard to this in the clinic. After that I met a distinguished neurologist here who took the Kernig sign in an entirely different way, and he claimed that it was the way that was used by Kernig himself, and that was to have the patient recumbent in bed and then make him sit up, and as he sat up, if he had meningitis it was decided by the flexion of the knee in the act of sitting. I have seen others have the patient sit up and flex the thigh on the hip and the leg on the thigh, and we have the patient sitting with his legs swinging over the side of the bed. The first named method seemed to involve the least extraneous stimulation. It differs a little from the way in which Dr. Hirschfelder has explained it and I should like to have it settled in my mind.

Dr. Ebright, closing discussion: Unquestionably lumbar puncture for relief of pressure can with profit be much more frequently performed in tubercular meningitis. A very few cases have recovered by so doing. But even if the patient is not expected to recover, much is accomplished toward adding to his comfort in keeping excessive intraspinal pressure down, as has been shown by Schlesinger and others. For example: I recently withdrew 40 cc. of the spinal fluid from a 22-months-old girl with tubercular meningitis, a little patient that had been restless all day, had not slept and had eaten only with difficulty. Immediately after the operation she ate heartily and slept all night.

A CASE OF BRAIN TUMOR.

By CAMILLUS BUSH, M. D., San Francisco.

On April 22nd, 1907, there entered the University of California Hospital, Thomas C., aged 24, an American, an iron molder by trade. Family history negative. The personal history was an unusually good one, the man being of temperate habits, having had no serious diseases, denying venereal infection of any sort. The only point at all suggestive was the fact that he had at one time, been a painter.

On entrance to the service of Dr. Moffitt he gave the following history: On the 27th of March, while engaged in pulling a truck at the Union Iron Works, he sustained an injury due to the truck running into a box in which injury his arms were violently twisted. He immediately noticed a faintness and a numbness in the right side of the face. He stopped work and during that same day noticed an occasional twitching of that side. The next day he resumed work and on attempting to lift a weight had another faint seizure. At that time his face pulled to the right again and he had some clonic convulsions of the facial muscles. His right arm also curled up with a flexing of the fingers and wrist. With these movements were associated a numbness of the arm extending to the shoulder. The patient quit work. Since that time the attacks have occurred every eight or ten days, the arm and finally the leg getting progressively weaker. Some light epileptiform attacks in the leg developed ten days after the injury. There has been some difficulty with the speech at times. The difficulty seems to be in pronouncing words. There has been occasionally headache, but no vomiting, before his entry to the hospital.

Upon entrance examination disclosed a well nourished young man who walked with a slightly hemi-

phlegic limp on the right side. On close inspection the right side of his face seemed to be slightly paretic. The muscular movements of the right arm and leg were also weaker than on the left side, the reflexes were increased, except the right epigastric, which was decreased. The most striking feature at this time, was the complete asteryognosis, the man being unable to recognize the nature of any body placed in his right hand. At this time there was no atrophy of the muscles of the right side of the body. The main motor disturbance was in the right arm, the muscles of the leg being slightly involved. No Babinski, no clonus. Examinations of the chest, abdomen, urine and blood were negative. Even at this time there were slight disturbances in sensation of the right forearm and hand, patient being unable accurately to localize pin-pricks and there being a definite hypalgesia on the dorsum of the right hand. No disturbance of temperature sensations.

Patient was under observation until June 12th, almost two months after his entry to hospital. During this time his symptoms steadily progressed until just before being transferred to the surgical side, there was a marked change for the worse in his condition. At this time his whole right side was almost completely paralyzed, paralysis being of the spastic type. The man could walk only by following the wall about to his right and supporting himself by it. The reflexes were greatly increased, there being a Babinski reflex, ankle and knee clonus, while the epigastric reflex on the right was abolished. The left side of the body remained practically normal. The muscles had begun to waste on the right. The asteryognosis was absolute. The other sensory disturbances more marked than before. Sweating on the right side was constant and muscular twitching on the same side having developed. At this time the examination of the eye-grounds by Doctors Hulen, Franklin and Moffitt disclosed a bilateral optic neuritis becoming progressively worse from the first examination, a month after admittance, until on the day before operation a choked disc was present. At this time the left pupil was larger than the right and the extent of the optic neuritis greater on the left side than on the right. The tongue deviated to the right. There was difficulty in getting food out of the right cheek. Percussion of the skull gave an apparently higher pitched note on the left side. The question of diagnosis in the mind of the medical staff lay between a functional or hysterical condition and an organic lesion involving, to all appearances, the left motor cortex. A few days preceding operation the rapid increase of the choked disc, accompanied by occasional vomiting, and the accentuation of the paralysis pointed strongly to the presence of a real lesion.

Taking the history into consideration, the suddenness of the onset, and the development of the case, it seemed that one of two conditions was probably present, either a glioma into which a hemorrhage had occurred, giving rise to the sudden onset of the symptoms, or a rapidly developing cyst of the brain.

The case was transferred to the surgical side and in the absence of Doctor Sherman, I performed the decompressive operation in the left parietal region on June 12, 1907. After a tube tourniquet had been applied around the head, a large, inverted horse-shoe incision was made so as to expose the whole of the left motor region. Trephine openings at the superior angles of the horse-shoe permitted the dura to be separated from the calvarium. The skull was divided between these openings by means of a gigli saw and the lower limbs completed with the aid of the Devilbiss forceps. The bone flap thus formed was broken down exposing a tense, non-pulsating dura. The dura was opened and the brain found to be bulging with flattened cortex and indistinctly marked convolutions. Beneath the cortex could be felt a mass directly under the pre- and post-central convolutions, apparently the size of a hickory nut and seemingly 1 or 2 c.m. below the surface. At this time, on account of the bad breathing of the patient, no effort was made to incise the cortex, and further explore the mass. The dura was left opened, the bone stripped off from the peristeum and completely removed. The skin was then carefully sutured with interrupted sutures of fine silk. Two small gutta percha drains were inserted, one through the temporal muscle and one through a small incision outside of the main line. Patient went back to ward in good condition. While going under the anesthesia he had had a violent and prolonged excitement stage, but the muscular movements were confined entirely to the left side of the body, the right side being as paretic as it had previously been about the hospital.

On the afternoon of the operation, patient recovered largely the power of motion of the whole left side. Almost as quickly, the spasticity disappeared, the reflexes coming back almost to normal, and the epigastric and cremasteric reflexes reappearing. For several days the patient had a marked edema about the left eye, doubtless occasioned by the too low application of the tourniquet. There was no evidence of a sinus thrombosis. In the course of the next two weeks the optic neuritis completely subsided, the subsidence being steady and gradual and repeatedly noted by Doctors Hulen, Moffitt and Franklin. The wound itself healed per primam and a very moderate bulging of the brain occurred. The only sign which did not greatly improve after this operation, was the asteryognosis which remained as before, absolute. Gradually, however, the brain hernia began to increase, becoming more and more tense and prominent. Associated with this increase in the tenseness of the hernia was a recurrence of his old symptoms, the right side became again more and more spastic, the reflexes exaggerated, epigastric reflex on the right more and more sluggish, the wasting of the muscles on the right more marked, muscular tremors more prominent and sensory disturbance of the right arm again marked. At this time there was a definite lead-pipe rigidity of the joints of the right side and the sweating of the body was constant. The sense of positions of his fingers and toes was interfered with. Associated with this was also an ataxia of the right arm and leg. He was unable, at this time, to feed himself with the right hand and his gait again became hemiplegic. There was no recurrence, however, of the papillitis.

Such was his condition when the second operation on September 3rd, 1907 was undertaken. No general anesthesia was administered, but the old scar was infiltrated with Sleich's solution, the incision made precisely in the line of the old incision so as to avoid as much bleeding of the scalp as possible. Everywhere dense adhesions were found between the scalp, periosteum and the retracted dura and the surface of the brain itself. At this time it was found that there had been a reconstruction of bone between the dura and the periosteum so that the lower two-thirds of the hernial opening were covered by a thin scale of new bone. On dissecting down to the upper part of the wound between the edge of the skull and the top of the new formed scale, a large cyst was opened into. This cyst lay within the cortex and overlying it was a thin layer of brain substance not over two or three m.m. thick. Two to three ounces of perfectly clear, slightly yellowish serous fluid were evacuated. This fluid clotted quickly. There was no demonstrable wall to the cyst, or at least one of such delicacy that it could not be separated from the surrounding substance. It penetrated to a depth of 7 to 8 c.m. below the surface and extended downward and backward toward the situation where the deep nodule had been felt at the first operation. The bottom and sides of the cavity, curiously enough,

seemed formed of displaced convolutions. The cyst did not at all present the appearance of the inside of the ventricle and was evidently a brain cyst that had approached the bulging and less dense portion of the calvarium. At the top and lower side a few pieces of what seemed the wall of the cyst were removed for examination. On account of the lack of definite lining it was thought best not to cauterize with any chemical. Removal of the wall was impossible. Drainage was not considered on account of the danger of secondary infection. The cavity was wiped out quite dry, the bleeding checked and the scalp carefully sutured with fine black silk. A snug head bandage was applied. During the operation the patient conversed freely, experienced no discomfort, and his pulse did not vary from normal. While the scalp was being closed he volunteered the information that the motion in the hand had improved. He complained of slight left-sided headache for about five minutes after the operation.

During the next few days there was again an improvement in all the symptoms with the exception of the asteryognosis. Improvement was almost as marked as that following the decompressive operation. In the course of the next five weeks, during which time I was away, the symptoms again recurred so that by the early part of November, the exaggerated picture existing before the last operation was again present. On November 4th the cyst was tapped and two ounces of amber, slightly turbid, fluid removed. Following the tapping, was again a slight improvement of all motor symptoms. During all this time there was no return of the optic neuritis. Within a few days, however, the hernia again became tense and bulging and the condition as before. The lack of a more definite improvement seemed to point to the supposition that he had a glioma infiltrating the motor cortex in addition to the cyst. The portion of cyst wall excised at the second operation was pronounced by Doctor MacCallum, at Johns Hopkins, to be a glioma and a return of the growth was predicted. This tapping was repeated in the latter part of November with the same result as before, that is to say, a transient improvement. Thereafter, at intervals of about two weeks, the cyst was tapped and always there was removed from two to four ounces of clear or blood-stained fluid. Each time there would be a let-up of the symptoms, but recurrence followed with the refilling of the cavity.

On January 23rd, 1908, a third operation was undertaken, this operation also being performed under local anesthesia. The flap was again turned down and dissected free from the surface of the brain. The dura was opened and the cyst incised. The whole cyst wall was found lined with tumor tissue to such an extent that the cavity was almost obliterated. It contained, however, some dark fluid. There was found a line of cleavage between the dura and the brain, and the mass was now enucleated piece-meal with the finger. The hemorrhage was inconsiderable. The cyst cavity was filled with salt solution and again carefully closed. The cellular tumor removed was friable and seemed to lie in definite lobes and lobules with fine vessels running over the surface. Microscopical sections showed the same picture as the previous section. At the time of this operation the patient expressed again no feeling of discomfort and was able to converse throughout the proceeding. But following the operation there persisted for several days an almost complete paralysis of the right arm, together with a marked motor aphasia. These new conditions gradually cleared up in the course of the following month. The spastic condition of the right side was somewhat improved, although the hand was practically useless.

Following the operation of removal of the tumor, the cyst refilled and was tapped three different times with the usual result of temporary improvement. During the last tapping the fluid came away quite bloody and just after the removal of the needle the patient had a violent convulsion beginning very suddenly with jerking of the right hand and arm and soon involving the whole body. During the day he had seven other such convulsions. On the following day the hernia was very tense and bulging, but the convulsions had ceased. Thinking possibly there might have been a hemorrhage into the cyst, the cyst was again explored under local anesthesia. It was found, however, to be filled with ordinary clear serous fluid. The surprising feature of this exploration was the absence of any tumor substance. The cyst cavity was wiped out with 95 per cent alcohol and the scalp again carefully sutured. On two other occasions in the next month the cyst refilled and was tapped with the usual result.

The fifth operation again under local anesthesia, was performed in August, 1908. On opening the cyst this time there were seen to be some adhesions between the sides of the walls. Again the cavity was wiped out with alcohol and again there was no evidence of any tumor mass whatever.

Soon afterward the patient was transferred to the City and County Hospital, where he has been ever since. For a long time there was no bulging of the hernia; the paralytic condition seemed to be stationary, that is, he was able to walk with a spastic gait on the right side, swinging his leg and arm, but was uncertain on rough ground and had little use of his right hand. His sight was good with no headache nor vomiting. About one month ago there was a pronounced fullness at the hernial site and Doctor Arthur Fisher, who had charge of him at the City and County, again explored the region of the cyst, but found no evidence of cyst nor tumor, the deformity apparently being due to adhesions and when these adhesions were released, the deformity disappeared.

There are at least three noteworty points in connection with this unusual case. The first is in connection with the remarkable disappearance of the tumor, or rather its cystic degeneration. It is not an unknown happening, as several men have reported similar cases in which a glioma has disappeared apparently with the formation of a cyst. This particular case evidences beyond a doubt that a solid glioma may gradually undergo degeneration to such an extent that the tumor mass itself disappears, and to this category probably belong the group of cases in which tumor symptoms disappear after decompressive operations. The fact may be accounted for on the supposition that the resulting cyst occupies a silent area and that the decompressive operation has guarded against pressure symptoms.

The second feature is one that was drawn attention to by Cushing and Thomas in their article on March 14th in the Journal of The American Medical Association, that is, that operations on the brain itself may be conducted without sensation. In this particular case it will be recalled that five separate operations were performed under local anesthesia.

The third feature of interest is the apparent definite localization of a center for the steryognostic sense. The asteryognosis was an early and constant sign, absolutely complete at the time when the brain lesion was small and subcortical and underlying the middle parts of the pre- and post-central convolutions. Of course its more accurate localization cannot be given in connection with this case, as the depth to which the tumor penetrated, or its accurate lateral expansion are not known. It seems likely that with the general acceptance of the fact that second stage brain operations may easily and safely be done without anesthesia, that localization of motion and sensation may soon be established beyond peradventure by electrical stimulation of the cortex of such conscious patients; and it is to be regretted that such stimulations were not carried out in connection with the present case.

Discussion.

Dr. Kaspar Pischel: I would like to congratulate Dr. Bush, not only that he can show us his case in such a good condition, but especially upon his courage to enter the skull before an exact diagnosis could be made. At the last meeting of the A. M. A. Drs. J. Berdley, Jr., and H. Cushing of Baltimore (Transactions of the Section on Ophthalmology, 1908, page 532) advocated "not only in many cases of cerebral tumors but in a number of other conditions, an early decompression." "Permanent alterations in the fields and loss of visual acuity invariably take place if choked discs are allowed to run their course, and in a very large proportion of cases complete blindness supervenes before death terminates the story, and indeed only too often in cases in which the primary lesion does not lead to a fatality. In a number of cases the choked discs have subsided after operation with complete restoration of normal visual acuity."

Dr. Herbert C. Moffitt: From the time the man was properly examined there was no question of the organic nature of his condition. The absence of abdominal reflexes on the right side was an early and striking feature. The asteryognosis was, of course, the focal symptom, and the symptoms from the motor tract were distant symptoms and were caused probably by the growth in the parietal lobe pressing forward on the pre-central convolution at the level of the arm and leg representation. If I remember rightly, at the first operation the needle was introduced in the middle of the post-central convolution and in the parietal lobe, because it is pretty well understood now that the steryognostic sense is represented chiefly in the parietal lobe. Diagnosis was made clinically of probable glioma with hemorrhage. It is fairly frequent to have sudden onset of symptoms due to a hemorrhage into a quiescent tumor. I remember one case of a man having sudden convulsions while on the ferry boat. This was followed gradually by hemiplegia, and the subsequent course of the disease and autopsy showed a glioma with evidence of numerous hemorrhages. The present man had probably a silent glioma into which a hemorrhage occurred following his sudden strain.

Dr. Emmet Rixford: I suppose that the hemorrhage reported as having occurred in the brain may to a considerable extent account for the presence of the cyst. It is comparatively common for hemorrhages in the brain as in other parts of the body to break down and form cysts. I do not wish to contradict the diagnosis of glioma but I should be obliged if Dr. Bush would make it clear whether the clinical course of the case and the pathological findings may not be explained on the occurence of a hemorrhage in the brain with subsequent cyst formation rather than on the occurrence of a hemorrhage in a pre-existing glioma which only at that moment began to cause symptoms and which subsequently underwent cystic degeneration and (after repeated evacuations) finally disappeared. The evidence of the presence of glioma is apparently not very conclusive. In the operation in which the cyst was first evacuated no definite tumor tissue was found but a portion of the almost undiscoverable wall of the cyst was removed and on being examined was pronounced to be gliomatous. Doubtless a certain degree of gliosis would occur about a blood clot or about a collection of fluid in the brain.

Dr Alfred Newman: This is a very pretty case. I would like to make a few remarks with regard to the technic. Dr. Bush says that he removed the bone covering of the brain. It is too bad that a case if often spoiled in post-operative results by succeeding traumatic epilepsy. A good many of these cases are followed by epilepsy where the bone box is removed and this is due to the adhesions forming between the scalp and the dura and the brain. Krause in his operation for brain tumors always leaves the bone intact and he told me he thereby escapes the resulting epilepsy. The one case I trephined for fracture of the skull I removed the bone and did not replace it and that patient developed epilepsy afterwards. Dura was opened in this case. The next case I got was one where the patient had received a blow from a horse's hoof in the frontal region. The first case of which I spoke was a fracture of the parietal bone. In the second case I removed the fragments but put them back and this man made a complete recovery without any succeeding epilepsy. Fragments here had been driven into brain tissue. It is too bad in these cases if we make a successful operation to have our results clouded by a succeeding epilepsy.

Dr. Camillus Bush: This tumor was definitely a glioma. There was little cap of tumor tissue on the top of the cyst. The second tumor removed showed exactly the same histological structure as the first. I think with regard to the point made by Dr. Newman, that in the decompressive operation the bone should be removed. Of course in traumatic cases the removal of a clot should be done with preservation of the bone flap.

TUBERCULOSIS OF THE KIDNEYS.*

By WILLIAM FITCH CHENEY, M. D., San Francisco.

Tuberculosis of the kidneys is a subject of interest to three different groups of investigators; to the specialist in internal medicine, the specialist in genito-urinary diseases and the general surgeon. The first and the second are concerned particularly with its recognition, the third with its cure. By the efforts of these various workers, our knowledge of this subject has been greatly extended during the last few years; until now we recognize the disease more readily and cure it more certainly than ever before. Early diagnosis and early nephrectomy after exact tests of the function of the other kidney—these are now conceded to be the essentials for successful treatment.

Etiology. How do tubercle bacilli reach the kidneys? Obviously by one of two ways: by the blood or by ascending infection through the ureter from the lower urinary tract. The pathway from below upward used to be considered the most common, but the frequency of this route is now questioned. Tubercle bacilli are occasionally found in the urine of tuberculous patients, even when autopsy discloses no disease of genito-urinary organs. It seems more likely, therefore, that where ureter, bladder, prostate, seminal vesicles or testicles are found diseased co-incidently with kidney, the infection has been from above downwards, kidney first and the other organs afterwards; or else it has been entirely independent and merely contemporary. Ascending infection is not considered impossible but simply less frequent than hematogenous infection.

In case of hematogenous infection, how have bacilli entered the blood? The kidney infection may be only a part of a general tuberculosis, miliary in pathological type, and in such case acute in clinical type and running a rapid course. But kidney tuberculosis is usually very chronic and the question then arises, is the kidney infection primary or secondary? The possibility of a primary tuberculosis of kidney

* Read before the Cooper College Science Club.

is admitted, though its hematogenous origin can not then be easily explained. Is there always in such cases a primary focus somewhere in the body, unrecognizable clinically, to which the kidney focus is secondary? The mode of origin, whether hematogenous or by ascending infection, has much to do with determining the site of the pathological process in the kidney.

Pathology: Two distinct types of lesion are found: one in the cortex, from embolic infection, with the formation there of one or several discrete, localized tubercular nodules, that ultimately caseate and discharge; and the other in the pelvis, from infection of the pelvis primarily, either by tubercle bacilli in the process of excretion from the blood or by bacilli ascended along the ureter. In the first case, tubercular nodules may long exist without producing changes in the urine, though the patient gives constitutional evidence of infection, such as fever and disturbed nutrition, and local evidences such as pain and dragging sensation in the back. In the second case, the urine constantly contains pus and blood in varying amount, as in any pyelitis; while the process advances gradually to a pyo-nephrosis and the kidney substance is slowly destroyed. In either pathological type it is now recognized that the disease may for a long time remain unilateral; and hence the value of early diagnosis and nephrectomy, while the other kidney is still sound.

Symptoms: These are very variable and must therefore be considered under several different heads: 1. *Symptoms referable to the kidney*: Under this head comes (a) pain in the back on one side more than on the other, similar to that felt in impacted stone, increased by any jar of the body; (b) a dragging ache, similar to that caused by movable kidney when the patient stands long on the feet; and (c) recurring attacks of colic resembling those produced by the passage of a calculus but due here to the passage of purulent debris and of blood clots. 2. *Symptoms referable to the bladder*: Under these are included irritability, frequent desire to void urine, pain during the act, and polyuria; these symptoms due either to coincident tuberculosis of the bladder or to reflex irritation from the kidney lesion. 3. *Symptoms referable to the urine*: Sometimes the sole complaint is of a urine always turbid, but without any discomfort associated with its passage; one of my cases was conscious of no disease until he was rejected for life insurance because of turbid, purulent urine. Again the complaint is of recurring attacks of bloody urine, which may occur without any symptoms except this to cause the patient alarm. 4. *Symptoms referable to the general health*: The patient complains simply of weakness, lack of energy, loss of weight and of appetite; with or without any of the symptoms previously described, to point to the kidneys as the seat of disease. Thus the symptoms may be all local or all general, and in the latter case the kidney is apt to be forgotten as a possible site for tuberculosis.

Methods of Examination: With a history pointing to the kidney as possibly or probably tuberculous, the means at our disposal for reaching a diagnosis are as follows: 1. Physical Examination: Normally the kidneys are not palpable; when they are, it is only rarely that their size or contour is sufficiently changed to enable us to diagnose tuberculosis by this method alone. A kidney not only prolapsed but also enlarged and irregular in outline, is a suspicious one but that is all. Furthermore, attention has been called to the fact that an enlarged kidney is often the healthy one, hypertrophied to compensate for some disease in the other which has destroyed or greatly decreased its function. 2. Examination of the bladder urine: Investigation ordinarily shows pus and blood corpuscles in varying amounts, but they may both be absent if the tubercular nodules do not communicate with the kidney pelvis. The urine is usually acid, eliminating decomposition in the bladder, and desquamated cells from the bladder are not found as in cystitis. Tubercle bacilli may be found in stained specimens of the sediment, but are not usually; and if apparently present, must be carefully differentiated from smegma bacilli. 3. Examination of urine from each kidney: By this method the bladder wall is inspected incidentally and the mouth of each ureter, so that cystitis and localized tuberculous patches can be seen if present. Each ureter is catheterized separately and the urine from each is then examined, to determine from which side the pus comes and whether one kidney or both are diseased. Tubercle bacilli may or may not be found in the stained specimens, but the only reliable proof of their presence or absence is obtained by injection of guinea-pigs with the urine intra-peritoneally. 4. The use of tuberculin: The subcutaneous injection of tuberculin, if renal tuberculosis is present, gives a threefold reaction: (a) the local reaction—redness and infiltration and tenderness of the skin about the site of injection; (b) the focal reaction—increased frequency and discomfort in urination, pain over the kidney radiating down towards the bladder, sometimes a typical attack of renal colic, and usually an increased amount of pus and blood in the urine; (c) the general reaction—fever, headache, nausea and vomiting and general malaise.

The diagnosis must always consider not only one kidney but both, and not only the kidneys but all other organs likely to be coincidently involved, as the bladder, testes and prostate, and outside of the genito-urinary tract, the lungs, lymphatic glands, peritoneum and intestines. Supposing that no focus of tuberculosis has been found elsewhere than in one kidney, the function of the other kidney must be still carefully tested before nephrectomy is advised.

During the past year I have seen two cases positively proven to be renal tuberculosis, besides two others still under observation, where the diagnosis is probable but not yet positive. The two positive cases were as follows:

Case I. A young lady, aged 25, was brought to me by her physician in December, 1907, because of recurring attacks of pain in the right side of the back and abdomen. In August, 1906, she had a fall, sliding down a snowbank and striking violently on

her back. Following that she began to have pain on urination, but the urine remained clear. In November she had an attack of pain in the back on the right side, running down into the bladder, with frequent urination and vomiting, but no fever, the whole attack lasting about two hours and very severe. This was repeated about Christmas, 1906, and since then such attacks had recurred irregularly during 1907. Between her paroxysms she was in poor health, tiring easily, very nervous, and with a dull ache in her right side and back if she was long on her feet. Following the attacks she had frequently noticed a thick, muco-purulent discharge from the urethra, streaked with blood; but at all other times the urine was clear and gave an absolutely normal analysis. Examination showed a prolapsed kidney on the right side, descending so that the lower pole was distinctly palpable on deep inspiration, but not so that the kidney could be caught and retained. A smear made from the urethral discharge following one of her attacks of colic was examined by Dr. Ophuls, who reported as follows: "Smear shows many polynuclear leukocytes, some lymphocytes, a few groups of slender, irregularly staining bacilli that are not decolorized by 1 per cent alcohol." A guinea-pig was at the same time inoculated with the mixed bladder urine showing purulent flakes, and on January 8, 1908, Dr. Ophuls reported: "Guinea-pig shows marked tuberculosis of omentum, peritoneum, spleen, liver, lungs and lymph glands." Catheterization of ureters was then done by Dr. Rixford. The urine from right kidney showed pus corpuscles and tubercle bacilli; from the left kidney the urine was normal. The right kidney was therefore removed by Dr. Stillman on January 27th, and was found to contain two caseous nodules in its upper pole, both proved by subsequent examination to be tuberculous. The patient recovered promptly and remains perfectly well at this date.

Case 2. A man aged 49 consulted me on March 11, 1908, because he had been rejected for life insurance on account of pus in his urine. He considered himself perfectly well, had no increased frequency of urination, no dysuria, no discomfort of any kind and his general health was unimpaired. His urine, however, was very turbid and cloudy and showed an abundance of pus corpuscles but no casts. This condition of the urine was constant on repeated examinations. No mass could be palpated in either kidney region, and neither kidney was prolapsed. Physical examination was in every respect negative. Regular use of hexamethylenamine caused no decrease in the amount of pus. The man was therefore referred to Dr. R. L. Rigdon for catheterization of ureters, and this was done on March 25. From the left ureter, clear urine was obtained; the right ureter could not be entered. The mixed urine from the bladder was submitted to Dr. Ophuls and a guinea-pig injected intra-peritoneally. One month later the pig was killed and found to have general tuberculosis. The patient was therefore advised that he had tuberculosis of the right kidney and was urged to have the kidney removed. This he refused to do. July 21 I received a letter from the patient's physician in Oakland, Dr. E. G. Wood, stating that the man had developed some cerebral complication, with dazed mentality, imperfect speech, inability to articulate, lack of co-ordination in muscles, one dilated pupil and a train of symptoms suggesting cerebral hemorrhage. Knowing the kidney condition, I felt convinced that there had been a secondary tubercular involvement of the brain and so advised Dr. Wood. The patient died August 20. After the onset of his cerebral complication in July, he gradually grew worse, with a train of symptoms indicating an organic brain lesion. He lost all idea of time and place, had marked aphasia and incontinence of urine. On the morning of August 19 he lost his sense of hearing and rapidly lapsed into unconsciousness, dying early on the morning of the 20th. Autopsy showed the left kidney normal, but the right one practically destroyed, the whole parenchyma being converted into a pus cavity. In the brain, the right hemisphere was normal, but the left contained quite a large tumor with degeneration of the brain tissue about it. Specimens from kidney and brain submitted to Dr. Martin Fischer for pathological examination showed both conditions to be tubercular.

Discussion.

Dr. Krotoszyner: Dr. Cheney reported in his paper a case of renal tuberculosis which was quickly followed by fatal tubercular infection. I have seen similar cases; that is, cases that came to the physician too late for successful treatment and which were not diagnosed correctly until general infection had set in. It is unfortunately true that the correct diagnosis of renal tuberculosis, especially in its incipiency, is rarely made. That may have its reason in the fact that the majority of patients suffering from renal tuberculosis offer a very good general appearance not suggesting the presence of such a grave lesion. The second reason for not recognizing renal tuberculosis is, that in almost all instances bladder symptoms exist which are diagnosed and treated as a single cystitis. The knowledge has not yet taken root sufficiently in the mind of the average practitioner that in the great majority of all cases urinary tuberculosis is a hematogenous affair which begins in one kidney and which is cured by a timely removal of that organ. There exist certain symptoms in renal tuberculosis which if correctly interpreted would permit the careful observer to arrive at a correct diagnosis. Upon close inquiry the patient will complain of sensations in either side of the abdomen, in the region of the ileum, the hip, the femur, the os sacrum, a cold feeling in one loin, unilateral pains in one-half of the bladder or one-half of the penis, the labia, or vagina. Sometimes these pains are only noticeable with micturition, sometimes they are independent of urination. The site of pain is always corresponding to that of the diseased kidney. Sometimes a very painful paroxysmal tenesmus with evacuation of a few drops of clear urine is complained of, a symptom upon which Israel lays particular stress. There also exist three typical points over the ureter of the infected side; next to the kidney pelvis, at its entrance into the bony pelvis and at its entrance into the bladder. If any or several of these symptoms are present and if a patient complains of frequent and painful urination without any palpable cause for this phenomenon (gonorrhea, catheterization), and if this bladder-infection is not improved by the usual treatment, and if besides that the patient complains of an occasional hematuria (appearance of one or a few drops of blood at the end of micturition), then a conscientious physician is justified in suspecting renal tuberculosis. If under such conditions at the hands of a well trained urologist a cystoscopical examination would be made, by which the source of the existing pyuria could be traced to one of the kidneys, and if the centrifugilized kidney-urine would be injected into a guinea-pig, then the diagnosis of unilateral renal tuberculosis could be made comparatively early and the treatment would, in the majority of cases, result in a complete cure. In spite of what has been said of the efficacy of the tuberculin preparations in unilateral kidney tuberculosis, I am in favor of an early nephrectomy, a procedure which in the hands of experienced renal surgeons such as Israel, Albarran and others, has given uniformly good results.

Dr. Krotoszyner presented the right kidney of a patient with the following history. The patient is a young lady of twenty-one with a tubercular family history. After some great exertion during the time of the earthquake (carrying two heavy suit cases),

she became sick with pain in the right loin and bladder with frequent and painful micturition. The patient was seen by Dr. Bailly in February, 1908. He was able to catheterize both ureters; in both kidney-urines acid-fast bacilli were found, while none could be found in the bladder urine. When I was called in to cystoscopize the patient I was only able to enter the left ureter; the right ureteral orifice was hidden by a cauliflower mass measuring about one inch in diameter. Repeated attempts at ureteral catheterization on the right side were unsuccessful, including one attempt to enter the right ureter with the aid of chromo-cystoscopy (injection of 4 c.c. of a 4% indigo carmin solution). Although this test was made under general narcosis where ample time and opportunity was presented for careful observation of both ureteral orifices, I was not able to enter the right ureter. Although on the left side blue urine appeared 12 minutes after the injection of the colored solution, nothing suggestive of a ureteral orifice was noticeable on the right side. Dr. Bailly refused to operate, although a very much enlarged kidney could be palpated on the right side, and though I was reasonably satisfied of the existence of a rightsided renal tuberculosis. The patient went home and Dr. Bailly went to Europe. During his absence the patient's symptoms deteriorated to such an extent that she decided not to wait for her physician's return, but entered St. Mary's Hospital, where I found her looking very well but complaining of frequent and very painful micturition. Urine cloudy, microscopically containing abundant pus cells, many blood and round epithelial cells (kidney epithelia). The right kidney was palpable and very much enlarged. The temperature varied between normal and 101°. Patient had gained in weight of late. Cystoscopical findings about the same as noted above, except that the fungus in the right ureteral region had grown in size. All attempts to find and enter the right ureter by a catheter were futile. I therefore left a large ureteral catheter for some time in the left ureter collecting the urine from the right kidney by means of a bladder catheter. Two guinea-pigs were inoculated with the sediments of either urine, and Dr. Ophuls reported that the pig inoculated with urine from the bladder showed typical tuberculosis of peritoneum, spleen, liver, lymph glands, etc., while the guinea pig inoculated with urine from the left kidney showed no tuberculosis. Upon these findings a nephrectomy was made on the right side and the kidney removed which I have the honor to present to you. Dr. Ophuls reported as follows upon his examination: Calcified caseous area in one of the calices surrounded by hard white tubercles; many grayish white submiliary nodules in renal pelvis. Sections show much new formed granulation and cicatricial tissue. In adjoining kidney tissue many tubercles composed of large epithelial cells, many large giant cells of Langerhans' type. No caseation in separate nodules. Similar nodules in renal pelvis. Diagnosis, old stationary tuberculosis of kidney.

Dr. G. L. Eaton: Dr. Cheney spoke of the injection of tuberculin for diagnostic purposes. I have witnessed on one or two occasions this process of diagnosis, and I find that from the injection of tuberculin you will have, providing the case be tubercular, considerable reaction, and we are liable to light up foci to activity in other parts which might prove very serious to the individual. There are other methods in the diagnostic line at present for bringing out the differential diagnosis, such as the application of a 1% tuberculin solution upon the scarified arm, whereby if the case be tubercular, the reaction appears within 24 hours and the patient is not subjected to any serious result. Then, if you care to use tuberculin as a therapeutic measure, you will not be required to wait for all the symptoms produced by the injection method to pass over, and at the same time your patient is safe for the time being. Israel has brought out a very interesting diagnostic differentiation. He injects the tuberculin in minimum doses so as to set up a proliferation of the bacteria in the kidney; he then catheterizes both ureters. If he finds an increased amount of bacteria or leukocytes from the two kidneys, it is a question whether it is advisable to remove the one individual kidney that is at fault for fear there may be an extensive focus in the other, as it is next to impossible by catheterization to determine how extensive the trouble may be. With ureteral catheterization, you will be able, on different occasions, to get urine free from pus from a kidney, and on the following day, or in fact a few hours afterwards, it will be purulent. I remember one case in particular, where the catheterized a. m. urine would be free from pus, but in the afternoon, when the temperature would start up, I would get purulent urine from the same kidney. So far as ureteral catheterization is concerned, we cannot rely upon it from a diagnostic standpoint as to the amount of tubercular degeneration that has taken place. Further, we cannot expect from these new methods of tuberculin vaccination to differentiate the unilateral or bilateral infection only in the way hereinbefore mentioned.

Dr. Stanley Stillman: So far as the question of an ascending or descending infection is concerned, my own experience has been decidedly such as to lead me to believe tuberculosis of the kidney to be a hematogenous infection, and if the bladder is affected at all it is secondary. I have seen primary tuberculosis of the bladder in but very few cases, in fact two only, and in neither of these cases was there any renal tuberculosis following. One of these cases was very interesting, being a man who weighed 210 pounds, the picture of robust health, who was brought to me on account of a sudden bladder disturbance and the passage of blood in the urine. We attempted to do a systoscopic examination, but the urine was so full of blood that it was not successful. We finally succeeded in getting a picture of what we thought to be papilloma of the bladder. We opened the bladder, but no papilloma was found. The whole bladder was as red as fire and the condition was not recognized by either Dr. Rigdon or myself; there was nothing suggestive of tuberculosis. The urine had been examined and tuberculosis had been thought of, but no bacilli were found at any time on repeated examinations. A guinea-pig was inoculated just because we did not know what else to do. The bladder was treated as a case of acute cystitis. The man had only recently been married and was a young fellow of 23 or 25 years of age. On account of the distress and the intense pain with a persistent hemorrhage, the bladder was drained for more than three weeks; at the end of that time we got a report that the guinea-pig had decided tuberculosis in all organs. That was the first line we had on the diagnosis. I left for Europe at this time, but the patient was subsequently given tuberculin treatment. The bladder opening did not heal and a fistula followed with subsequent tubercular peritonitis. The man is now in good condition and at no time has there been any sign of kidney involvement. If that man did not have an ascending infection I do not see how any one can have. I have seen a number of cases of primary tuberculosis of the kidney. The interesting feature is that, although you may have quite an amount of cystitis around the mouth of the ureter even to the size of a dollar, and

the ureter itself one-half as large as a lead pencil and the wall studded with tubercles the cystitis heals after nephrectomy. Of a number of these cases after removal of the kidney I have seen but one in which there was any subsequent trouble with the ureter or the bladder. Tuberculosis of the ureter and bladder subsided entirely after the removal of the affected kidney. In a case of which Dr. Cheney spoke we left the ureter cauterizing it with pure carbolic leaving it projecting ½" below the lower angle of the wound so that we would have no difficulty in finding it. The patient was not very robust and it seemed unwise to dissect the ureter and remove the vesicle end of it through the vagina as would have to be done. I saw this patient two or three months after the operation and the mouth of the ureter was oozing a floculent material suggesting a tubercular discharge. The ureter was again mopped out with a probe of carbolic acid and it is now more than a year and a half ago and there has been no further trouble. There was a patch around the orifice of the ureter as large as a dime, bright red and very distinct with the cystoscope. There have been no further symptoms of bladder tuberculosis. I had another case of primary tuberculosis in the bladder of a woman whom I treated by drainage and I drained the bladder for a month or six weeks at a time on three different occasions deliberating making a vesico-vaginal fistula giving complete rest and drainage to the bladder and although my results were not satisfactory at the time, still the girl has entirely recovered from her bladder tuberculosis and it is now four or five years since I discharged her. She shows no sign of kidney tuberculosis. I have seen other cases which have convinced me that bladder tuberculosis very seldom involves the kidney and very frequently a vesicle tuberculosis secondary to a renal tuberculosis will subside. The surgical question of the removal of a portion of the kidney is interesting and possibly if we can split the kidney and determine that the upper pole is normal and healthy and shows no abscess or infection, it ought to be saved as we would do in similar operation on any other organ and not sacrifice the entire kidney. So far, however, the results have not been encouraging. The operation itself in those cases in which the disease has not reached the suprarenal tissues and in which there is no infection of the suprarenal tissues, is not at all difficult. On the other hand, where the disease has reached the suprarenal tissues and where it is difficult to loosen the kidney, I have found the operation as difficult as anything I have ever undertaken.

Dr. Cheney, closing: With regard to the use of tuberculin I have never seen any bad results from it. I meant to imply in my paper that it was only one method of diagnosis and not to be depended upon alone any more than the vesical, mechanical or microscopical examinations. There is only one conclusive test and that is the guinea pig test. I had a case recently in which I used tuberculin where I had a decided reaction, not only local but focal. I made a mistake in this case in using it before the ureters had been catheterized. The attempt was made a few days later to catheterize but was unsuccessful. Following tuberculin this young lady had attacks of renal colic on the left side, with pus and blood in the urine, but the urine could not be obtained by catheterization after the tuberculin had been given; since that time the left ureter has been successfully catheterized. Here we had the effects of the tuberculin upon the ureter, causing swelling and injection which interfered with successful catheterization; and on the other hand the collection of pus and blood following the reaction of the tuberculin.

REPORT OF A CASE OF SOMNAMBULISM RELIEVED BY HYPNOTIC SUGGESTION.

By G. H. RICHARDSON, M. D., late First Lieut., M. R. C., U. S. A.

The intense interest taken at present by the thinking public in the cure of disease by other means than the administration of drugs or by surgery, and which expresses itself in the rapid growth of such organizations as the "Christian Science Church" and the "Emanuel Movement," makes it incumbent upon the medical profession to study critically every morbid condition that is essentially functional in character and to use in the treatment of these disorders such measures as experience and scientific investigations have proven of value.

For a physician to consider contemptuously this subject shows him to be either arrogant or ignorant and in the mind of a conscientious seeker for information there would develop toward him, either a sense of resentment or a feeling of disgust.

I have reported this case with a view of stimulating further investigation in similar conditions and to anticipate the charges of indifference and prejudice, which are already being made in some quarters, to the detriment of our profession.

Our patient pronounces his name something as follows: "Marusa hyusa waguny, Baraya wanayo malingo maderix." The name which he uses to sign the pay-rolls of Troop —, — Cavalry, U. S. Army, is W. S. ——, as the surname is in some way a modification of his Arabic birthright.

He was born on the 28th day of December, 1864, in Kelo-majaro Land in Central Africa, which is about 2000 miles from the mouth of the Zambesi and 80 miles south of the Great Desert. This country is even now uninhabited by white men and is to be included in the itinerary to be taken by Mr. Roosevelt when he seeks in Central Africa the haunts of the largest wild animals now known to exist.

His father was a native of Eden on the Arabian Gulf, where, as a young man, he was engaged in a continuous struggle against Turkish aggression. Forced by the fortunes of war to leave Arabia, he went to Pretoria, South Africa, where he married a lady born of Arabic and Holland-Dutch parentage. Naturally nomadic in character he took his bride, with about eighty camp followers, to the country before mentioned where he became engaged in the killing of elephants, and from the ivory thus furnished derived a considerable income. Here nine children were born of whom the subject of this article was the eighth.

The lad grew therefore practically in the wilderness, acquainted with the ways of the forest and the excitement of hunting. He often accompanied his father on the excursions necessary to procure the elephants and on one of these, remembers meeting Sir Henry Stanley, when the great explorer was making his fourth expedition. When he was eleven years old he was sent to Cairo, Egypt, to be educated, and here he remained for two years. From that city he went to Germany returning when

sixteen to the wilderness where for three years more he joined with his father and brothers in the search for ivory. At nineteen, his father having selected for him a military career, he went to Constantinople where for three and one-half years he attended the Turkish Military College and from which he graduated with a commission. He was assigned for duty with troops delegated to subdue the Armenian Revolt. Being horrified with the measures taken to subdue these people—and having trouble with his superior officers, he deserted the Turkish Army and in the disguise of a peddler fled to Greece.

After wandering through Northern Africa for nine months he returned to his father's home only to leave soon for fear of apprehension by Turkish spies. He "treked" across Central Africa with a small band of natives reaching Kimberly, South Africa, when about twenty-three years old. He remained there for about six months and being well supplied with money by his father, left for the United States on a trip of pleasure and education. He traveled extensively for several years over this country and across the Pacific, spending one year in China. Here rumors of the threatened Anglo-Boer war reached him and he hastened back to South Africa, arriving there three months before hostilities were declared. He immediately,—with his relatives,—joined the Boer Army, receiving his baptism of fire at Spion Kop where he was slightly wounded and where his father, one brother and two sisters were killed. To divert, he states that in his regiment one-fifth were women who joined with their fathers and brothers in the hardships of the campaign. At the battle of Modder River he was severely wounded and captured by the British forces, sent to Ceylon as a prisoner of war, released in July, 1902, at the close of the hostilities.

He came to the United States again in January, 1903, and in the spring of 1906 enlisted at Fort Logan, Colorado, as a recruit for the Coast Artillery Corps at San Francisco, California, where after serving three months, he was sent to the hospital with muscular rheumatism of both legs.

While here he awoke one night to find himself on the beach near "Harbor View"—a distance of about 1000 yards from the hospital,—clad only in a pajama suit. Realizing the character of his offense in being absent without leave, he hid himself, returning stealthily during the night, obtained his clothes and left the hospital.

Embarrassed and confused by these events he went to Monterey, California, where he enlisted in Troop X, Y Cavalry, U. S. Army. Naturally, he was soon apprehended for fraudulent enlistment, tried and convicted; but owing to his excellent character and the peculiar circumstances, his sentence was mitigated to twenty-one days' confinement in the guard house. His enlistment expires in July, 1909, and he is desirous of remaining in the Army, having been educated for the military service and having no other trade or profession.

A physical examination shows him to be well developed and muscular in appearance. He is 66½ inches tall and weighs 165 pounds. There are no stigmata which would show a nervous temperament except a rapidity of speech which might be considered as due to his nationality. All the organs of his body seem to be functionating normally and there is no evidence of constitutional disease. He is of fair complexion with brown hair and light eyes which show his Dutch extraction and that his father was evidently from the north of Arabia. He speaks the German, Turkish, Arabian and English languages, and is versed in the varied dialects of the natives of Central Africa.

He is rather reclusive in his nature, preferring to spend his time in reading rather than in the companionship of other soldiers. He has never suffered from a severe illness, but is frequently troubled with muscular pains in the legs which he attributes to hard military service in Armenia. When about four years old, he began to have somnambulistic attacks which, so far as he knows, are of no definite causation. His father was afflicted with the same trouble in a moderate degree and it is reasonable to suppose that heredity has some bearing upon the formation of the habit. As a child he was compelled to be tied in bed to prevent wandering away in his sleep. He states that the attacks were more frequent in the rainy season and during the full of the moon; that they recurred with short periods of intermission until he was twenty-six years old. At school he was handcuffed every night to keep him confined in his room. He never fell or hurt himself during the attacks; and at all times he was capable of being controlled by any person whom he recognized as having authority over him.

For eleven years, the interval between his twenty-sixth and thirty-seventh birthdays, he had no attacks. They began again when he was a prisoner in Ceylon and have gradually increased in severity and frequency until during the past six months they occur on the average of every other night.

These attacks are seemingly influenced by the character of work which he has performed during the day. If he has, for instance, been cleaning his equipment he will endeavor to do this in his somnambulistic state.

He usually retires about 7 o'clock in the evening and immediately falls into a heavy, almost unnatural slumber. In a short time,—about fifteen minutes after he is asleep,—he will arise from his bed and wander off to the stables, or as noted in his personal history, to some place distant from his home.

For some time he has been sleeping in a room near the stables which,—at bedtime,—are closed with heavy timbers to prevent him from leaving his abode.

His comrades describe many peculiar and almost impossible feats of strength that he has performed while in these attacks. He has been seen to throw a cannon ball weighing 56 pounds for 40 feet, to break large pieces of timber, to walk on his hands on the pinnacle of a slippery roof and many other incredible acts which in his waking moments he is unable to do.

His case was first brought to my attention during the latter part of August, 1908. It seems that he

had accompanied his troop to a "night-drill" which was held in the woods above the post. While remaining stationary and awaiting orders his troop commander saw him suddenly leave his position in ranks, and drawing his saber start in a mad gallop for an adjoining hillock in the open. Here he remained for some time, gesticulating wildly and singing at the top of his voice, a weird Arabic song. His commanding officer,—who had lately joined the troop,—desired to place him under arrest and take away his saber; but at the suggestion of one of the older sergeants deferred doing so until he should become more quiet. In the meantime, a sergeant with whom our patient was quite friendly, went to him and told him to go to the stables, put up his horse and equipment and go to bed. This he immediately did, without any show of remonstrance, and the next morning said that he remembered nothing of the occurrence,—save being sleepy while in the woods,—until he found himself undressed and in his own bed, a period of about two hours.

This took place on Thursday evening and on the day following I discussed at length the case with the officer, requesting that the man be sent to me for examination. I recognized, when talking with him and taking his history, the uselessness of drug medication, for this had been tried by the man himself on many occasions.

I concluded that the somnambulistic state was due to the influence of his "subconscious mind" upon a nature particularly susceptible and that if I could obtain the man's confidence I could suggest to him the fact that these attacks were unnecessary. I therefore made arrangements for another interview and believing myself competent to assist him, I placed him in a hypnotic state.

While he was in this condition, I authoritatively told him that these attacks were controllable and that, as a post-hypnotic suggestion, he should report to me 5 days later precisely at 10 a. m. I awoke him from his sleep and was glad to find that he came to my office at exactly the hour I had specified. When I asked why he had reported at the hospital, he could give no definite answer but that he "had an idea that I wished to see him."

Not being satisfied with my first effort and wishing to make a more pronounced effect on his memory, I again placed him in a hypnotic state and while in this condition I suggested that he would revert to that period in his life when the attacks had entirely left him and when for eleven years he was practically cured, insisting that, if he could be relieved for eleven years, the attacks were unnecessary and could be controlled.

I gave him another post-hypnotic suggestion which was again successful. Sufficient time has not elapsed for me to say that my efforts will be ultimately curative but he has had no somnambulistic attacks for several weeks, while before the treatment was instituted they occurred at least every other night.

The man realizes that his usefulness as a soldier depends upon his being entirely relieved of the habit and is working in complete harmony with me in my endeavors to restore his control over his sleeping state.

Note: About eight months have elapsed since I last treated this soldier, and he ever since has been entirely free from his somnambulism. He informs me that his self-confidence and general health have improved, and that he is positive that he will never again need my services.

REMINISCENCES OF TEN YEARS AS COMMISSIONER OF HEALTH IN CHICAGO, AND SUGGESTIONS FOR THE FUTURE.*

By ARTHUR R. REYNOLDS, M. D., Chicago.

In April, 1893, I was first appointed Commissioner of Health for the City of Chicago, where that official, under the Mayor and City Council, is the supreme sanitary authority.

At that time the sewage of the city emptied either directly into Lake Michigan or into the Chicago River, which in turn emptied into Lake Michigan. The Illinois and Michigan Canal connected with the south branch of the Chicago River at Bridgeport, about two miles from its mouth.

In the early days of the canal there was a light flow from the lake through the Chicago River into the canal, on into the Desplaines River and thence toward the Mississippi River, thus reversing the current of the Chicago River. Large pumps had been installed at Bridgeport and the streams so augmented that for a number of years a flow was maintained from the lake to the canal in ordinary dry weather, but in times of freshet the whole corrupt contents of the river were swept into the lake. The water supply of the city came from the lake. Typhoid fever had been prevalent for years and reached its height in 1891.

It was generally recognized by physicians that something should be done to protect the public from the evil effects of drinking the impure lake water.

The ordinances said it was the duty of the Commissioner of Health to give the Mayor and City Council advice upon all sanitary matters, and without further consultation I sent an official letter to the Mayor and City Council recommending that the capacity of the Bridgeport pumps be at once doubled. To my mind this was the quickest way to safely get rid of the foul sewer water.

The next morning I learned by the newspapers that my communication had created something of a sensation, for we were on the eve of the opening of the great World's Fair. Early in the day I was summoned to the Mayor's office and asked by that official why I had sent a letter to the Council on the water supply. I answered that the people were sick and dying from the effects of drinking the impure water. The Mayor said, "Young man, don't you be so —— anxious to find fault with our water supply. I have been drinking the lake water for forty years, and look at me."

That Mayor had more than a National reputation for mental acumen and intellectual attainments; the incident is recited only for the purpose of showing

* Read before the California Public Health Association, San Jose, April, 1909.

the state of public opinion at that time with reference to water-borne diseases.

By interviews published in the daily press and weekly bulletins published by the Department, we pointed out on all possible occasions the danger of the water and recommended that it be either boiled, distilled or filtered before using. The newspapers printed conspicuously our daily analysis of the water and kept for a time standing on the front page the phrase "Boil the water" and in addition, gave the question frequent editorial emphasis. All of which was copied and reprinted in scores of other local publications.

Three or four years later, in order to determine what progress was being made in the campaign of education, a house to house canvas was made in a considerable area of the poorer parts of the city to learn what number of people were using raw, untreated water, and it was found that more than eighty per cent were using either boiled, filtered, distilled, or spring water.

In the year 1899 the Drainage Channel had not yet been opened, the capacity of the Bridgeport pumps had not been increased. The sewers still emptied either directly into the lake or the Chicago River. The mortality rate from typhoid fever had gradually dropped from 24.15 per 10,000 of population to 15.68 per 10,000 of population, a reduction of more than 72 per cent in eight years in the actual number of deaths occurring, notwithstanding an increase in the population of 30 per cent. In other words 1997 people died of typhoid fever in 1891 and 442 in 1899. Had the rate of 1891 continued in 1899 3984 persons would have died that year, leaving a balance of 1987 human lives saved, in one of the nine years in one disease, to the credit of public education.

With no little difficulty we started a Municipal Laboratory and undertook the inspection of milk. When the work began 40 to 50 per cent of the samples of milk collected for examination were found to be below grade. The percentage of samples found below grade soon dropped to 7 or 8. It came into the city by rail in haphazard fashion. The receiving stations and milk depots were untidy and unclean. There were three organizations of milk dealers looking only to the commercial side of their business and all in opposition to the ordinance. These soon came into line and became agencies for a clean and better supply. Stores and shops cleaned up. The railroads appointed agents whose sole duty was to look after the shipping of milk, and whole trains now carry nothing but milk. The most approved methods were gradually installed in many dairies, companies were formed and milk was bottled in the country in a sanitary way and shipped to the city on ice. Dairy Inspectors were later secured and sent into the dairy country to inspect the herds and to teach the dairymen. The dealers found with poor milk were fined from time to time, and occasionally a bad lot was seized and turned into the sewer at the receiving station.

In 1903 we began our efforts for a fresher supply of milk. Most of the milk is produced within 80 miles of the city. There did not seem to be any good reason why milk obtained at night should not be served for breakfast next morning in the city. To do so would change the time of delivery by the farmers, time of shipment by the railroads, and the method of the city dealer. All our efforts in this direction failed. A fresher supply of milk is as far off as ever, although some do try to deliver twelve hours' old milk and some even six hours' old, but the idea did not seem to take root and all efforts to press it have since ceased.

In 1893 there were 12,363 deaths of children under five years of age (the milk feeding period of child life). In 1905 in spite of the great increase of population, there were only 8512 deaths of children under five years of age.

When the antitoxin treatment for diphtheria was introduced, there was great scepticism with regard to its use and considerable open opposition. The department, as soon as a supply could be obtained, placed it at the disposal of physicians at cost price and began its use. Careful records were kept of the cases treated by the department physicians, and it soon appeared that there were no deaths from diphtheria when the remedy was used on the first day of the disease, and that the ratio of cures diminished with each day's delay till its use on the fifth day or later had little effect. These records were kept with care and at the end of three years the brute force of the figures compelled the universal adoption of antitoxin in the city, and now nowhere in the country is diphtheria a menace if promptly recognized and a proper dosage of antitoxin administered. The total number of deaths from diphtheria in Chicago in 1895, the year antitoxin was introduced, was 1420. The total number of deaths from diphtheria in 1905 was 426.

Boston was the first city in the country to take up the medical inspection of public school children, and Chicago was the second. The work has since spread over the entire country, and is properly regarded as one of the most useful advances, and has become indispensable wherever its value is known.

Smallpox was left us as a heritage from the World's Fair in 1893 and caused 1033 deaths in 1894. Vaccination had long been neglected. Certificates of vaccination were one of the requirements for admission of children to the public schools, but we soon found that physicians were very careless in issuing these certificates. An attempt had been made to vaccinate and the certificates without knowing whether the vaccination had been successful or not in very many cases. Surgical cleanliness in preparing the vaccine and in performing the vaccination had not yet been introduced.

It was well into 1894 before we could get money enough to undertake the vaccination of the entire city. When that was accomplished the danger was over.

An up-to-date hospital for the care and isolation of smallpox was one of the net gains of the epidemic.

At that time the vaccine was sold on bone points. Much of it was inert and there were many infected arms resulting from its use. With the introduction of glycerinized vaccine lymph we broke away from

the use of the harsh and faulty word virus. Every purchase of the new lymph before it was accepted or paid for was tested in the laboratory for the presence of septic organisms, and next was tested clinically by the vaccinators as to its potency. Surgical cleanliness in performing vaccination was insisted upon, all of which is the rule to-day.

A few years later a mild form of smallpox became general in the middle west and was continually being introduced into Chicago. We found it necessary to begin a campaign that would cover the entire area tributary to Chicago.

We called a conference of the officials of all the railroads running into the city and readily secured their aid and co-operation. We published in 1901 what we called the vaccination creed. The railroads printed it conspicuously on cardboard and posted it in most instances in every station on their various systems. We posted it in the city. The creed is still in use, doing good service, and answers substantially every question that may arise with reference to vaccination and its utility and is here repeated:

The Vaccination Creed.

After many years of experience with smallpox and Vaccination, the Chicago Department of Health hereby declares:

First. That true Vaccination—repeated until it no longer "takes"—*always* prevents smallpox. *Nothing else does.*

Second. That true Vaccination—that is, vaccination properly done on a *clean* arm with *pure*, potent lymph and kept perfectly *clean* and *unbroken* afterwards until the scab falls off naturally—never did and *never will* make a serious sore.

Third. That such a Vaccination leaves a characteristic scar, unlike that from any other cause, which is recognizable during life and is the *only* conclusive evidence of a successful Vaccination.

Fourth. That no untoward results ever follow such Vaccination. On the other hand thousands of lives are annually sacrificed through the neglect of vaccination—a neglect begotten of *lack of knowledge.*

The creed and a supplement giving full information of the proper method of vaccination and other data was printed in circular form and distributed widely. The smallpox subsided promptly and vaccination was given such a boost that smallpox will not again for a generation be a menace.

In our smallpox hospital we took classes of students from the various medical schools and taught them to diagnose the disease and to treat it. None of them contracted the disease and none of them carried it to others.

We inaugurated and conducted for the Trustees of the Sanitary Districts a series of chemical and bacteriological examinations of the streams containing the waters of the Drainage Channel before it was opened and for nearly a year afterwards as far as St. Louis, Missouri, in its flow to the Gulf, on a scale never before attempted. The results were compiled and published and were the basis of the defense of the District when later the State of Missouri began action for damage which resulted in the triumph of the District. It also demonstrated the wisdom of the founders of the Channel system of drainage for Chicago, who claimed that the waters between Chicago and St. Louis would be purified rather than polluted by the large dilution of fresh water from Lake Michigan and by oxidation and sediment as it traversed the 350 miles between. It also will serve as a guide to any part of the country interested in stream purification.

Circulars were prepared upon "The Hot Weather Cure of Infants and Young Children."

"Restriction and Prevention of Consumptives."

"Antitoxin Treatment of Diphtheria."

"Advice to the Family in Cases of Contagious Diseases," and many other topics. Some of them were printed in eight different languages.

We early learned that public health administration could never be in advance of the medical profession, and that the individual members of the profession as they brought their healing powers to the people, also formed a vast army of men on the firing line, teaching and preaching how disease may be prevented.

Public health service can only use in a public way the knowledge that the individual practitioner uses daily in his rounds. With this thought constantly in mind it was not difficult to have the profession as a unit at our back on all occasions. We succeeded in getting men of brains into our department; we were always happily able to avoid internal dissensions which made it possible to present a solid front to the enemy.

Time does not permit going into further details, nor does it seem necessary for the purpose at hand.

The logical deduction to be drawn from the foregoing is that the public can be educated in health matters by keeping everlastingly at it.

I do not for one moment claim that I did it all—I was but a cog in the wheel of the organization, every man and woman in it did their part, and each was a loyal enthusiast. I was out of office from June, 1895, to April, 1897, but the main structure of the organization was retained and the scientific features of the work continued.

The present Commissioner of Health has greatly extended the scope of the department and the future is bright for Chicago to retain the proud distinction of having the lowest mortality rate of any city of metropolitan proportions in the world.

Before closing, perhaps I may suggest a thought or two with reference to the future.

The protecting power of vaccination and the proper method of vaccination should be better taught in our medical schools.

The family physician should see to it that every child in the families who depend on him is successfully vaccinated and re-vaccinated when they grow up, and should impress also upon parents that it is as much their duty to protect their children from smallpox as to protect them from cold or hunger.

There is a vast army of people more or less vulnerable to diseases because of faulty nutrition. There is the under-nourished dyspeptic and also the over-nourished, both of whom have and usually are vio-

lating common sense both in the selection of the kind and quantity of their diet and in the manner of using it. Here again the family physician must be the principal agent for betterment, for it is often, if not generally, an individual matter.

The conviction has been growing with me that cow's milk is a very much over-estimated article of diet for children. We know it has caused sickness again and again. It has carried to the child almost every known contagious disease as well as the usual enteric diseases, because it is so easily infected and germ life multiplies in it so rapidly. It is a short lived product at best, and every physician has seen bottle-fed babies raised without it. The more I think of it, the more it seems that cow's milk as a diet for a child, instead of being a natural food is quite an unnatural food.

Nature provides that the milk go directly from the mother without change of temperature and sterile into the stomach of the offspring. All cow's milk is contaminated before it reaches the pail of the milker, even under the best conditions. In cities it is from 24 to 48 hours' old and even more before it reaches the child and has become a very different article since it left the udder of the cow.

If physicians skilled in the artificial dieting of infants will give us a substitute, and I feel sure they can, the whole expensive and vexatious question of a city's milk supply will vanish like a dream.

Nature seems to demand that children with teeth should use them upon a solid diet. Indeed mastication is necessary for the proper development of the teeth and the digestive secretions of the mouth. If the child is constantly urged to drink milk it is certain he cannot eat very much else.

It is rather sweeping to recommend the elimination of cow's milk in cities from the diet of children under five years of age, but the still high sickness rate and the still high mortality rate among the little ones is disconcerting and I feel certain that the use of milk is at the bottom of much of the trouble.

Many attempts have been made, especially in the old world, to lessen the terribly evil effects of venereal diseases, but with little gain.

It is my belief that these diseases, with the train of other diseases they cause, could be greatly reduced if not eradicated if the entire public knew as much of the evil they cause as do the medical profession. I further believe it is the duty of the medical profession in their daily practice, in communications to the daily press, by public lectures, and by every means of conveying intelligence, to enlighten the masses and put them on their guard. What education has done to lessen other diseases, it can do for these diseases.

If the temperance wave that is abolishing so many drinking places throughout the country should become universal and do away with the abuse of intoxicating liquors, syphilitic diseases would lose one of their strongest props.

In the State of Indiana a law is in force that authorizes the sterilization of "Confirmed Criminals, idiots, imbeciles and rapists." Eight hundred convicts have been sterilized under the law, two hundred of them at their own request.

The very simple operation of vasectomy will deprive a man of his power to procreate without loss of any other power or function. Oregon has recently passed a similar law.

The operation is so simple and safe, it is to be hoped that it will be speedily enacted in all states. Its application might be profitably extended to syphilitics and possibly to those suffering from other diseases that leave a poor health inheritance to offspring.

The practical application of the idea would in time weed out many of the weaklings, doomed to be victims of disease and early death, a menace to peace and a charge upon the public.

BACKACHE.

By C. M. COOPER, M. D., San Francisco

Backache is a complaint exceedingly common, and the cause of its origin is often difficult to determine. Nevertheless, it receives scant attention in the text books of medicine, and the various encyclopedias.

Many patients so afflicted visit our clinic. Frequently they have been previously treated for months and years for some lesion other than the true one, and it has often seemed that narrow specialism in diagnostic work has left so many border line gaps as to be responsible for the errors that have been made. This paper is an attempt to present a broad diagnostic scheme which has met with considerable success in the elucidation of the cause of backache in private and clinic patients and which was primarily evolved for teaching purposes.

Running longitudinally through the center of the back is the vertebral column. Wonderfully flexible during life, it is made up of a series of superimposed bones separated and united by intervertebral discs, and a great number of ligaments. Between the processes of these bones, and connecting ribs to vertebræ, and ilia to sacrum are joints of different varieties. Large sheets and strands of muscles and extensive fibrous aponeuroses clothe the bony framework. Hanging within the vertebral canal, surrounded by its membranes, is the spinal cord, and coming off in pairs at various levels are the nerve roots which unite and issue as nerve trunks through comparatively small apertures formed by the vertebral articular processes. The posterior divisions of these nerve trunks mainly inervate the back tissues, and it is in their area of distribution that back pains are commonly located. These posterior primary divisions descend (as do the lateral branches of the anterior primary divisions of the dorsal nerves) some distance before they inervate the overlying integument, and thus it is that the skin zones supplied by the nerve roots or spinal segments run more or less transversely.

At each spinal movement there is a compression of one portion of the intervertebral discs and a stretching of the other; an approximation of the origins and insertions of some ligaments, a separa-

tion of others; an active contraction of some muscles, an elongation or relaxation of others, and in studying back pains associated with movements it behooves us to bear these facts in mind. Flexion and extension of the spine are very free in the region of the third to fifth lumber vertebra, and it is owing chiefly to movement at this locality that patients overweighted in front are able to throw their shoulders back, and thus preserve their equilibrium, and when such flexion or extension is painful or limited it is this area that we first investigate.

Lateral movement in health is fairly extensive and is limited by the resistance of ligaments of the other side, and by the approximation of the transverse processes of the same side. It takes place along the whole spine. In certain cases of osteo-arthritis this movement is the one mainly hindered.

Rotation of the spine takes place chiefly in the dorsal region, and when it becomes painful or limited we there seek the cause.

It is the lymph which conveys to the tissues of the back as to all tissues, their nutriment and oxygen, and removes from them their waste products of fatigue and metabolism. The rate of flow of this lymph depends indirectly upon the cardio-vascular activity, and its composition upon the composition of the blood. Muscular contractions and massage undoubtedly accelerate the lymph flow. Thus it is that people with an impaired cardio-vascular apparatus which slows the lymph flow may complain of fatigue, and if the use of the fatigued structures be persisted in, of dull pains before the more readily recognized symptoms of heart impairment, such as dyspnea, etc., show themselves; I have seen more than one case of backache apparently due to slowness of lymph flow in overworked tired muscles rapidly improve on the administration of strophanthus.

Similarly, in vitiated blood conditions, such as anemia, the composition of the lymph and its nutritive capacity are presumably impaired, and the same feeling of fatigue, and later of pain may arise in the overused muscles, and lead to a beginning of a vicious circle which is only relieved when the anemia is cured.

Back pains, like pains elsewhere, may not only be experienced in the structures actually at fault, but may be the result of a lesion which is acting upon the nerve root or nerve trunk at some distance from the area where the pain is appreciated. Such a pain is termed a referred pain, and is well illustrated by the nerve root pains of meningeal inflammation or of vertebral disease.

There is another kind of pain best described as reflected pain which, felt in the body wall either anteriorly as belly pain, or posteriorly as back pain, or as both, results from a disturbance of the thoracic or abdominal viscera; of these pains we will speak later.

Backache In the Acute Fevers.—In the developing stage of some of the acute infectious diseases such as small pox, dengue, relapsing fever and influenza intense backache may be complained of, and in typhoid fever, diphtheria and tonsilitis inquiry will generally elicit the information that some backache is or has been present. Whether these pains depend upon meningeal irritation, posterior root ganglia changes, or disturbed segmental irritability, or upon a lesion affecting the territory supplied by the posterior primary divisions of the lower dorsal nerve trunks it is difficult to say. Of much interest in this connection is the fact attested to by Head, that his brother, sick with typhoid fever, markingout the sites of his pains, dotted out areas which corresponded to the maximum painful spots in the body wall zones supplied by the different cord segments.

The fact that these pains are only an incident in the development of an acute infectious disease is readily recognized. They are best treated by lead and opium fomentations, and if they be severe, by a hypodermic injection of one-sixth of a grain of morphine. The differential diagnosis of these infectious diseases is outside the scope of this paper.

Bearing the above in mind, there are a series of questions which the clinician should systematically endeavor to answer in investigating patients with backache.

1. *Is there any disease of the spinal cord, the spinal roots, or of the cord membranes?*

The pain associated with spinal disease is commonly referred to the distal terminations of the pain fibres that are irritated. If, however, the membranes of the cord be involved, localized pain may be complained of in the neighborhood of the lesion. This localized backache pain is commonly unaccompanied by rigidity of the vertebral column, or by local bone or vertical compression tenderness. The recognition that it is of cord origin will depend upon its association with pain in distal parts of the body due to the irritation within the cord of longitudinally-running nerve fibres which carry centrally travelling sensory messages; and with nerve root pains due usually to meningeal or vertebral involvement, or upon the discovery of some loss of muscular power, or some impairment of sensibility, or abnormality of reflexes in the areas inervated by that section of the cord. The root pains are frequently very intense, and patients describe them as being shooting and lightning like in character. They occur in definite anatomical zones and tend to encircle half of the trunk, or to shoot into the arm or leg. Occasionally they may be particularly evident in the area of supply of the corresponding posterior primary division.

Such root pains may form the sole complaint of the patient and indeed may be the initiatory symptom of a later developing cord or vertebral lesion.

The absence of rigidity of the spine and of vertebral tenderness will speak in favor of the root pain being due to involvement of the cord or meninges rather than to disease of the vertebræ. The lesion may be due to inflammation, or to syphilis or to tumor growth. In such cases the nervous system must be repeatedly examined and a primary growth looked for, as the development of optic atrophy, or of a syphilitic neuroretinitis, or the finding of a small mammary carcinoma may

plainly point to the diagnosis. If the search be fruitless, anti-syphilitic treatment is in order, and I have seen a case of intense root pain, back and front, of months' duration, yield to vigorous mercurial treatment in the absence of all suggestive history or other corroborative findings.

The finding of an increased number of lymphocytes in the cerebro-spinal fluid withdrawn by lumbar puncture will speak strongly for a diagnosis of syphilis in suspicious cases. Since, by the method of Fuchs and Rosenthal, only a single drop of fluid is required, no disturbing after results are to be feared.

If an attack of neuralgic pain be exhibited in, and confined to an area supplied by one or more single nerve roots, and be associated with some fever, and an herpetic eruption accompany or later follow, we recognize an involvement of the corresponding root ganglion i. e. herpes zoster. In two patients whom I attended, and in whom such a neuralgic pain, chiefly located in the posterior primary division district of a lower dorsal root zone, persisted. I suspected that the neuralgia was of ganglion origin though no herpes occurred. In one of these cases a herpes of a lower segment later developed. Hot air applications were much appreciated by these patients, and seemed to greatly diminish the acuteness of the neuralgia.

2. *Is there any disease of the vertebral column?*

Patients with backache due to disease of the vertebral column may, from the clinical standpoint, be divided into those who do, and those who do not exhibit deformity.

In the first class we recognize at a glance—

(a) The deformed spine of spondylitis deformans with its general posterior convex curvature and its diminished movement. Though pain, local, and of a root character may be present, there is no, or little, tenderness to vertical pressure and commonly osteo-arthritic changes are present in other joints.

(b) The localized, abrupt, angular curvature due to caries of the spine in which backache and root pains are common, and in which vertical pressure is bitterly resented.

In the second class of patients little or no general or local deformity is evident, and the examination of these patients involves an inquiry for root symptoms, a testing of the mobility of each point of the spine, of the sensitiveness of the vertebræ to vigorous tapping, to vertical pressure, and to pressure on the transverse processes. If in a region where back pain is complained of, rigidity of the spine, either on sagittal or lateral flexion be evident, and there be associated with it root pains or local vertebral or vertical pressure tenderness, or pressure upon the transverse process cause pain, we assume the presence of a localized vertebral lesion. If this condition rises acutely with fever and a leukocytosis, and the back pain be intense, and the slightest movement cause great pain, and there be great sensitiveness to tapping of a vertebra, and to vertical pressure, we suspect an osteo-myelitis of a vertebra, and if an abscess later develop our suspicion is confirmed. The treatment is naturally surgical. If similar symptoms and signs are exhibited after an attack of typhoid fever we recognize it as due to a typhoid spondylitis. The patient should be treated with fixation of the affected part and rest, and recovery will slowly but surely ensue. The typhoidal infections do not tend to suppurate.

If the disease be of a chronic nature, and back pains be or be not associated with root pains, and be accompanied by localized rigidity, and especially if percussion or vertical pressure tenderness be present, we diagnose either caries of the vertebra or a localized osteo-arthritis.

An abnormal projection of one spine, however slight, the presence of tuberculosis elsewhere, or a loss of motility or of sensation in the peripheral parts due to cord complications, will suggest its tuberculous nature.

The absence of any projection, the absence of any tubercular lesion elsewhere, or the presence of creaking on auscultation of the moving vertebræ, or the presence of osteo-arthritic changes in other joints, will suggest osteo-arthritis. If the osteo-arthritic process is limited to the bodies of and the discs between the vertebræ, no root pains are present; compression vertical tenderness is best sought for in such instances with the body slightly flexed forward. If the lesion be in the region of the intervertebral foramina, root pains are commonly present, compression vertical tenderness is best sought for with the body slightly flexed backwards.

I have found in doubtful cases a radiogram of the area involved of the greatest service in the differentiation of these two conditions, as the pictures obtained are often quite characteristic.

Both these lesions demand fixation of the affected part, plenty of good food, and the eradication of any complicating septic areas in the mucous membrane or elsewhere. Many of these cases of localized osteo-arthritis masquerade under the name of lumbago, and especially is this so when local pain and some rigidity are chiefly or alone evident.

If the pain arises in one part of the spine and be accompanied by root pains and some rigidity in a patient who has had a primary cancer, a secondary growth is to be suspected. A radiogram will confirm the diagnosis. We can only hope to allay the patient's misery by liberal injections of a morphine salt.

If the back pains arise during pregnancy, and give rise to considerable vertebral pain on movement which is relieved on rest, the question of osteo-malacia must arise, and if later pains develop in other bones, this suspicion is strengthened. The *X*-ray picture is very characteristic. The treatment is that of osteo-malacia.

3. *Is the back pain due to any disease of the framework of the back other than the vertebral column?*

If the back pains be located in, and confined to, the region of the ribs, scapulæ or ilia, or to their connections with the vertebral column, these structures must be thoroughly investigated, by palpation,

by studying the active and passive movements produced in the locality, and if possible by the X-ray, for though diseases of these structures appear to be comparatively rare, yet there is no fundamental reason why the arthrodial joints between the articular processes or those between the vertebræ and ribs should not be the occasional seat of an acute arthritis, or why an acute osteo-myelitis or periostitis should not occasionally manifest itself in the vertebræ, ribs, or pelvic bones, just as it frequently does e. g., in the tibiæ, and I would advance as a working principle, the overlooking of which often leads to error, that these joints, bones and tissues possess no specific immunity from the diseases manifested by similar structures elsewhere in the body.

Thus I remember one patient coming into hospital complaining of great lumbar backache. There was marked rigidity, he could not move because of the intense agony, and turning him was almost equally painful. One of the lumbar vertebræ was excessively tender. He ran an acute fever and exhibited a marked leukocytosis, and later a fluctuating inflammatory swelling appeared. If similar symptoms and signs had developed in the region of the tibia a diagnosis of osteo-myelitis would have been made at once, but the unusual situation had led the attending physician astray.

Again I remember another patient who developed an extremely painful sensitive area corresponding to the junction of the transverse process and rib, a pain which the rib movement intensified, and the anatomical fact that an arthrodial joint existed in this locality had escaped the recollection of those having the patient in charge.

Of particular interest at the present time is the relationship of abnormal sacro-iliac mobility to backache. Goldthwait, the pioneer in this particular field, attributes many backaches in women to a sacro-iliac luxation. The laxity of the connections is particularly apt to develop or become intensified, he thinks, during pregnancy and at the menstrual periods; or it may result from trauma, general weakness or some definitely known pathological process. The most common complaint of these patients, he says, is backache, referred at times definitely to the sacro-iliac articulations but often simply to the sacrum. "This backache is usually worse on lying upon the back or with any back-straining exertion or occupation carried to the point of fatigue." Referred pains are, he claims, quite common, especially in the areas inervated by the lumbo-sacral cord. Hypertrophic osteo-arthritis of these joints may produce similar backache and similar referred pains. He recommends correction of the luxation if any be present, and fixation by brace, webbing or plaster jacket.

Since the publication of Goldthwait's papers, I have been on the lookout for such cases, and I have seen four patients who presented many of the symptoms and signs described in his communications to which I refer those interested. Radiography however, showed in two of these patients spondylithesis, in one accompanied by an osteo-arthritis of the fourth and fifth lumbar vertebræ. The third patient had a marked lesion of unknown character of the lower lumbar vertebræ, and of the sacro-iliac joints. The fourth patient is still under investigation.

Two other patients complained of backache over the region of these joints, and pressure tenderness here was quite marked. One patient was a lady with Bright's disease and enteroptosis. Her backache had been cured for a time by fixation of the kidneys. The kidneys had again become loose. A properly adjusted corset again relieved the backache. In the second patient massage of the distended vesiculæ seminales immediately relieved the pain, which would again recur on their distension, to be again relieved by stripping. He had had gonorrhea. I believe his pain was a reflected pain due to involvement of the vesiculæ seminales.

We may say, the part played by abnormalities of these joints in the production of lumbar and sacral backache, is as yet unsettled, but they should be investigated clinically and radiographically in all patients presenting suggestive symptoms or signs, and Kelly has given this sacro-iliac strain quite a prominent place in discussing backache in his book "Medical Gynaecology."

4. *Is the pain located in, produced or intensified by, the contraction of muscles, or the stretching of ligaments, or fasciae?*

It is the active approximation of the origins and insertions of inflamed muscles that produces muscular pain. Such a movement generally relaxes fascia and ligaments in their immediate neighborhood. Conversely the movements that produce stretching of ligaments and fascia are accompanied by relaxation of the immediately adjacent muscles, and such relaxation relieves muscular pain though it may be re-excited if the stretching of the muscle be extreme.

It is the anterior abdominal and psoas muscles that contract in anterior flexion of the trunk, but it is the posteriorly situated ligaments that are elongated. In extending the trunk, the back muscles contract; the anteriorly placed ligaments are stretched. If the location of the pain be such that it may be ligamentous or muscular, and by passive posturing the same pain is produced as in active movement, we assume the pain to be ligamentous in origin.

It is difficult to passively produce active postures of the trunk, but we can usually place the patient in such a position that an actively produced posture can be passively maintained, and thus muscular pain is relieved, ligamentous and fascial pain persist.

All such muscular and ligamentous pains are loosely catalogued as instances of lumbago, and into the medley creeps many a case of local osteo-arthritis of the spine. Strange to say, there is a general impression amongst the laity that these pains are always indicative of faulty kidney action. This was lately strikingly attested to in a letter from a doctor in a mining camp who desired to be referred to some literature on backache as it was such a common complaint amongst the miners who always attributed it to some kidney ailment.

I would classify these cases of backache—

(a) Backache arising in posteriorly situated ligaments or fascias in individuals who work with forward flexed backs. Such backache is bilateral and located in the lumbar region. I believe it to be mainly due to strain; the pain is produced or intensified by forward flexions of the body, and bending backwards relieves rather than produces it. It is particularly common when such work is first assumed, but after a time the soft structures develop a power of adaptability. If the strain be slight, exercise and massage will aid in developing this field of response, but if the stress has been too severe, or if it occur in those previously used to such work, rest on the flat of the back is the speediest mode of relief, and a warm lead and opium application will very frequently quickly relieve the pain in the now resting structures.

(b) Backache in some area which, however, develops apparently without cause, or maybe is produced or intensified by raising the trunk from a forward flexed position especially if the movement be resisted. It is seemingly muscular in origin, and is unaccompanied by fever. It depends, I believe, upon toxemia, and is particularly associated with a perverted digestion. The slight localized attacks are often quickly dissipated by measures which change the lymph flow in the painful area, such as massage or hot air applications. A dose of castor oil or a mercurial purge should always be administered and rapid amelioration ensues. The Bier hot-air douche is of much value as an adjunct in treatment. If a systemic toxemia, such as lead poisoning, be present, or the patient be taking too much santalwood oil, the intake of the poison must of course be stopped and its elimination aided.

(c) Back pains occurring as a result of a sudden strain during the lifting of a heavy load. They are common in lumber camps. They appear to be due to an injury of the deep, shorter muscles. They are best treated by rest with the body arched backwards, this position approximating the origin and insertions of the torn structures. At first rest on the Hunkin spinal support, and later adhesive plaster fixation will suffice to relieve these patients.

(d) There is the sudden, sharp, localized pain, the so-called "crick in the back." These cricks result from slight, often unappreciated traumata due to forcible or unguarded movements, or to long maintenance of strained postures. Most often they appear to arise in ligaments, or in the aponeuroses; sometimes in the muscle fibres themselves. The pain is so acute and intense that it seems out of all proportion to the supposed cause, and there is in such cases commonly present a constitutional state which is partly responsible for the lesion, it, so to speak, leading to a condition of the tissues in which they are prone to suffer much from slight traumata. A gouty or rheumatic diathesis, or a disturbed intestinal digestion, or the presence of a septic area elsewhere in the body may be found to be the determining factor; in other instances the crick may occur in patients with osteoarthritis of the vertebral joints. The treatment consists in resting the injured structures, in limiting the food intake, in obtaining sharp purgation with blue mass, and in the administration of the wine of colchicum or of aspirin.

(e) There is a class of backaches in which the pain is evidently in the fascial structures and often unilateral, and the pain and tenderness seem to spread by continuity over the buttock fasciae. There is often a little temperature and the attack is apt to recur. It appears to be of the nature of a toxic fibrositis, sometimes of rheumatic, sometimes of gouty, sometimes of unknown origin. Salicylates, colchicum, rest, lead and opium applications, and the Bier hot air douche are the measures I have found of benefit in the treatment of these cases. Occasionally the tenderness and superficial pain are diffuse and spread forward to the front of the body or to the groin. The pain is often paroxysmal and tender neuralgic points are present where the nerve branches pierce the deep fascia, or where they can be pressed against unyielding structures. In such cases we are dealing with an intercostal or lumbo-abdominal neuralgia.

The tendency to recurrence of some of these varieties of lumbago may be combated by wearing a flannel binder round the loins; particularly is this so, if they are apt to develop after exposures to unusual changes of temperature.

Though patients with severe attacks of lumbago may exhibit a protective rigidity of the back muscles, local vertebral and vertical pressure tenderness, and nerve root pains are not present. If they develop it is not a pure case of lumbago.

5. *Is there any static error?*

Static errors are responsible for many cases of backache inasmuch as the back muscles are employed to take the strain off distal structures, and thus in their turn become tired, and later the seat of actual pain. Further, if such a condition as a painful flatfoot be the first step in the formation of the vicious circle, the painful impressions may have so deranged segmental equilibrium as to facilitate the tiring of muscles inervated by higher segments. Thus, in cases of backache that are not of the types already described, we look for flat foot and if it be found, correct it; remedy the knock knee, and if a leg be shorter than its fellow we build a boot that will prevent the rotation of the pelvis that will otherwise assuredly occur. The spine itself and the trunk generally must be investigated for evidence of rotatory curvature, and it is the characteristic deformity of the trunk with its alternately prominent back and front that leads to a true conception of the case. In other patients no rotation has occurred, but some lateral curvature is evident which, if not remedied, will lead to the graver condition.

These spinal column abnormalities speak for tired muscles and strained ligaments, and such backaches must be treated by massage and suitable exercises. Not infrequently, in addition to the static error an anemic condition of the blood is partly responsible for the lowered muscular and fascial tone and such of necessity must be corrected.

6. *Is there any visceral disease that may be the cause of the backache?*

There are some visceral diseases that seem to lead directly to back pains, and we would note the stitch of an acute pleurisy that is situated posteriorly, and the localized pain and tenderness which may mark the position of a small pleural effusion as well as the deep boring pain that is dependent upon the pressure of an aneurism. Associated with the latter may be a persistent, intercostal neuralgia; and indeed this neuralgia may exist alone, and be the sole symptom of an aneurism of the descending thoracic aorta. Fortunately, we now have in the X-ray a means of diagnosing this latter condition. In abdominal aneurism intense local pain may be present which the patient, in my experience, usually locates by pressing in his hand deeply from the front. Often associated with it are shooting pains of great intensity which, in contrast to the pains of renal and hepatic colic, do not lead, per se, to nausea and vomiting. The aneurism is commonly palpable. The X-ray, whilst unable to register a shadow of the infradiaphragmatic aneurism, will determine if it has led to destruction of the vertebræ. A certain amount of local vertebral tenderness and rigidity may be present, and caries of the vertebræ or a growth may be simulated. Confusion is more apt to occur when the aneurism is situated high up between the pillars of the diaphram. In such cases the absence of vertical pressure tenderness, the age of the individual, the absence of tubercular lesions or of a primary growth elsewhere, as well as the past history, and the frequent presence of a general cardio-vascular degeneration will aid in the diagnosis.

The visceral stimuli which result in the sensation of pain appear to arise when there occurs

(a) General or local spasm in a hollow muscular organ e. g. ureteral colic.

(b) General or local distention of an organ's capsule or walls e. g. a distended pelvis of the kidney.

(c) Inflammatory processes of the serous coverings e. g. an adherent appendix.

(d) Insufficient blood supply e. g. arteriosclerotic pain.

(e) Forced excessive functioning e. g. excessive venery.

The pain which results is often not strictly confined within the anatomical borders of the organ from which the pain producing stimuli arise. This may be partly due to the fact that the viscera are ill provided with location nerve terminals, the nerve fibres functionally being allied to the protopathic skin fibres. Nevertheless, we would expect such pains to occur, more or less, in the vicinity of the organ at fault, and in cases of backache we naturally investigate the condition of the organ that lies subjacent to the area of the back in which the pain is felt. Thus, with pain in the region of one loin, we investigate the kidney of the same side, and with localized pain and tenderness between the two ribs, the underlying structure, i. e., the pleura. These pains which are felt in the organ itself are of a "dull," "heavy," "wearing" kind.

But many pains that are dependent upon visceral disease are of the nature of reflected pains. Messages arising in the organ at fault in consequence of the changes already outlined are conveyed to the spinal segments which innervate the particular organ and disturb the segmental equilibrium. The brain is accustomed to interpret such a segmental irritability as a pain arising in that skin zone of the body which is innervated by that segment whose equilibrium is disturbed.

These reflected visceral pains are commonly "sharp," "aching," or "stabbing," and often associated with

(a) Hyperesthesia of the skin over zones corresponding to the area innervated by the disturbed segment.

(b) Sometimes by tenderness and rigidity of the muscles innervated by the same segment.

If the path of the posterior primary division be favored, back pains are the result.

Since the viscera are connectel with definite spinal segments, the correlated body sensations due to lesions of any one viscus are exhibited in correspondingly definite areas of the body wall, and it is necessary to be acquainted with the segmental nerve supply of the viscera in investigating the causes of back pains. (See diagram.) Hyperesthesia of the segments is best sought for by drawing the blunt head of a pin from the healthy skin above and below toward the zone. When either border of the hyperesthetic zone is reached the patient complains that the head of the pin now occasions him considerable soreness, and may even complain that he is being pricked.

During periods of exacerbation of the casual lesion, or during times of increased nervous excitability e. g. menstruation, an overflow from the main segments may occur, and so we have a widening or diffusion of the pain area.

During periods of improvement of the local condition or of the general tone, the segmental equilibrium may be so restored that now only one or two small areas in the corresponding skin segments are painful or sensitive. These spots, which are commonly the seats of the most marked tenderness and pain, even when the whole segment is hyperesthetic, are termed by Head the "maximum spots." (See diagram.) It may happen that only pain which is referred to these maximum spots may be complained of, and tenderness at these spots may be absent. Tenderness at these spots is best sought for by pressure with a blunt pointed instrument.

Backache in diseases of the pelvic organs.

The same principles which we have referred to in speaking of pains from visceral disease naturally underlie the backaches that result from intra-pelvic disease. We would, however, note that the

muscles, particularly the levator ani muscles, support the pelvic floor, and can be compared in their action and susceptibility to strain and overwork to the long back muscles that help to support the body in the upright position, and that the pelvic fascia can be compared to the fascial and ligamentous tissues of the back. When the muscular pelvic diaphragm is weakened, naturally increased strain is thrown upon the fascia, and so pains may result. These tissues can be given rest by confining our patients to bed, and so backache and intra-pelvic pains that are due to the involvement of these tissues are relieved by such a procedure. Then there are reflected pains due to the previously mentioned lesions of the viscera themselves, and reference to the diagrams and tables will readily demonstrate what a wide area may be involved by such reflected pains. These intra-pelvic organs are more open to palpation than are the intra-abdominal viscera, and not only in such examination must the abnormalities that are present be noted, but in palpating, and in trying to judge of the mobility of these organs, an inquiry should be made as to whether or not pains similar to those complained of are produced. The part played by abnormalities of the sacro-iliac joints in the production of some of the backaches attributed to intra-pelvic disease, is a subject for further study.

If back pains which seem to be of the reflected variety be present, we first note their exact site, then find out what viscus is wholly or partly innervated by the same segment, then investigate the condition of that organ. E. g., let us suppose a patient has back pain and skin hypersensitiveness, or a maximum spot over the right loin. Reference to the figure shows this skin area is innervated by the tenth dorsal segment. But this segment partly innervates the kidney, the gall tract, the colon and the testis or the ovary. (See diagram.) We therefore particularly investigate the conditions of these organs in our search for the cause of the pain.

There is no doubt but that the development of these reflected pains is considerably favored, perhaps determined, when there occurs some general lowering of the vitality, or some special susceptibility of the nervous system which renders easy the disturbance of the segmental equilibrium. Thus it is that whilst some patients with severe gynecological troubles never complain of backache, with others it is a common symptom; thus it is that after remedying the condition that has apparently created the backache, time is needed before the affected segment will recover its tone, and even before the treated organ will cease to give rise to tone disturbing stimuli.

There are certain of these backaches commoner than others, and so located that in clinic work, where time is at a premium, we allow the site to suggest their most probable origin.

(a) There is the pain between the shoulders generally accompanied by epigastric pain, and associated with dyspeptic symptoms; such we believe to be of gastric origin.

(b) There is the dull, heavy pain located under the right shoulder blade, and sometimes in the shoulder tip due to a swollen liver.

(c) There is the pain under the left shoulder blade, and sometimes in the left shoulder tip, due to an overloaded heart.

(d) There is the pain in the dorso-lumbar region due to a loaded colon, or to a varicocele, or a swollen cord or testis or ovary. Dr. Weeks of the Marine service tells me that most of the backaches he sees are due to varicocele, or cord or testical diseases, and are cured by the relief of these conditions.

(e) There is the pain associated with stone in the kidney which the patient locates by jabbing his thumb in the angle between the lowest rib and the erector spinæ muscle, a pain commonly brought on or exaggerated by violent movement, and sometimes so radiating as to give rise to a typical attack of renal colic with its developing tender testis.

(f) There is the pain associated with a stretching of the kidney pelvis, or of the kidney capsule, or with marked congestion of the kidney tissue, or with a dragging upon the renal pedicle which the patient locates by spreading his hand over the loin of the same side and which in turn may widely diffuse. The lesion in these cases often admits of actual demonstrations, for the X-ray will show the shadow of the stone, and the finger will detect the large prostate; or the cystoscope will show the trabeculated bladder or maybe the papilloma at the mouth of the ureter, all of which will speak for a distention of the renal pelvis.

(g) There is the pain localized by the patient across the base of the sacrum often due in the male to prostatic ailments; in women to uterine troubles.

(h) There is the pain over the site of the sacro-iliac synchondrosis often due to a distended vesicula seminalis, or to an inflamed utero-sacral ligament.

(i) There is the pain chiefly sacral in location which appears to be due to a stretching of the tissues of the pelvic floor, and which is almost always relieved by rest. Such pain is often also felt between the thighs and down the legs.

(j) There is a similarly located pain, maybe radiating, not relieved by rest, and which is frequently of rectal origin. The correct use of the proctoscope will determine the lesion present and suggest the treatment.

In none of these reflected backaches is rigidity of the spine or vertical pressure tenderness present as in diseases of the vertebræ; nor are they called forth by the action of the back muscles or by movements necessitating the stretching of fasciæ and ligaments as in the various lumbagos, though persistent effort may intensify them as it still more exhausts segmental tone.

The treatment of these varieties of backache of course consists in the remedying of the particular condition that ails the organ that is responsible for the backache, and a bracing up of the general body tone by a correct mode of life, and suitable exercises and maybe drugs.

(To be concluded in July.)

CRIMINAL ABORTION.

Report of the Committee, by J. Henry Barbat, Chairman.

Mr. President and Members of the San Francisco County Medical Society.

The work of the Committee on Criminal Abortion has been kept up during the past year and it affords me pleasure to report that we have been successful in causing the removal of most of the advertisements of the professional abortionists from the columns of the daily press. Our work has been hampered by the attitude of the newspapers in refusing to drop the objectionable ads until forced to do so by the Post Office Department. The Examiner is the only paper which immediately closed its "Medical" column, and refused to accept ads from the known aborationists. The Chronicle after writing to me and informing me that they would drop the ad of any individual whom I could show up as an abortionist, ignored absolutely an affidavit which was sent to them and continued to take every disreputable ad which came in. The Call ignored my communication and continued to collect tribute from men and women who gained their livelihood by murdering unborn babies. The Oakland Tribune and the Bulletin also ignored my communication. I wrote to the President of the Alameda County Medical Society asking the co-operation of that body, but received no reply. We succeeded in driving several of the advertising aborationists across to Oakland where they are posing as specialists, for the cure of diseases peculiar to men, having found that it was less risky and equally profitable to killing babies. One feature which shows the difficulties under which we have labored is the scheme adopted by most of the individuals who have been trapped of changing their names in the ads. Thus Dr. G. W. O'Donnell, the son of the illustrious C. C., was obliged to change his name to Dr. G. W. Olcot when the papers were notified that they would be barred from the mails if his ad appeared again. The co-operation of the newspapers with the professional abortionists is clearly shown by the fact that they are willing to accept ads from these people under false names. Dr. Olcot gave away to Dr. Moore, then to Dr. Black, who in turn became Dr. North, under which name Dr. O'Donnell is now advertising. At periodic intervals the papers publish what is known as the lottery edition which is of course denied the mails and circulates only in the City. In this edition will usually be found the ad under the right name, of one of the well known abortionists, also showing the perfidy of the press.

I have attempted to interest the District Attorney's office and have some of the most notorious abortionists prosecuted, but without success, because our State laws are so constituted that it is not considered wrong to advertise openly the sale of abortifacients, or to offer to perform criminal abortion. I would suggest to the committee on legislation that the attention of the legislature be called to the matter and proper laws be framed to enable the prosecuting attorneys to handle these cases when their attention is called to them.

It is unfortunately necessary to keep after the criminal class continuously, and it needs money to hire detectives to get evidence to convict them; I have willingly employed people during the past year, but I believe that the society should put aside a small sum annually for this purpose until our legislators see fit to frame ordinances which will make it a misdemeanor to publish the ad of any abortionist.

December, 1908.

NEW AND NON-OFFICIAL REMEDIES.

VIBUTERO.

An elixir, each 30 Cc. (one fluidounce) of which is said to represent: Blackhaw 2.6 Gm. (40 grains), cramp bark 2 Gm. (30 grains) squaw vine, wild yam, Jamaica dogwood and saw palmetto berries, of each 1.3 Gm. (20 grains), pulsatilla 0.65 Gm. (10 grains) in a menstruum containing 17 per cent. of alcohol. Dosage.—8 Cc. (2 fluidrams), three times a day, followed by a teacupful of hot water. Prepared by F. Stearns & Co., Detroit, Mich.

VINUM EXTRACTI MORRHUAE.

A wine containing in each 30 Cc. (one fluidounce) 0.26 Gm. (4 grains) of alcoholic extract of fresh cod liver (made from fresh livers received in alcohol and containing their full amount of oil) and 0.26 Gm. (4 grains) of peptonate of iron in a menstruum containing 15.25 per cent. of alcohol.

Actions and Uses.—It has been introduced as a substitute for cod liver oil. It is not believed by pharmacologists generally that the oil free extractives represent any considerable part of the therapeutic efficiency of cod liver oil. Dosage.—15 Cc. (4 fluidrams) before meals and at bedtime. Manufactured by F. Stearns & Co., Detroit, Mich.

XEROFORM.

Xeroform, $Bi_2O_2OH.(OC_6H_2Br_3)_2 = C_6H_3O_4Br_3Bi_2$, is a chemical combination of bismuthyl oxide and tribrom-phenol, containing nearly 60 per cent. of Bi_2O_3.

Actions and Uses.—Xeroform is a non-irritant and non-toxic antiseptic. It is recommended as an odorless and efficient substitute for iodoform; as a specific in ulcus cruris and all weeping eczemas; internally, in gastrointestinal catarrh, procitis, dysentery, bacillary and choleraic diarrhea, cholera infantum, etc. Dosage.—1 to 3 Gm. (15 to 45 grains) per day to adults; 0.12 to 0.3 Gm. (2 to 5 grains) at a dose to children. Externally, as a dusting powder, in bandages, etc., like iodoform. Manufactured by The Heyden Chemical Works, New York.

ADNEPHRIN SUPPOSITORIES.

Each suppository represents a 1 to 1,000 combination of adnephrin with oil of theobroma and weighs about 1 Gm. (15 grains).

Actions, Uses and Dosage.—See Suprarenal Alkaloid and Adnephrin Solution. Prepared by Frederick Stearns & Co., Detroit, Mich.

BOARD OF MEDICAL EXAMINERS.

The following are the names of those appointed by the Governor on the State Board of Medical Examiners:

Walter Lindley, M. D., Los Angeles.
W. W. Roblee, M. D., Riverside.
J. Henry Barbat, M. D., San Francisco.
Charles L. Tisdale (H), M. D., Alameda.
Charles Clark (E), M. D., San Francisco.
W. M. Mason (E), M. D., Lodi.
W. H. Stiles (H), M. D., San Bernardino.
D. L. Tasker (O), M. D., Los Angeles.
W. L. Vanderburg (O), San Francisco.
G. F. Reinhardt, Berkeley.
F. R. Burnham, San Diego.

The Board met for organization early in May, but at the time of going to press we have not learned the result of the election of officers.

COUNTY SOCIETIES

ALAMEDA COUNTY.

Dr. Albert Abrams, of San Francisco, addressed the society on the subject of thoracic aneurism. He coined the word spondylotherapy, to indicate the rational treatment of disease by means of methods

applied to the spinal region. He reviewed the history of this subject and directed attention to numerous vertebral reflexes which he had discovered and which subserved a valuable purpose in diagnosis and treatment. Special attention, however, was directed to the aortic reflexes of contraction and dilatation. The former was elicited by concussion of the seventh cervical vertebra, and the latter by concussion of the four lower dorsal vertebrae.

After eliciting the aortic reflex of dilatation, one could define the arch of the normal aorta and any increase in the area of the latter signified either dilatation or aneurism of the aorta. He had examined forty-two cases of thoracic aneurism and noted an absence of the reflexes in only two patients in whom the aneurism had attained enormous dimensions. It had occurred to the speaker that, if concussion of the seventh cervical spine would cause contraction of an aneurismal sac, this fact could be utilized in treatment and the results had exceeded his expectations. The treatment consisted of percussion vibration of the seventh cervical spine. The results are immediate and within a few minutes the pressure symptoms can be made to evanesce. He recited the histories of several patients and presented one patient to the society. In the latter case all the symptoms had practically disappeared after the first treatment and the patient had gained twelve pounds in weight in about two weeks. The speaker had not the hardihood to regard his method as curative, for time alone was the decisive factor, yet a conservative estimate of the results prompted him to say, that as a palliative method of treatment it surpassed any which has yet been introduced. He referred to the comment of one noted physiologist, who declared that the reflexes were not possible for the reason that the aneurismal vessel had lost its elasticity. We concede, said the speaker, that an aneurism pulsates, and as this phenomenon is dependent on the elastic recoil of the walls, it follows that elasticity of the vessel is not annihilated in aneurism. The physiology of the aortic reflex of contraction concerns itself with stimulation of one of the subsidiary vasoconstrictor centers in the cord which has been empirically located at the spine of the seventh cervical vertebrae, whereas the counter reflex of dilatation is evoked by stimulation of the vasodilator centers in the cord.

SHASTA COUNTY.

The Shasta County Medical Society met April 17th in Redding. Dr. R T. Legge of McCloud read a paper on "Iodine as an Adjunct in Surgery," in which he extolled its merits as a sterilizing solution for sutures, and in strong solution or tincture for sterilizing finger nails, vaginas and within uterus in puerperal sepsis. He recommended it highly in sinuses and pus cavities and reported several cases of chronic empyema after resection in which irrigation with a straw-colored solution brought quick cures.

Dr. C. E. Reed of Redding read a paper on "A Theory and Possible Method of Prevention of Eclampsia," in which he showed that 1/20-1/30 gr. doses of calomel every hour increased the quantity of urine and urea which was found greatly reduced at commencement of treatment to near normal in several pregnant women, while at the same time the amount of albumen was reduced or remained the same. The cause of eclampsia was not to be sought in the kidney, but possibly in the liver, as indicated by the urea.

Dr. Legge exhibited an appendix studded with tubercles which was removed from a young man with tubercular peritonitis.

The committee on Fee Bill reported a "Revision upwards" which was adopted.

Dr. Hugh Cross of Dunsmuir and Dr. Chas. A. Bell of Round Mountain were elected to membership. B. F. SAYLOR, Secretary.

NEW SOCIETY FORMED.

A society has been organized under the auspices of the Public Health Association for the study and prevention of the venereal diseases. All interested are asked to give ther names to Dr. Frances M. Greene, President, of Berkeley, or Dr. Archibold, Secretary.

TO THE EDITOR.

Dr. Philip Mills Jones,
San Francisco, California.

Dear Doctor:

In "Human Life," a magazine of which I never heard until I received the April copy, there appears a writeup of father, Charlie and I, which is substantially a reproduction of the article published broadcast about two years ago, and about which we wrote a letter to the medical journals at that time This particular issue is written so fulsomely as to hold us up to derision and has been sent as a marked copy to a large proportion of the regular medical profession in Wisconsin, Minnesota and Iowa. Not only has this marked copy been sent, but a few days after a follow-up letter came, again calling particular attention to this article under the guise of asking for subscriptions.

So far as we can learn it has been sent only to physicians, and evidently maliciously, with a view of injuring our standing with the medical profession, as every practitioner receiving such a copy would take it as a personal insult. Many physicians with whom we are not acquainted might believe that we knew of it or could have prevented it.

The animus lying behind this attack is evidently the same as is trying to secure a change in the management of the Journal and the Association; evidently the idea is to discredit the Association through attacks upon those who have been influential in its management. I was president of the American Medical Association when some of these reform movements were initiated.

Can you tell me whether there has been the same distribution of the "Human Life" magazine in your State? If you can learn anything which will be useful to us in protecting ourselves please let us know. Yours very truly,

W. J. MAYO.

PUBLICATIONS.

Clinical Diagnosis and Treatment of Disorders of the Bladder with Technique of Cystoscopy. By Follen Cabot, M. D. Price, $2.00. E. B. Treat & Co., 1909.

It is very evident that this work is almost entirely the result of the author's personal experience and not a compilation of facts derived from other sources. It deals with the subject in a most practical and interesting manner. The author includes facts pertaining to the prevalence of syphilis and gonorrhea in the innocent and calls attention to the educational measures which are of value in diminishing the ravages of these diseases in the innocent; and while the author has deviated from the subject of the book in this particular, he is to be congratulated for so doing and I trust it will aid Dr. Cabot in his good work in this direction. The classification of epithelia is taken from Lenhartz-Brooks and is based upon their appearances when scraped from the mucosae, and which rarely corresponds to the appearances when found in urine. The illustrations of epithelia are very incomplete and misleading. Cystoscopy is treated in a most practical manner and distinctly shows that the author writes from a large practical experience. In connection with the subject of tumors

of the bladder, the author does not fully realize the value of the Nitze operating cystoscope; while he admits that Nitze and others have successfully removed many tumors from the bladder, he almost immediately follows this statement by questioning the completeness of the operation. The author admits that he has had no experience in this direction, and I am sure he does not recognize the advantages of the method when properly carried out. The book is full of practical facts, however, and is deserving of the highest recommendation. H. M.

NEW AND NON-OFFICIAL REMEDIES.

Since advising you April 1st, the Council has acted on the following products:

Articles accepted for N. N. R.:

Arsacetin (Victor Koechl & Co.).
Urethan "Hoechst" (Victor Koechl & Co.).
Soamin (Burroughs Wellcome & Co.).
Tabloid Soamin (Burroughs Wellcome & Co.).
Bile Salts (Fairchild Bros. & Foster).
Iodone Surgical Dressing and Dusting Powder (Henry C. Blair Co.).

Articles accepted for N. N. R. Appendix:

Elixir Duozyma (Louisville Pharm. Works).

CHANGES OF ADDRESS.

Zobel, Alfred J., to 518-520 Shreve Bldg., San Francisco, Cal.

Dixon, Thos. Harry, Grafton, Yolo Co., Cal.

Brown, Fred'k A., Lompoc, Cal.

Wilkes, Jno. P., Boulder Creek, Cal.

Kay, Milton M., Artesia, Los Angeles Co., Cal.

Beckett, Wesley W., from Pacific Mutual Building to Exchange Building, Los Angeles, Cal.

Barnum, O. S. (Retired), from 443 S. State st., to Fay Building, Los Angeles, Cal.

Norton, Frank L., from Mason Bldg., to 2311½ Vermont ave., Los Angeles, Cal.

Shumway, Jno. P., from 1131 Westlake ave., to San Fernando Bldg., Los Angeles, Cal.

Wing, Elbert, from Kerckhoff Bldg., to 560 S. Main st., Los Angeles, Cal.

Jordan, Fischer R., from 1111 Washington st. to First National Bank Bldg., Oakland, Cal.

Ledyard, C. C., Las Encinas, Los Angeles Co., Cal.

McNeil, Harvey G., from Pacific Mutual Bldg., to Exchange Bldg., Los Angeles, Cal.

Walker, Benj. F., from Baldwin Bldg., to Elks' Bldg., Stockton, Cal.

Decker, C. W., from 643 W. 16th, to 656 W. 16th, Los Angeles, Cal.

Wood, W. B., from 4501 Central ave., to San Fernando Bldg., Los Angeles, Cal.

Legault, Jos. W., from 14 San Pablo ave., to 1219 Broadway, Oakland, Cal.

Dodds, Thos. G., from San Francisco to 1202 E. 23rd st., Oakland, Cal.

Wismar, Wm. F., from Pacific Electric Bldg., to Wright and Callender Bldg., Los Angeles, Cal.

Winter, Albert H., from 313 W. 3rd st., to Wright & Callender Bldg., Los Angeles, Cal.

Butler, Jos., from 1178 Eddy st., to Phelan Bldg., San Francisco, Cal.

Prentiss-Smith, Alice, from Turlock, to 1306 5th st., San Diego, Cal.

Bryant, Chester W., from Oroville, to Redding, Shasta Co., Cal.

Chase, Raymond E., from Frost Blk., Los Angeles, to 615 W. 4th, Glendale, Cal.

Hull, J. P., from Holden Drug Store Bldg., to Savings and Loan Bldg., Stockton, Cal.

Mauzy, Wm. P., from 654 14th st., to 1207 Grove st., Oakland, Cal.

Campiche, Paul L., 1705 Powell st., San Francisco.

Wahl, Hugo A., from 1703 O'Farrell st. to Pacific Bldg., San Francisco.

Cothran, W. F., from Dos Palos, to Seabright, Santa Cruz Co., Cal.

Bates, Homer O., from 357 E. Ocean Park ave., to 11Pine st., Long Beach, Cal.

Leix, Fred'k, from San Francisco, to Napa st., Sonoma, Cal.

Gundry, F. J., from San Francisco, to McCloud, Cal.

Ballard, J. Stow, from 3303 Clay st. to 135 Stockton st., San Francisco, Cal.

Luttrell, P. H., Jr., 135 Stockton st., San Francisco.

Potter, C. D., from 2034 Baker st., to 135 Stockton st., San Francisco, Cal.

Wrenn, Jos. T., from 1111 Stanyan st., to 3605 20th st., San Francisco, Cal.

Nelson, Lois, from 621 55th st., Oakland, to 1876 Cedar st., Berkeley.

Bell, Chas. A., from Los Angeles, to Round Mountain, Shasta Co., Cal.

Freiman, H. M., from San Francisco, to Amador City, Amador Co., Cal.

Crees, Robt., from San Luis Obispo, to San Mateo, Cal.

Remmel, A. J., from 1253 6th ave., to Phelan Bldg., San Francisco, Cal.

O'Brien, Jas. W., 201 K. st., Sacramento, Cal.

Gray, Frank P., from 2407 Sacramento st., to 2401 Buchanan st., San Francisco.

NEW MEMBERS.

Taylor, H. N., Maricopa, Cal.
Cook, W. H., McKittrick, Cal.
Queirolo, C. A., Oakland, Cal.
Abrahamson, Milton, San Francisco.
Jacobs, S. N., Trinity Hospital, San Francisco.
Baker, C. C., San Francisco.
Shortlidge, E. D., San Francisco.
Guntz, A. V., San Francisco.
Molony, Martin, San Francisco.
Paroni, Romilda, San Francisco.
Williams, Edith Hammond, San Francisco.
Rothganger, Geo., San Francisco.
Birtch, Fayette W., San Francisco.
Bruman, A. K., San Francisco.
Campiche, Paul, San Francisco.
Canney, Fred'k G., San Francisco.
Dozier, E. D., San Francisco.
Kronenberg, H., San Francisco.
Munter, Leo, San Francisco.
Murphy, J. D., San Francisco.
Newman, Lester, San Francisco.
Nielsen, Soren, San Francisco.
O'Neil, M. E., San Francisco.
Painton, H. R., San Francisco.
Rochex, Jos., San Francisco.
Ross, A. B., San Francisco.
Rosenthal, A. G., San Francisco.
Wortmann, H., San Francisco.
Castle, H. E., San Francisco.
Palmer, C. B., San Francisco.
Greene, Frances M., San Francisco.
Powers, C. L., San Francisco.
Berg, Adolph, San Francisco.
Remmel, A. J., San Francisco.
Taubles, G. H., San Francisco.
Chadwick, F. C., San Francisco.
Deininger, Marguerite, Point Richmond, Cal.
Cross, Hugh, Dunsmuir, Cal.
Bell, Chas. A., Round Mountain, Cal.
Haworth, M. W., Sacramento, Cal.
Watson, Wm. S., Sacramento, Cal.

DEATHS.

Pirtle, Jno. M., Los Angeles, Cal.

Zabala, J. L., Salinas, Cal.

Arnold, J. R., formerly of Redding, died in Alameda, Cal.

BOARD OF EXAMINERS, APRIL SESSION.

Passed.

School of Medicine.	Date of Graduation.	Percentage
Cal. (Fcl.) Med. Coll., Cal	5, 16, 06	78.0**
Coll. of P. & S., Los Angeles, Cal	6, 26, 08	75.0**
Coll. of P. & S., S. F., Cal	5, 14, 08	82.1*
Coll. of P. & S., S. F., Cal	5, 10, 08	81.7
Coll. of P. & S., S. F., Cal	5, 17, 06	80.5*
Coll. of P. & S., S. F., Cal	5, 17, 06	78.2**
Coll. of P. & S., S. F., Cal	5, 17, 06	76.6**
Coll. of P. & S., S. F., Cal	6, 6, 07	76.2*
Coll. of P. & S., S. F., Cal	5, 17, 06	75.7**
Coll. of P. & S., S. F., Cal	1, 25, 02	75.2*
Coll. of P. & S., S. F., Cal	6, 6, 07	75.0***
Cooper Med. Coll., S. F., Cal	5, 8, 07	79.0
Cooper Med. Coll., S. F., Cal	5, 9, 05	76.0
Cooper Med. Coll., S. F., Cal	5, 5, 08	75.0
Hahnemann Med. Coll. of the Pac., Cal	5, 21, 08	76.5*
Univ. of Cal., S. F., Cal	5, –, 08	89.1
Univ. of Cal., S. F., Cal	5, 13, 08	80.8
Univ. of Cal., S. F., Cal	5, 12, 08	79.9*
Univ. of Cal., S. F., Cal	5, 12, 08	78.6*
Univ. of So. Cal., L. A., Cal	6, 13, 07	80.7*
Univ. of So. Cal., L. A., Cal	6, 14, 06	80.5**
Univ. of So. Cal., L. A., Cal	6, 18, 08	78.5
Univ. of So. Cal., L. A., Cal	6, 18, 08	75.0
Univ. of So. Cal., L. A., Cal	6, 13, 07	75.0***
Univ. of So. Cal., L. A., Cal	9, 5, 04	75.0****
Coll. of P. & S., St. Louis, Mo	4, 27, 08	75.6*
Coll. of P. & S., N. Y	6, 12, 07	83.6
Dunham Med. Coll., Chicago, Ill	5, 8, 02	75.0
Harvard Med. School, Mass	–, –, 99	83.5
Harvard Med. School, Mass	6, 26, 07	81.4
Ky. School of Med., Ky	6, 23, 93	85.8
Marion-Sims Med. Coll., Mo	4, 9, 98	80.3
Med. Coll. of Indiana	3, 29, 98	81.3
Northwestern Univ., Ill	6, 15, 99	77.0
Rush Med. Coll., Ill	6, 8, 09	90.9
State Univ. of Iowa	3, 9, 92	82.1*
Tulane Univ., La	6, 20, 08	75.1
Univ. of Minn	6, 4, 96	82.4
Univ. of Toronto, Can	6, –, 06	87.0
Univ. of Vermont	6, 26, 07	75.0*
Univ. of Vermont	7, 5, 00	78.0
Washington Univ., Mo	5, 23, 07	87.4*
Woman's Med. Coll. of Penn	5, 20, 08	84.2
Yale Univ., Conn	6, –, 04	86.4

Failed.

Coll. of P. & S., L. A., Cal	6, 26, 08	52.0*
Coll. of P. & S., L. A., Cal	6, 26, 08	28.0*
Coll. of P. & S., S. F., Cal	5, –, 06	72.3*
Coll. of P. & S., S. F., Cal	6, 6, 07	72.1***
Coll. of P. & S., S. F., Cal	6, 6, 07	70.0
Coll. of P. & S., S. F., Cal	5, 22, 06	45.5
Hahnemann Med. Coll. of the Pac., Cal	5, 21, 08	72.3*
Univ. of So. Cal., L. A., Cal	6, 18, 08	72.4
Baltimore Med. Coll., Md	5, 21, 08	62.0
Coll. of P. & S., Univ. of Ill	5, 20, 02	73.4
Creighton Med. Coll., Nebr	5, 3, 04	70.0
Hahn. Med. Coll., Chicago, Ill	3, –, 86	75.8
Hahn. Med. Coll., Chicago, Ill	4, 2, 98	70.5
Harvard Med. School, Mass	6, 29, 98	69.3
Homeo. Coll., Univ. of Mich	6, 30, 92	66.0
Jefferson Med. Coll., Pa	5, 4, 94	66.6*
Jefferson Med. Coll., Pa	5, 15, 95	56.2*
Ky. Sch. of Med., Ky	3, 15, 89	65.2
Oregon Univ., Med. Dept., Oreg	5, 4, 08	73.8
State Univ. of Iowa	3, 12, 90	69.9*
Univ. of Mich., Dept. of M. & S., Mich	6, –, 02	70.8
Washington University, Mo	5, 2, 01	73.6

Osteopathy—Passed.

L. A. Coll. of Osteopathy, Cal	1, –, 08	78.5
L. A. Coll. of Osteopathy, Cal	1, 28, 09	78.4
L. A. Coll. of Osteopathy, Cal	1, 28, 09	78.4
Pac. Coll. of Osteopathy, Cal	2, 4, 09	77.3

Osteopathy—Failed.

Pac. Coll. of Osteopathy, Cal	2, 4, 09	68.1

* Taken before.

NEW LICENTIATES.

Abbott, Ura S.; Anderson, Oscar; Baird, Harry R.; Barber, Ora M.; Barnard, R. P.; Blass, Leo; Burch, E. Lee; Cartwright, S. W.; Crane, C. C.; Davis, Wm. O.; Dickson, Ernest C.; Elder, Alva R.; Ferry, Francis C.; Fleischner, Emanuel C.; Foster, Harry E.; Goodfellow, Ferdinand; Graham, Chas. Martin; Grimmer, E. M.; Hanley, Jas. C.; Harris, I. Dee; Howard, Burt Foster; Howe, Louis P.; Jackson, Arthur H.; Jewel, Robert T.; Krebs, Otto F.; Lantz, Viola; McKibbon, Fred W.; MacLaughlin, W. E.; Macrae, Annie D.; Moore, Harry S.; Norton, Chas. Worth; Powell, Alvin; Preston, Addison W.; Prigge, Henry; Ragland, D. C.; Reud, Wm. R.; Richards, Chas. M.; Shilling, W. R.; Simonds, Paul E.; Skoonberg, A. E.; Smith, B. F.; Spalding, Robert B.; Styan, Wm. E.; Thorpe, Harvey L.; White, Laertes T.; Williams, Harry deNell; Wood, W. A.; Young, F. P.

ARMY MEDICAL CORPS EXAMINATIONS.

The Surgeon General of the Army announces that preliminary examinations for appointment of first lieutenants in the Medical Corps of the Army will be held on July 12, 1909, at points to be hereafter designated.

Full information concerning the examination can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice. The examinations will be held concurrently throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible.

The examination in subjects of general education (mathematics, geography, history, general literature, and Latin) may be omitted in the cases of applicants holding diplomas from reputable literary or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School.

The recent Act of Congress giving an increase in the Medical Corps, together with a larger regular Army, will permit of a great variety of medical and surgical work, besides affording opportunities for those specially qualified to engage in special work, such as surgery, sanitation, chemistry, pathology, microscopy and bacteriology.

All appointments are made with the rank of first lieutenant ($2,000 per annum). At the end of three years the officer is promoted to captain at $2,400, which, at the end of five years' service is increased to $2,640, etc. In addition to this, officers are furnished with quarters, medical attendance and medicines for themselves and their families, the privileges of the commissary, mileage at the rate of seven (7) cents per mile when traveling under orders, and allowed one month's leave per year with full pay, which may be allowed to accumulate to a maximum of four months; also the privilege of retirement. These allowances are estimated to add from $1200 to $1600 to the yearly compensation in the grades of First Lieutenant and Captain.

In order to perfect all necessary arrangements for the examination, applications must be complete and in possession of the Adjutant General of the Army on or before June 10, 1909. Early attention is therefore enjoined upon all intending applicants, and free correspondence with the Surgeon General's office is invited on any subject connected with the examination. There are at present 103 vacancies in the Medical Corps of the Army.

UNITED STATES PHARMACOPOEIAL CONVENTION.

Official Announcement of the First Decennial Meeting.

Philadelphia, Pa., May 1, 1909.

In accordance with the provisions of Article VIII, Chapter 1, of the By-Laws of the U. S. Pharmacopoeial Convention, the president of the convention hereby invites the several bodies, entitled under the constitution to representation therein, to appoint delegates to the first Decennial meeting of the said convention to be held in the City of Washington, May 10, 1910.

The attention of all concerned is invited to the following extract from the constitution:

ARTICLE II.

Membership.

Section 1. The members of the United States Pharmacopoeial Convention, in addition to the incorporators and their associates, shall be delegates elected by the following organizations in the manner they shall respectively provide: Incorporated Medical Colleges, and Medical Schools connected with Incorporated Colleges and Universities; Incorporated Colleges of Pharmacy, and Pharmaceutical Schools connected with Incorporated Universities; Incorporated State Medical Associations; Incorporated State Pharmaceutical Associations; the American Medical Association, the American Pharmaceutical Association, and the American Chemical Society; provided that no such organization shall be entitled to representation unless it shall have been incorporated within and shall have been in continuous operation in the United States for at least five years before the time fixed for the decennial meeting of this corporation.

Sec. 2. Delegates appointed by the Surgeon-General of the United States Army, the Surgeon-General of the United States Navy, and the Surgeon-General of the United States Marine Hospital Service, and by the organizations not hereinbefore named which were admitted to representation in the convention of 1900, shall also be members of the corporation. Each body and each branch of the United States Government above mentioned shall be entitled to send **three delegates** to the meetings of this corporation. But no such delegates as are provided for in this article shall be members until their credentials shall have been examined and acted upon as provided for by the by-laws. Delegates admitted as members at any decennial meeting shall continue to be members of the United States Pharmacopoeial Convention until their successors shall have been appointed and admitted as delegates to the ensuing convention and no longer.

Notification of the appointment of delegates, accompanied by the necessary certification of eligibility as required by Article II, Section 1, of the Constitution above quoted, should be forwarded as soon as practicable to the Secretary of the Board of Trustees.

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1841 Summit Place, Washington, D. C.

California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

PHILIP MILLS JONES, M. D., Secretary and Editor

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ADDRESS ALL COMMUNICATIONS

Secretary State Society, - - Butler Building,
State Journal, - - - San Francisco.
Official Register, - - -

Telephone Douglas 2537

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VOL. VII JULY, 1909. No. 7

EDITORIAL NOTES.

THE A. M. A MEETING.

The annual meeting of the Association, held this year at Atlantic City, was remarkable only for the fact that it seemed to crystallize the general feeling of approval of those policies of the Association which have brought forth such a deluge of criticism from certain questionable quarters. The attendance was not so large as two years ago—not exceeding 4000. Probably the cold and rainy weather which prevailed had a good deal to do with keeping many members away. Work in the sections was quite up to standard (and that is saying a good deal) and in some instances was far beyond any previous effort. A symposium on Vaccines and Sera, in the Section on Therapeutics, was of remarkable importance and attracted a large attendance of the foremost men in American medicine. We shall hear more of this work in the future. Significant is the fact that in this Section, Dr. Edsall was elected Chairman and Dr. Motter Secretary; both of these gentlemen are and have been actively identified with the progressive work of the Council on Pharmacy and Chemistry. There was no suggestion of anything but the fullest approval and endorsement of the work of the Council; the various interests which have in previous years attacked the Council, were silent—it is to be hoped they may so remain. In the Surgical Section, the program was also a most valuable one and the tendency to put young men on the program is to be most highly commended. Dr. Charlie Mayo was elected Chairman of the Section in Surgery, which may be construed as an expression of esteem for him in the face of the very defamatory article which was widely circulated only a short time ago; and was so written as to make it appear as though it were an advertisement of the Mayos. There was probably a lot of Proprietary Association money back of this attack, but the Section on Surgery properly estimated its worth.

THE NEW OFFICERS.

When it came to the election of officers, there seemed to be even more than usual unanimity of opinion in the House of Delegates. There was no contest over any office save that of one of the Vice-Presidents, and in this instance the feeling was entirely friendly. Dr. William H. Welch, of Johns Hopkins, was the unanimous choice for President; he has served the Association for a number of years as a Trustee and has the confidence and respect of every member of the Association. Dr. Robert Wilson, Jr., of South Carolina, Dr. C. J. Kipp of New Jersey, Dr. Alex. Lambert, of N. Y., and Dr. Stanley Black of California, were elected, respectively, first, second, third and fourth Vice-Presidents. Dr. Frank Billings was elected Treasurer. Before the nomination for General Secretary, Dr. Smith, of Portland, Oregon, made a vicious attack in veiled language upon Dr. Simmons and the Trustees, voicing to some extent the antagonistic views of Lydston, recently promulgated at enormous expense to—whom? But Smith's was the only voice in that assemblage of 135, representing every state and section of our country, that criticized the policy of honesty and progress to which the Association is committed. After the re-election of Dr. Simmons, which brought forth vociferous applause and genuine enthusiasm, Dr. Smith retired from the room and was not seen there again. Doubtless he joined Dr. Lydston in the friendless obscurity of solitude; for be it known that Lydston was there, but scarcely a soul could be seen at any time, talking with him. Poor old Lydston! *Requiescat in pace.*

THE NEW TRUSTEES.

Last year three new Trustees were elected and this year three more new members were chosen; thus in a period of two years, six new members have been elected, a thing that has never occurred before in the history of the Association. But there is nothing in any way reactionary in this; rather, the new members are, if anything, more actively supporting the policies and the work of the Association. Dr. Smith, of Portland, is quoted as saying that in his opinion the House of Delegates was controlled by a "ring of about 80; and they were all present"! Now wouldn't that jar you! Imagine a "ring" of 80 out of 135 delegates! But that is merely incidental. Dr. T. J. Happell, who had been a Trustee for a dozen years or more, died a few weeks ago; to fill his unexpired term of two years, Dr. Cantrell, of Texas, was elected. The retiring Trustees were Dr. Welch, Dr. Porter and Dr. Harris. Dr. Harris, of Chicago, was re-elected,

and Dr. Dougherty, of Indiana, and Dr. Councilman, of Boston, were elected to fill the other vacancies. These men are all absolutely above question and each is distinguished among his fellows in his own section of the country. The mud-slinging, the abuse, will undoubtedly be continued; but do you think for a moment that men of the stamp chosen to be the responsible officers of the Association are going to do or be a party to the doing of anything that is not right, and honest and for the best interests of the Association and of the entire medical profession of this country?

PLACE OF MEETING.

The Delegates from California to the House of Delegates of the American Medical Association did everything in their power to secure the election of Los Angeles for the place of the next annual session; but it was not to be. Under instructions from our own State Society, they were active and persistent in their efforts but several things were against them. St. Louis was also out for the meeting and the middle-western contingent worked mighty hard for that city. They argued that it was central and would draw a very large attendance, a desirable thing owing to the comparatively small attendance this year as a result of the very bad weather. And, of course, the majority of Easterners look with horror upon a trip of more than twenty-four hours. So St. Louis was chosen. But the probabilities are that, should California extend an invitation next year, the Association will come to our state. It last met in California in 1894.

GATHER ENERGY.

Just because it is Summer time, and vacation time, don't let all your interest in and enthusiasm for your society work dissipate into thin nothingness. Remember that it is up to our medical organizations to see that the people of this state get proper public health laws and proper protection. We have got to do this work if it is to be done, and any one will grant that it should be done. Think about it this Summer and this Fall; find out who, in your vicinity, are going to be candidates for nomination to the legislature—and then see to it that they are properly educated in the matter of public health protection. Let them see just where the quack and the unlicensed, ignorant practitioner are a menace to themselves and their families; let them know just how an epidemic of smallpox or typhoid will hurt the whole community financially, and every single business interest in it. You can not begin this work too soon, for the political bee begins buzzing in the head of the office seeker very early; this Fall is the time to take up the work and keep it going until every possible candidate has been seen and talked with and has given his word that he will, if elected, vote properly upon all matters of public health legislation. And teach him, too, that there are always a few renegade physicians who will oppose the views and the recommendations of the united profession, for their own personal and selfish ends. For instance, all bills tending to create special boards of examiners for special cults are merely bills to license additional numbers of incompetents. All bills tending to lower (or change—for the proposed "changes" are always downward, when they are analyzed) present medical standards are supported by selfish interests—generally by those connected with schools of one sort or another that can not or will not comply with the required standards or teach medicine properly. This information should be imparted long beforehand, for when a man once gets to the legislature he is too busy to give much time to any one particular thing; it is better that he should know beforehand and should have promised to keep in touch with his county medical society and take his advice from that body. When you are taking your vacation this year, think about these things and gather energy for the campaign in the Fall. There seems to be no good reason why we should not have a pretty well posted legislature next session if we devote a little time and energy to the work. It is worth while.

TAKE A VACATION.

That is just what the Editor is going to do, and what he advises every one of you to do; take a *real* vacation, even if it is for only ten days or two weeks. Get away from all "shop"; don't think about anything medical; don't talk "cases" with any other physician; get away into the country, near to the inspiring voice in the soil and in the trees, and let Nature put new energy into you—new thoughts, new ambitions; broader plans and views. Take a real vacation of the mind and let yourself get out of the rut into which we all find our way by too steady and too narrow application. Take a vacation.

CRITICAL NOTES ON MELANCHOLIA AND OTHER MANIFESTATIONS OF THE DEPRESSION PSYCHOSIS.

By CLARENCE QUINAN, M. D., San Francisco.

A fairly extended experience with the acute psychoses, particularly melancholia, leads me to believe that a part of what passes among physicians for neurasthenia is nearly akin to alienation, and that formes frustes of mental disorders are more prevalent than we generally believe.

It is doubtful whether an adequate cause for this widespread mental instability may be discovered in modern conditions of living, though it is possible that crowding of population in large cities may conduce to psychic affections by lowering the general average of vitality. Were this the only cause we should be justified in concluding we pay too dearly for the manifold luxuries of twentieth century civilization; it is extremely probable, however, that indiscriminate crossing of vicious strains of human stock is the chief predisposing factor, and there is good reason to believe that this alone creates the psychopathic taint. Whatever the potential elements may be, at any rate, the fact remains

that in all levels of society there are unmistakable evidences of a neurotic undercurrent; trifling ailments with hypochondriacal exaggeration of some one symptom, somnambulism, localized anxieties, dissociations of character and so on to manifest unsoundness of mind. Morel wrote impressively of the degenerate types of his day, what would he say of our physical and mental shortcomings?

Of recent years there has been so much vague talk of things "functional" and "organic," of suggestive therapy and the like, it has seemed desirable to sift out the substantial facts of a single pure psychosis with a view to determine to what extent material and psychic elements intermingle.

The present paper lays no great claim to originality. In it I have assembled various data gathered during an enquiry into the literature of melancholia together with some personal observations. I have attempted a reconstruction of the clinical picture of melancholia by drawing freely upon the general literature of the subject without particular regard to academic border-line distinctions. As a suitable introduction to this, as far as possible I have brought together the principal facts which support an hypothesis of intoxication.

It is very difficult to add anything to existing facts. Indeed, the literature of alienation illustrates very strikingly the truth of the old saying there is nothing new under the sun. Thus, we find that even at the close of the French revolution, Pinel, Haslam and contemporary alienists, had observed and carefully grouped the essential phenomena of insanity. Since then, other leaders in psychiatry, Esquirol, Falret, the younger Pinel, Tuke, Sankey and Kraepelin have added much to our knowledge; alas, just sufficient to demonstrate the solidity of our ignorance. We are too apt to accept some metaphysical refinement as evidence of progress, forgetting that by this means we do not approach the ultimate cause. Lloyd, quoting Legrand du Saulle, says: "In spiritualizing insanity too highly we arrive at false medical consequences. It is not as a philosopher that we should study insanity but as a physician."

Though learned definitions of alienation are a staple product of psychiatry, practically nothing is known of the relation of insanity to the cortical cells. It is the Sphinx question of to-day. Naturally enough one shrinks from attacking a problem so difficult. In reasoning upon the phenomena of melancholia, however, may we not at least consider two very obvious possibilities, namely, first, alienation is independent of cell change expressing an abstract principle, and, second, alienation is due to a disturbance of the brain cells. It is natural to adopt the latter view as more nearly in harmony with modern scientific thought. In doing so, however, are we not well within the facts if we at the same time admit the probability that insanity is a status of intoxication, since cell deterioration at last is a chemical process? If this be conceded, it is evident that we confront two further possibilities. Either the active intoxicant is formed within the cranium, or, it is brought there from without, a product of some other part of the body. In other words, it is conceivable that insanity may reflect a local or a general intoxication. That it is probably not due to a localized cerebral process is suggested by the absence of mental symptoms in many instances of brain tumor, and by the fact that considerable portions of cortical substance may be removed without materially affecting the mind. Conversely, many facts support an assumption of general intoxication. For example, Esquirol's tables show, and it is the common experience, that death in melancholia is usually due to extra-cranial disease; again, gastro-intestinal disturbances, mal-assimilation and depreciation of general health always accompany this psychosis, and, finally, as Head has shown, symptoms of depression with hallucinations of sight and hearing are not infrequent in many visceral diseases.

Taking another point of view, it has been suggested by Dr. Brush that mental disorder may indicate the absence of certain elements indispensable to the welfare of the brain. This in turn brings up the question of heredity and with it the query, is there such a thing as congenital deficiency or absence of some internal secretion? Having in mind the phenomena of cretinism this possibility may be considered. But, the outspoken psychosis is usually an affliction of adult life. Manifestly, then, if full value be allotted to the congenital factor, melancholia must be regarded as the result of a cumulative general intoxication. Against this speak, however, the possible absence of all symptoms until the onset of the involution period, and, the frequency of spontaneous recovery from the most severe attacks at any time in life. We are forced to conclude, therefore, that if mental equilibrium be dependent upon some internal secretion, insanity does not indicate congenital absence of it but rather a temporary abeyance of function of the specific gland. Evidently, in a negative way this strengthens an intoxication hypothesis.

Of the various attempts to associate mental disorder and cell change, none has been very successful. Turner, it is true, found paleness of the giant and pyramidal cells of the cortex, granulation and disappearance of the central chromophile substance, and shriveling of the nuclei. And Orr, who partly confirmed these findings, states that the chromophile elements of the pyramidal cells show distinct rounding of their outlines, but adds that the degree of disintegration is not striking. He concludes: "If we take into consideration the fact that morbid changes are found in the nerve cells of the cortex and the posterior spinal root ganglia, and in the myelin sheaths and to a lesser extent the axis cylinders of the cord, and that the liver, kidneys and heart show definite alteration as well, we must come to the conclusion that all such alterations in the acute insanities are the result of an acute general intoxication." Evidently, then, if we view these histological findings in the proper perspective, we may conclude that no massive cell alterations have been discovered in any portion of the cortex; that,

on the contrary, even in very severe and prolonged melancholia no characteristic cell change occurs, at least, none free from the objection that it might have been caused by post-mortem conditions.

A few additional references will serve to demonstrate the lack of uniformity in pathological reports. Thus, Athanassio, in fifty necropsies observed "anaemia of the encephalic centres, excess of cerebro-spinal fluid in the ventricles, and oedema of the pia, arachnoid and cerebral substance." He thought the oedema especially characteristic of stupid melancholia.

Hollander concluded that melancholia is a manifestation of a morbid condition of the cortex in the region of the parietal eminence, because fear is produced in animals by stimulation of this area and melancholia, he thinks, should be regarded as a pathological status of that emotion. He points out, further, that this region is in close relation with the sympathetic and vaso-motor systems, both of which are usually implicated in melancholia.

Finally, Rayner indulges the vague belief that "there is an intimate connection in the cortical physical substrata of mental states even when presenting widely differentiated emotional and volitional symptoms."

Taken all in all, these incongruous statements justify us in concluding, provisionally, that melancholia runs its course without any characteristic alteration of the cellular elements of the brain; certainly none which may be regarded as definitely pathognomonic.

A statement of Dr. Loeb's now becomes interesting and perhaps relevant. In discussing the physiology of the brain he says: "It is my opinion that these histological or corpuscular hypotheses of the images of memory must be supplanted by dynamical conceptions." Obviously, by our line of reasoning we drift towards the same conclusion. From this point of view, melancholia appears to be the result of an intoxication, and it is quite likely that the final elucidation of its cause will come from the physical chemist. Instead of an obscure morphological enigma, it is not improbable that we may have alone to do with certain physical or chemical properties of the body fluids.

A few contributions are available which throw light upon the mechanism of intoxication.

D. Abundo and Agostini state that the intestinal mucosa, which they regard as a natural barrier to toxins, may be directly weakened by mental shock or fright. There are certain mental conditions, according to these authors, which "so modify phagocytic action and therefore resistive power that this line of defense is broken down."

Mabille, on the other hand, in a masterly thesis proved that partial sensory paralysis of the alimentary canal is frequent in melancholia. He thinks the aversion to food so common in this psychosis is a logical result of blunted sensation. As he expresses it, "this state of anaesthesia prevents assimilation, lowers vitality, and, in spite of the ingestion of food in sufficient quantity, may give rise to a persistent feeling of hunger." The observations of Semelaigne, Toogood, Ziehen, Kirchhoff and Bruce may be mentioned as in a general way confirmatory of his view. That the anaesthesia of the periphery, which in greater or less degree characterizes the psychoses, should find its counterpart in the gastro-intestinal canal is not surprising. That it may be a factor of preponderating influence should be remembered in reading Rayner's query regarding the mode of origin of the abeyance of appetite. "Does it arise," he asks, "from peripheral anaesthesia, from lowered nutrition, from defective transmission of impressions from the periphery, from neural defect, or toxic conditions affecting the pneumogastric center, or combinations of these?"

Charrin sought to prove that melancholia indicates hepatic disturbance. The idea was of course not original with him, many writers having noted points of resemblance between certain forms of liver disease and the clinical picture in stupid melancholia. For example, Esquirol said, quaintly enough, "Il est certain que le mot mélancolie, méme dans l'acception des anciens, offre souvent á l'esprit une idée fausse, car la mélancolie ne dépend pas toujours de la bile."

Leopold-Levi, Klippel, Dufour and Cololian believe with Charrin that mental disease is intimately related to liver disorder. The first two observers based their views upon a few observations of seeming mental deterioration with hallucinations and delusions occurring as terminal events in atrophic cirrhosis of the liver. The conclusion they reached, however, seems hardly warranted by the facts.

Cololian called attention to several points of resemblance between cholemia and melancholia. He emphasized especially the common occurrence of periocular pigmentation, besides other pigmented spots on the face, trunk and limbs. In both conditions, the blood serum, he assures us, gives the reactions for bile pigment, the inner surfaces of the hands and feet are yellowish, and, finally, "la malade á tres facilement la chair du poule." There can be no doubt of the suggestive interest of these observations on the importance of an hepatic factor in the etiology of melancholia, but further research is needed to make the relation more definite.

The experiments of Townsend show that indoxyl elimination is greatly increased in the depression states. It will be seen, however, that an excess of this body in the urine merely indicates an abnormal proteolytic status in the intestine.

Finally, Haig as well as Lange insists upon the evil propensities of uric acid. According to them, melancholia indicates an excess of this purin acid in the blood.

If a single conclusion may be drawn from these various statements, it is that mental equilibrium in some way is intimately related to the metabolic activities of the abdominal viscera. Whatever may be the precise influence of heredity in the causation of insanity, therefore, we may presume it has to do with the specific cell energy of the abdominal organs. In some way the balance of power is disturbed. As Head puts it: "That barrier which

the normal mind sets between conscious life and that of the viscera, the integrity of which depends on a high potential of vitality in the nervous system, has been broken down." That there is wisdom in this belief none conversant with the phenomena of alienation shall doubt. So far back as 1765, Larry said, according to Roubinowitsch, that "one is born a melancholic." Whether or not we are prepared to endorse this opinion, it is hard to evade the conclusion that this psychosis represents a status of intoxication to which pre-natal influences may or may not contribute, and that, in appraising the resources of a patient afflicted with melancholia, we may feel certain that in proportion as visceral impressions invade the field of consciousness, the co-efficient of vitality is low.

Those who wish to inform themselves more fully concerning the pathology of melancholia, will find various phases of the subject discussed in the papers of Albrecht, Hearder, Ziehen, Johnstone, Marce, Devay, Oppenheim, Vassale, Dees, Pinel and Saury.

The Symptoms of Melancholia.

Before taking up in detail the clinical picture of melancholia, it should be understood that this psychosis is often described as the depression phase of manic-depressive insanity. Under this term Kraepelin and his followers believe we should unite certain mental states which hitherto have been regarded as wholly unrelated. The ground is taken that both depression and manic excitement are interchangeable or alternate phases of the same process, and very likely have a common physical substratum. According to this view, the two phases, though seemingly antithetical, are never completely dissociated, each so modifying the other that pure uncomplicated forms do not occur. This view has received the sanction of many authorities. As a consequence, in recent text books, the word melancholia has been superseded to a great extent by the new term. We would be in error, however, were we to regard the change in nomenclature as indicative of an extension of knowledge. As a matter of fact, the germ of the idea was embodied in Pinel's definition of melancholia, published in 1802. That he recognized the essential facts and appreciated the relation is evident. He describes the disorder in the following words: "Délire exclusif sur un objet, ou série particulié re d'objets; nul penchant á des actes de violence que celui qui peut étre imprimé par une idée dominante et chimerique; d'ailleurs, libre exercice de toutes les facultés de l'entendement; certaines fois égalité constante d'humeur, ou méme état habituel de satisfaction: dans d'autres cas habitude de l'abattement et de la consternation, ou bien aigreur de caractére qui peut étre porté jusqu'au dernier degré de misantropie."

Melancholia does not come full fledged into existence. On the contrary, it is the culmination of a series of events which mark the gradual disorganization of the faculties of judgment. We must reckon with hereditary predisposition and the insane diathesis. Experience shows that a certain lability of psychic equilibrium is characteristic of those individuals who subsequently fall victims to mental disease; there will be evidences of hypersensitiveness, of excessive reaction to slight psychic stimuli coupled with deficient inhibitory power. This is the insane diathesis; a neuropathic tendency which expresses the deadly element of heredity. Fortunately, though all members of a family may present signs of instability in one way or another, the mental disorder usually fastens on a single member, though Wiglesworth has recorded four instances in a single family. The psycopathic individual from childhood has peculiarities which distinguish him from his fellows. He is egotistical, impatient of restraint, of violent temper and yet an arrant coward in the conflicts of boyhood. Often he is thought to possess unusual gifts because of much reading and a habit of aloofness, but, in a majority of instances, it will be found that he is incapable of constructive thought, and he is usually an indifferent performer in mathematics. A lack of proper vitality shows itself in many ways; for example, in deficient capacity for sustained physical effort, in attacks of tachycardia after slight physical and emotional excitement, and a tendency to motiveless laughter. Clouston says the first motor sign of the instability of any brain is an inclination to convulsions during the first dentition. We may go farther and say that at any age the conspicuous over expenditure of energy in performing an act is a suspicious circumstance. Kraus has shown that too much dependence has been placed on the degenerative stigmata. He qnotes Talbot as saying that an individual is not a degenerate who possesses only one deformity, but those persons who have three or four may be considered such.

The probabilities are strong, then, that for years in individuals who finally succumb to melancholia, a process of incubation goes on unperceived. It is in this pre-melancholic period that visceral impressions intrude themselves, and by degrees modify conscious life. At last some physical or mental disturbance supplies the necessary impetus and determines a mental crisis. Thus, Dees relates the history of a woman who became melancholic from association with her insane husband. As she complained of ringing in the ears and pain in the left temple, an aural examination was made, and a large plug of cerumen was removed from the left ear. Within four weeks she was fully restored to health. Hearder reported an analogous observation. His patient, a man of fifty afflicted with acute melancholia was operated on for the removal of a lipoma. Excision was followed by complete recovery from the mental trouble.

As might be anticipated, symptoms referable to the abdomen are rarely absent. Usually, through a number of years it is possible to trace a history of obscure gastro-intestinal troubles; attacks of "gall stone colic," for example, are said to follow indulgence in some particular food, or, without any very definite cause, painful spots appear in the belly. If, however, during one of these seizures a physician be summoned, the pain will often lessen or disappear shortly after his arrival. Another syndrome of an

indefinite character is often encountered. The principal elements in this are constipation, painful sensations here and there in the abdomen, various degrees of dyspepsia and a vague feeling of uneasiness referred to the intestines. Very likely a tentative diagnosis of "obscure functional trouble" is made by the medical attendant and perhaps arteriosclerosis is mentioned or the possibility of ptomaine poisoning is considered. A peculiar depression which manifests itself at this time is either overlooked entirely or else is attributed to "neurasthenia" and so neglected. To the discouragement of the patient, moreover, the constipation and abdominal distress continue unabated in spite of various therapeutic measures. Months later, without any treatment the symptoms gradually disappear and, simultaneously, marked improvement is noted in the general health. It very often happens that some healer reaps all the credit for the restoration. Curious anomalies of appetite are usual. Complete aversion from food is an occasional manifestation and in general the appetite is capricious. Although as a rule light eaters, instances of downright gluttony are not rare particularly when the psychosis is fully established. Among other symptoms which may appear from time to time are dryness of the throat with difficulty in swallowing, abnormal fermentative conditions, and the ever present costiveness. Perhaps these one and all are due to some mural defect of the gut or a disturbance of the osmotic mechanism. At any rate, there seems to be a faulty hydrostatic adjustment, some anomaly in the distribution of fluids in the epithelial wall. We recognize this tacitly by ordering frequent small amounts of fluids for melancholic patients.

Insomnia is rarely absent and is much to be dreaded. Often there is a history of wakefulness extending as far back as the patient can remember. It is the most formidable and refractory symptom of melancholia and its proper control is one of the serious problems of treatment.

Evidences of vaso-motor instability are seldom wanting. Under the influence of emotional excitement especially if there be an admixture of fear, the hands get cold and clammy. At other times they are mottled in appearance and purple or red in color according as the surrounding temperature is cold or warm. The palms sweat easily. A patient described by Schule had, in addition to the vaso-motor spasm, pressure tenderness of the sixth cervical vertebra.

As the psychosis gains ground localized anxieties come gradually into prominence. Any visceral sensation may now become established in a position of central importance. By far the most common, however, is the so-called pre-cordial fear,—the Precordialangst of the German writers. It is an indefinite feeling of anxiety referred to the precordia, often associated with attacks of palpitation of the heart and violent pulsation of the cervical vessels. The anxiety is usually continuous but not of uniform intensity. It is most annoying in the morning hours. While it lasts the precordial region may be hyperaesthetic to such an extent that even the pressure of the clothing is unpleasant. Fears referred to the abdominal viscera take the second place in point of frequency. There are two fairly distinct groups. Of these, one, characterized by pain, is referred by the patient to the appendix and gall bladder regions or in general to the right side of the abdomen. The second group is more definitely associated with the intestines. The most extraordinary statements are made by patients concerning their visceral sensations. Thus, a patient of Cotard's affirmed that she had no chest, stomach nor bowels; nothing remained of her disintegrated body but skin and bones. Seglas reported the case of a young woman with a similar delirium of negation who was firmly convinced that she had no heart. A number of such observations are recorded in the interesting contribution of Vallon and Marie. There can be no doubt that these morbid fears, when no very obvious mental symptoms accompany them, are frequently misinterpreted with the result that serious operations are performed, especially laparotomies, in quest of lesions which never existed. These unfortunates talk in the most logical and convincing way about their various ailments, and in the absence of any suspicion of mental aberration, sometimes their statements gain credence and action is taken.

The characteristic attitude and facies of melancholia manifest themselves gradually. When the psychosis is at its height the patient remains immobile for hours, often opposing a resistance which appears to be voluntary to all efforts to make him move or speak (Delasiauve). All movements are executed slowly and painfully. The legs are stiff and in walking the gait is spastic and awkward. Soon after the onset of the malady the normal hue of health gives place to a peculiar muddy pallor and the skin assumes a mottled, unhealthy look, with at times a definite icteroid tint recalling the appearance in certain liver affections. The face is pale and cyanosed, the eyes cast down, the glance fixed and distrustful, despondency expressed in every feature. It is a true mask corresponding to no human emotion. Sikorsky has shown that all the muscles supplied by the lower division of the seventh nerve are relaxed. As a consequence, there is a drooping of the angles of the mouth, the oral opening is scarcely closed and the naso-labial folds are nearly effaced. The persistent contraction of the frontalis muscle is frequently a conspicuous sign, and this, in contrast with the immobility of the lower part of the face, imparts a peculiar look of age. The characteristic frown appears in response to any stimulus, whether it be a pin prick or the mere asking of a question. According to Kirchhoff, the intermarginate spaces are somewhat narrower than in health, and as the lachrymal secretion is greatly diminished, the eyes look dull and expressionless. Anomalies of sensation may usually be detected as Semal and Bechterew have shown. Modification of the tactile and pain senses are most frequent, and careful examination will usually disclose paraesthetic areas.

The voice is altered both in timbre and volume. It is low, feeble and monotonous. As Semelaigne puts it, "one scarcely hears the words which expire on their lips." Complete mutism is a frequent symptom and may persist for days at a time. Voisin relates an instance of mutism of several years duration, followed by sudden recovery of the voice as the result of fright or strong emotion. On occasion, the speech may have an explosive quality suggesting imperfect control of the executive mechanism. Parant believes that a tremulous tongue is a constant symptom of melancholia.

A complete account of the mental phenomena of the depression psychoses shall never be written. One might as well attempt to circumscribe a disordered imagination, for the insane delirium implicates every expression of human emotion. It is not matter with which we deal, but thought; a thing infinitely elusive. For practical purposes, therefore, it will suffice to outline the more prominent manifestations.

As the depression which dominates the chief stage increases, the patient becomes morbidly introspective, antisocial and much given to self-accusation. As a rule there is a central melancholic idea, but of this he is very reluctant to speak and even the most tactful inquiry will often fail to reveal it. Frequently he becomes suspicious of those with whom he comes in contact, questions the motives of his best friends and is prone to believe that plots are being hatched to his undoing. The various somatic anxieties now become more and more harassing and add a disquieting element to the mental status. They always greatly increase the perplexity and misery of the sufferer, and are a constant source of worry and apprehension. The self-absorption is complete. The power of attention is enfeebled to such an extent that he can read but a few minutes at a time, and he is quite incapable of following a sustained line of thought. The delay in the association of ideas is usually very striking though beyond a manifest obscurity of judgment the train of thought is often not irrational. It is a reasoning delirium. Constantly in the background is the conviction that he is guilty of some frightful moral shortcoming. Delusions and hallucinations make their appearance. Poverty is impending, he will tell you, or a rupture is imminent in his family; his wife is unfaithful, for example, or quite likely he fancies himself desperately in love with some imaginary being. There is no limit to these strange vagaries of the mind. An excellent graphic description of the genesis of an hallucination of hearing has been written by Maudsley. Step by step he traces the evolution, from the first intrusion of a blasphemous thought, to the final stage when the words become as distinctly audible as though spoken by someone. Among the authors who have made important contributions to the literature of the delusions and hallucinations of insanity are Marce, Kiernan, du Motel, Bayle, Cullere, Chase, Lewis and Foville. Most of these writers deal with the subject from the purely metaphysical side. Chase, however, believes that a delusion takes its origin primarily in a perversion of the vital feelings rather than in a derangement of the intellectual activities of the mind. This is interesting because it is consonant with Head's belief in a predominant visceral factor, also it seems to indicate the possibility of a logical connection between mental manifestations and autointoxication. It is the mysterious element, the tincture of the supernatural in such perversions of the normal faculties that lays so strong a hold upon the imaginations of those who attempt a scientific explanation. Hauptmann has shown that the dramatic possibilities of these states may be taken advantage of, in a recent play which illustrates very well how readily the phenomena of insanity pass current as evidence of superior understanding or spiritual enlightenment. An interesting and unusual phenomenon worthy of mention in this connection has been described by Foville in writing of the peculiarities of hallucinated melancholics. Occasionally, it seems, these unfortunates as the result of a systematized delirium, wander from country to country either to avoid persecution or to obtain honors denied them at home. A number of these so-called "wandering Jews" who have circled the globe, rivaling Eugene Sue's famous character, may be seen at the Salpetriére in Paris.

Distortion of the normal emotions is one of the dreadful symptoms of melancholia usually present throughout the chief stage. Every familiar sense impression becomes painful. The mother shudders at the touch of her child; she no longer loves and even dreads to hear the voice of her husband; the slightest sound, if familiar and related to the daily events of the household, now may give rise to the keenest suffering. Curiously enough, though the presence of those near and intimate increases the distress of the sufferer, any effort to bring about separation will meet immediate and violent remonstrance. It is really amazing what a wild demonstration will be made under such circumstances by even the most sedate woman. It is impossible to exaggerate the difficulties which present themselves when isolation of the patient is attempted. The determined opposition of the family may be counted upon. Until the last minute they cling to the victim, prolonging the crisis by their well meant obstinacy. An awakening comes one day, however, perhaps a tragic one; an attempt at self-destruction accomplishing in a moment what no amount of persuasion could effect. We should thank Tuke for censuring those physicians who by euphemistic titles gloss over what is in reality insanity and unsoundness of mind, for there can be no doubt that medical men are to a certain extent responsible for the hostile attitude of the laity in matters of this kind.

About sixty-five per cent of all melancholics betray a definite suicidal tendency. Frequently, by a little adroit questioning, a confession of meditated suicide is obtained even from those patients in search of relief from some fancied ailment, who commonly are designated as neurasthenics. A conviction that life is no longer worth living appears to be the strongest impelling motive. In other instances life is taken in obedience to various imperative ideas; some interior voice commands the deed. Yielding to

sudden impulse is relatively a less frequent cause of suicide. To this last is related in some way the fear of self while on high places, and that self-distrust which is experienced in the presence of a deadly weapon. Bourdin's studies in self-destruction led him to the conclusion that it is invariably the result of a disease process. According to Ziehen the danger is greatest when the depression is accompanied by anxiety. It is necessary to make a distinction between genuine attempts at suicide and those spectacular imitations which are undertaken in the effort to create additional sympathy. The homicidal impulse is comparatively rare. Zenker, however, relates the history of a woman who attempted to cut her husband's throat during the night. That the attempt was not the outgrowth of malice was shown by the fact that very slight injuries were inflicted though the weapon employed was a huge butcher knife. According to her own statement she wished to punish him for his ill treatment of her. In rare instances, auto-mutilation is practiced. Martineuq reported the case of a woman who plunged a compass needle into her abdomen, and tore out her right eye with a portion of the optic nerve adherent; in spite of these dreadful injuries, however, she made a good recovery.

A few of the more unusual complications of melancholia may be mentioned. Ziehen noted in three different patients unilateral facial paralysis which he was forced to regard as symptomatic of severe melancholia; in two of them, asymmetry of the face persisted after recovery.' In two other instances he observed bilateral insufficiency of the internal recti, and paresis of the oral muscles.

A patient of Tomlinson's had the usual tabes syndrome though the subsequent history revealed no organic trouble.

Finally, Oppenheim has recorded the occurrence of choked disk in a melancholic patient.

Prognosis.

The duration of melancholia is extremely variable. Probably the two most important factors to be considered are age and hereditary predisposition. Inferences drawn from statistics alone are not generally applicable. In private practice a large number of incipient cases are treated which never manifest the typical depression and yet must be included in this category. Asylum material, on the other hand, only includes fully outspoken forms of the malady. For this reason, statements as to the percentage of recoveries vary widely. From the reports of Gucci, Farquharson, and Weir-Witchell, on asylum results, and the opinions of Mairet, Griesinger, Guislain and Krafft-Ebing, we may conclude that recovery takes place in young individuals with the acute forms of melancholia in about sixty per cent; that is, about that proportion recover and remain free from relapse. Some authorities place the percentage of recoveries much higher, affirming that fully ninety out of one hundred patients get well. Under ideal conditions perhaps the percentage may be placed at ninety or even a little higher, but fully twenty per cent of these subsequently relapse. The prognosis of the relapse does not differ from that of the original attack. It is well to bear in mind Guislain's dictum: "Out of one hundred recoveries, eighty at least are due to spontaneous return of the normal state, under the moral influences of calm, tranquillity and well being with which they are surrounded. Medicine, revulsive, depletive and other, succeeds in but fifteen, and the remainder owe recovery to alimentary regimen and hygienic means in general." Melancholia in the involution period is of bad prognosis. Gradual progress towards recovery is of more hopeful outlook than sudden improvement. The best evidence of the re-establishment of the normal is the awakening of the patient to a full realization of his former state, the parting with all its delusions, and the impartial estimation of the present position from every point of view (Griesinger). Early recognition of the psychosis and prompt isolation of the patient, were they possible, would doubtless shorten the duration of the disease which in mild cases varies from four months to a year; chronic cases may last much longer and recovery may be expected even after a term of years.

Treatment.

At the earliest possible opportunity it is advisable to remove a melancholic patient from familiar scenes and surroundings in which he may indulge his morbid cravings for sympathy. If, however, in exceptional cases, it seems expedient to undertake treatment at home, a quiet room must be chosen, all unnecessary articles of furniture removed and preparations made to keep the patient incommunicado for an indefinite period. The chief danger to be apprehended is from suicide and one of the principal arguments against home treatment is the difficulty of providing sufficient safeguards against this calamitous event. Treatment in a properly conducted institution is, therefore, always to be recommended. The genius of treatment consists in reducing mental activity to its lowest terms. In pursuance of this object it is necessary to exclude every possible sensory stimulus and reduce the emotions to their lowest forms of expression. When voluntary diversion is impossible we must resort to the lowest of all, that is, sensory; ice packs, for example, and electrical treatment. "The most careful and exhaustive inquiry into the feelings and ideas of the sufferer is absolutely necessary. Until we have discovered the fundamental melancholic idea complete confidence is not gained and the physician's personal influence for good is greatly weakened" (Rayner). The same writer warns against the invocation of religion and regards suggestive treatment as dangerous. Intimidation should never be attempted. Close attention to the diet is of the utmost importance. The attending physician should satisfy himself each day that a sufficient quantity of food has been taken. The diet should include abundance of fluids, preferably milk. In exceptional cases when food is refused the nasal tube must be employed. When necessary, the tube should be introduced rapidly and in silence, a number of assistants precluding all possibility of successful resistance. In attempting to procure sleep the use of drugs is to be avoided as far as possible.

The desired end may often be reached by purely physical means; of these, the prolonged tepid bath is sometimes effective, and electrical treatment is occasionally of service. Sulfonal and paraldehyde are perhaps the least harmful of the somnifacients. The general principles of treatment here enunciated apply with equal force to those individuals who betray a tendency to periodic fits of depression together with other manifestations of the insane diathesis. These unfortunates require uncommunicative attendants and are ill adapted to the well meant but misdirected efforts of Christian Science and Emmanuelism.

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BACKACHE.

By C. M. COOPER, M. D., San Francisco.

(Continued from page 227, June Journal.)

Is there any general disease that is wholly or partly responsible for the backache? We have already referred to this subject, and have noted the occasional value of strophanthus and of iron compounds, and why they relieve some backache, and aid in the relief of others.

Special Backaches—The post-operative backache is situated in the lumbar region and is often very intense for 48 hours after operation. No matter what the nature or the location of the operation, it almost invariably ensues if the patient is operated upon in the supine position.

Dr. Somers tells me this backache does not follow operations in the lithotomy position, and those operating upon prostatic cases in the exaggerated lithotomy position inform me that their post-operative pain is chiefly over the buttocks and down the thighs.

Dr. Krotoszyner writes me that only 5% to 10% of the patients operated on by him under spinal anesthesia exhibit post-operative backache, and these he ascribes to bad technic.

There seems to be good reason then for believing that this backache is due to poor support of the lumbar arch when all the muscles are totally relaxed during anesthesia. The strain on ligaments and fascia is naturally intensified and backache ensues. If this be so, a triangle under the thigh and leg and, if necessary, pillows under the shoulders which serve to bring the whole length of the spine in contact with the table, should prevent this backache and Kelly states that it does.

The backache that arises in women during the night, often appears to be due to a similar want of

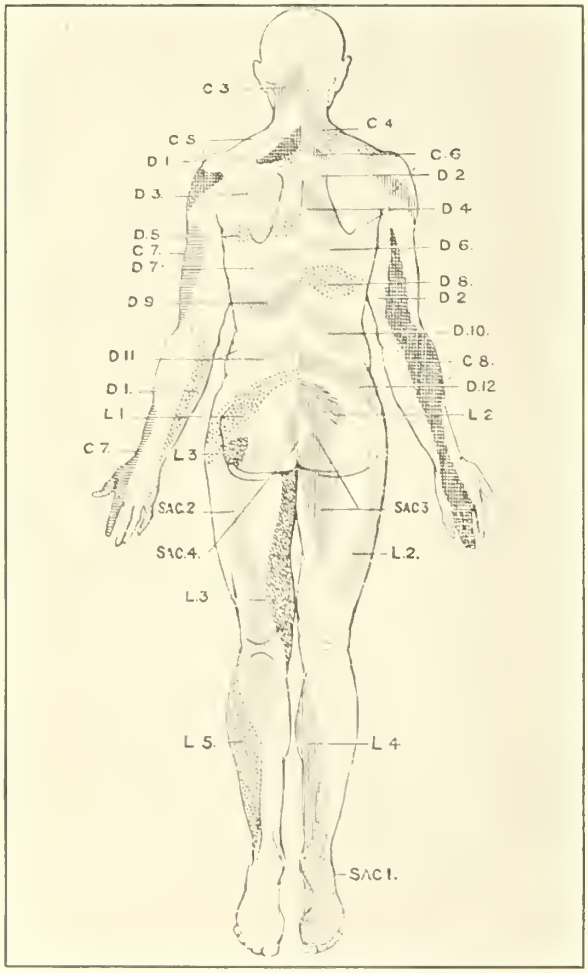

Fig. 22—This figure shows segmental cutaneous areas. The several dorsal, lumbar, and sacral areas are indicated each by the initial letter followed by a number. (After Head.)

Heart—3 C, 1-2-3-4-5-6 Dorsal segments.
Lungs—3-4 C, 1-9 Dorsal segments.
Stomach—6-7-8-9 Dorsal segments.
Intestine—9-10-11-12 Dorsal segments.
Rectum—2-3-4 Dorsal segments.
Liver and Gallbladder—7-8-9-10 Dorsal segments.

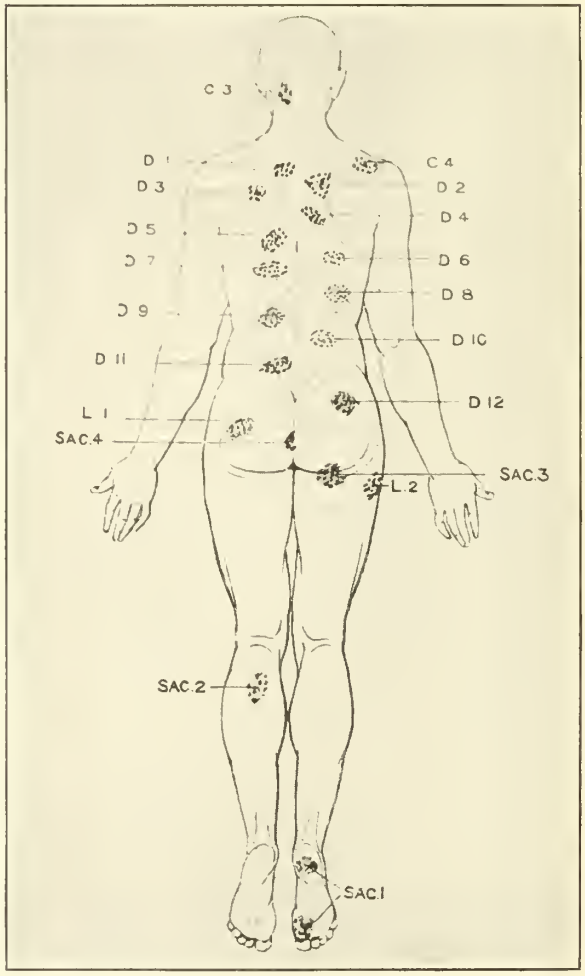

Fig. 23—This figure shows the "maximum spots" (seats of most marked tenderness and pain) of the different areas. (After Head.)

Kidney and Ureter—10-11-12 Doral, 1 Lumber segments.
Prostate—10-11 Dorsal, 5 Lumbar, 1-2-3 Sacral segments.
Testis and Ovary—10 Dorsal segment.
Appendages of Uterus—11-12 Dorsal, 1 Lumbar segments.
Uterus—10-11-12 Dorsal, 1 Lumbar, 3-4 Sacral segments.

support to the lumbar arch during sleep. A similar arrangement or a pillow under the loins, will often be successful in relieving these patients.

Surgeons and dentists backache. Many surgeons and dentists suffer from backache during their work. It is probably due to the fact that when the busily thinking surgeon or dentist is energizing the muscles of his arms and hands in the finer movements, his back muscles are relaxed and cease to give their accustomed support to the ligaments and fasciæ, and so backache ensues. The remedy consists in following Dr. Stillman's advice and practice. Raise the right leg and place the right foot on a stool. The lumbar spine is thus partly unarched, and the strain taken off the stretched ligaments.

There is a backache which men complain of when waiting for their wives to finish their shopping, and which a woman suffers when waiting for another woman to complete her uninteresting bargaining. In other words it arises in that state which the individual, in American slang, well defines with the remark "you make me tired." Here again we believe this backache to result from imperfect cerebral innervation of the back muscles, ligamentous and fascial strain resulting. The remedy consists in avoiding the cause, or in preventing oneself from getting "tired," or worried or despondent, in other words the treatment is psychical, and indeed discipline and training will be of great service in the treatment of many of the different kinds of backache that we have enumerated, inasmuch as it will immensely improve the cerebral innervation and tone of the muscular system generally.

The hysterical backache you are familiar with. The lady patient tells you in her quite gentle way with closed eyes and quivering lids of the intense back pains which she suffers. As you touch the skin and spines of the vertebræ she shrieks and recites the many queer sensations that she endures, but yet is unable exactly to define or locate. And when you have successively drawn her attention to other regions you can surreptitiously almost break her previously painful back region without complaint. The treatment is rest and education.

Coccydynia—In neuralgic complaints round the coccyx the nervous system must be thoroughly examined to exclude the presence of a lesion of the cauda-equina, the sacrococcygeal joint, and the coccyx must be palpated through the rectum, the rectum examined with the proctoscope, and the sacrum and coccyx structures investigated with the X-rays. If no lesion be found the pain is regarded as due to neuralgia, and removal of the coccyx may be called for. Even then the pain may persist. In case of a definite disease in this locality, the lesion as found must be dealt with.

In conclusion I would add that the successful interpretation of cases of backache is often difficult, and demands wide clinical knowledge, and often a thorough investigation of many organs with the instrumental methods of diagnosis.

SOME FALLACIES IN THE WEANING OF INFANTS.*

By ADELAIDE BROWN, M. D., San Francisco.

The following conclusions in regard to the breast feeding of infants have grown upon me during fifteen years of private practice and ten years of hospital work on a maternity service:

First—That every mother, with rare exceptions, *can* nurse.

Second—That factors outside her physical condition do much in many cases to reduce her ability to nurse.

Third—That even one breast feeding a day has nutritive value to the child.

Fourth—An insufficient quantity of human milk is no indication for weaning, as it can be easily supplemented and the medical and nursing profession can show many cases of difficult substitute feeding traceable to the doctor or nurse saying, "It is not safe to mix mother's and cow's milk."

These points I wish to take up in order. A general statement is made in many prominent places medically, in journals, text books and from the medical lecture platform that modern women do not nurse their children, the argument being completed by saying the further the intellect is developed, the less completely are physical functions developed, and also that the love of the child is less ardent and modern women are anxious to be rid of the drudgery of lactation. That this is an argument with scant facts to uphold it, the following records of 80 consecutive cases from the Alexander Maternity and 60 cases from my private practice, occurring in the last eighteen months, will go to show. Neither of these groups come from the peasant class, but both represent the better class of American women, many with advanced education and great refinement.

From the Alexander Maternity: These cases were under a number of different physicians, but the babies under the nursery regime, apart from the mothers. In the 80 cases there were 52 primaparæ; 50 mothers nursed entirely; 30 mothers nursed with some supplementing; one baby was on bottle entirely. The use of a formula was occasional in a few and alternating with breast feeding in many of those given formula.

The group of 60 private cases contains no woman under 25 years of age, 33 over 30 years of age. I mention this because lactation is supposed to be more active in younger mothers. There are 23 primaparæ. Of these 60 women, 42 nursed their children completely. It has been my custom to allow one bottle a day after four weeks of age. This has two points of advantage: the child is accustomed to taking food from the bottle, is accustomed to digesting cow's milk, and the mother is enabled to be away from it for her own personal pleasure for a four or five hour interval in the twenty-four hours. Ten women nursed their babies with the addition of more than one feeding a day from the bottle. Bottled from birth, five cases, two due to flat nipples

* Read before the Cooper College Science Club, April, 1909.

(the same mother), one due to such feebleness on the part of the child that it could not nurse, one due to albuminuria with pyelitis in the mother, and one mother absolutely refused to nurse the child. After six weeks' nursing two babies were weaned because the mothers hated nursing. One child offered some problems in infant feeding, two babies were weaned because the mothers thought it better not to supplement breast feeding with the bottle; they were weaned without the advice of a physician and with no medical guidance, and both of them had great difficulties and later were for months under medical care on artificial food. Two babies were weaned under medical guidance after six weeks' nursing; they both flourished. In this group are two multiparæ, one of 41, her youngest child 16 years of age; the other 33, her first child five years of age, who nursed well under some encouragement, though neither had ever nursed before. Lactation failed in this group of 60 cases in six cases; one due to a physical abnormality on the part of the mother, one due to a pathological condition, one the feebleness and inability of the child to nurse, and three coming under the typical argument that women will not nurse.

The second conclusion has been forced upon me from the results of separation of mother and child at the Alexander Maternity and a course pursued for many years of setting aside a room for the mother and one for the baby and nurse in private houses. The quiet sleep thus secured to the mother does much to accelerate her convalescence. To the woman whose sleep has never been broken it must be wearing to be awakened by each cry of the baby in the first days of its life. After ten days, regular habits are established, but many hours of sleep have been lost to the mother who has to share her room with baby and nurse. It does not take palatial quarters for this arrangement; it can be done in a three-roomed apartment as well as in a ten-roomed house, but it takes foresight and explanations from the doctor or nurse to convince the patient of its value.

In these days of emphasizing the importance of suggestion, much can be said for its influence on the function of lactation. A careful examination of breasts and nipples should be part of every preliminary examination of the patient; many defects of form of the nipple can be improved during the last two months of pregnancy. Though I have never been convinced that local applications to the nipple during pregnancy were helpful as a preliminary to lactation, they are often used at my suggestion, as I am sure it helps a woman mentally to feel she is doing all she can to make lactation possible and obviate its discomforts.

A third factor to helping a woman to nurse is the attitude of the nurse. Many trained nurses feel that the baby is easier to manage on the bottle and are exceedingly critical of the mother as source of supply, attributing each normal cry of the baby to colic and therefore to indigestion. It takes only about forty-eight hours of this regime to reduce completely the supply. In the hospital where the mother is fretting because she is sure that she has not enough milk or the nurse *thinks* she has not enough, we find weighing the child before and after nursing serves as an encouraging observation to the mother, and an instructive one to the nurse. We also offer the child a bottle after nursing and judge by how much it takes in a day after each nursing whether it is satisfied. The gain in weight daily also solves the question for the fretting mother.

Fourth—The value of human milk in infant feeding needs no confirming word from me. Much has been done to improve methods of substitute feeding, but when the last word has been said, even a small quantity of mother's milk renders substitute feeding relatively easier and for every child the last drop should be saved; even one breast feeding a day has nutritive value to the child, as the following case illustrates very well:

Nov. 20th, 1908, Baby B., three months of age, was brought to me. Its weight at birth was six pounds eight ounces; at three months, stripped, its weight was six pounds fifteen ounces. The mother said she had had a great deal of milk, but the nurse thought it was not rich enough so put the baby on Eskay's food, etc. By the time it reached me it had run the usual gamut of foods, modifications and formulas, the latter evidently being used in accordance with its age and not its size. The child was put into the nursery at the Alexander Maternity, handled as a new-born child, fed one or two breast feedings a day as we could get them and at the end of six weeks, two weeks after returning home, it had gained three pounds six ounces. It now at seven and a half months weighs fourteen pounds four ounces. We noticed that whenever this child had no breast milk for twenty-four hours it was constipated. After returning to its home a neighbor with a baby one month older nursed my patient once a day, and the effect on its bowels was the same. Now that the child rolls and creeps its bowels are normal. What the record of this child would have been had a supplementary feeding of fats if the mother's milk was poor in fats or the proposition of longer intervals between feedings, etc., for colic been given a trial before weaning was insisted upon, we can not tell but at no point, under rational feeding, did the child offer the slightest problem and its progress has been uninterrupted throughout.

This leads to the last and principal point of this paper, that an insufficient quantity of human milk is no indication for weaning, as it can be easily supplemented, and if an insufficiency occurs in the first three weeks a natural increase comes about with the return to health, exercise and a full diet on the part of the mother. As long as the baby gains, eats regularly at proper intervals and sleeps well, *it should be nursed.* When it ceases for a week or two to gain, or demands feeding before the proper interval has elapsed, or if it wakes up often at night, a supplementary feeding of one to three bottles should be given. I have seen an order for two bottles a day followed by a gain of one and a half pounds in a week after a child had made no gain on breast feeding alone for four or five weeks, and the continuing of the breast feeding plus two bottles a day for several months. When each mother is taught to weigh her baby once a week, to record the weight, to report to her physician before beginning to feed the baby, instead of consulting her

friends or the advertisement on the patent infant food jar, infants will have breast milk conserved for them and physicians will face far fewer of the difficult feeding problems following injudicious weaning.

FAT AS A DISTURBING FACTOR IN INFANT FEEDING.*

By LANGLEY PORTER, M. D., San Francisco.

The disturbances due to fat may be classed as disturbances in the breast-fed and disturbances in the bottle-fed. These disturbances may further be divided into those evidenced by indigestion, either gastric or intestinal, and those evidenced by disturbances of metabolism.

The gastric disturbances of the breast-fed give rise to various types of vomiting. The lesser degrees are commonly seen, and may vary from slight regurgitations of sour material to the rejection of a meal from a half to an hour after its ingestion. Such cases are so obviously due to fat that the remedy is usually quickly adopted. The watery vomiting that occurs an hour after meals and which is often attributed to sugar excess, is in many instances due to fat in too high percentage. Sugar in high percentages is much better tolerated with low than high fat mixtures.

An even graver type of vomiting, often propulsile in character, accompanied by visible gastric peristalsis with pain, distress, gastric spasm, the rejection sometimes of more than one meal, may occur as a result of too high fat percentages, or of fat that has undergone hydrolasis by bacterial contamination. It is such a condition that gives rise to pyloric spasm in infants, a disease which simulates hypertrophic stenosis, and I believe the majority of the cases diagnosed pyloric stenosis which have recovered under medical treatment, have been instances of this condition. Czerny has reported such a case in which the stomach contents contained no hydrochloric acid, but were loaded with free fatty acids. Some time ago I saw a case in consultation with Dr. Harry Reynolds in which the question of pyloric stenosis arose. Here the symptoms were such as have just been detailed. The child recovered completely in about six weeks under a regimen of fat free food given through the stomach tube after a daily lavage with Seiler's solution.

Another common result of too high fat in the food is loss of appetite. The child becomes easily satiated, loses weight, and this fact accounts for a considerable number of cases of wasting in early infancy, and may even in the earlier months give rise to the beginning of the condition known as marasmus or infantile atrophy.

In intestinal disturbances, curiously enough, one may meet with opposite conditions, either diarrhea or extreme constipation may follow the overfeeding of fat. The characteristic stool of fat diarrhea is graphically described by Holt's term, the scrambled egg stool. In this soft, greenish-yellow, semi-solid fecal matter is mixed with mucous and with white flakes and larger masses up to the size of a dime. These masses are for the most part proteid coated with fat; a few of them, however, are lumps of soap or fatty acid; from three to ten such stools may be voided daily. The constipation caused by fat excess is less frequent in breast than in bottle-fed infants, but is characteristic; a dry, gray, crumbly evacuation voided with difficulty by a child who is restless, especially at night, who is constantly distressed, who cries or grunts a great deal, and who if old enough, prefers to sleep face downward on thorax and knees, thus protecting its tender belly. As a rule, such a child gets too much fat, not because the breast milk is of high percentage, but because of too frequent nursings, especially is this apt to happen at night in the case of those children who sleep in the same bed with the mother. A third type of intestinal disturbance that follows overfeeding of fat is that accompanied by extreme constipation with putty-like stools or with evacuation of hard, white scybalous masses very graphically and correctly described by mothers as being just like marbles.

If the child's digestion endures the fat excess, sooner or later metabolism fails and poisoning of the infant follows. Carl Leiner of Vienna has described a form of erythema of breast fed infants fatal in a large proportion of cases, which he calls erythema desquamativa, and which undoubtedly is due to fat alteration in the mother's milk. With Dr. Chipman I have seen one such case which died in the Lane Hospital and one other was referred to me by Dr. Walter Coffey. Both were characteristic and presented the following clinical essentials: Breast fed babies with widespread dermatitis, a red skin covered with grayish-white shining scales which were not adherent, and were more marked on the dorsal than ventral surfaces. The scalp and eyebrows were covered with thick yellow crusts easily removable from the inflamed but unbroken integument. The face was more affected than the trunk; the hands and feet were affected only in patches. (In one of my cases the eruption first appeared on the soles and palms.) These cases are not very uncommon, and are usually mistaken for seborrhea, but the children are more severely ill and appear cyanosed. Unlike seborrhea the skin underlying the scales is dry and fissured, especially around the mouth. There is fever and diarrhea. That the milk is at fault is demonstrated by the fact that these children, if removed soon enough from the breast, when fed get well, and they get well most promptly on fat-free milk. Both cases referred to me came into the hands of my colleagues when the skin had practically lost all its function and both children died.

A common form of fat damage in nurslings due to metabolic disturbance is seen when a too frequently fed infant begins to be pasty appearing and pale, to sweat about the head, to roll and rub the head on its pillow, and becomes constipated as already described; on examination such a child will have a

* Read before the Cooper College Science Club, April, 1909.

somewhat enlarged tender spleen, a big liver, a protuberant belly and will show a blood picture in which lymphocytes are markedly increased, red cells and hemoglobin lessened and in which various degrees of deformity and neucleation of the red cells may be present. In fact, in the absence of hemorrhage, such a blood picture is most often occasioned by an over-supply of fat in the food with an under-supply of proteids. Such a picture as I have drawn here is found at times in the breast fed baby, but it is a very much more frequent condition in those babies artificially fed, especially toward the close of the first year.

The causes of over production of fat in the breast milk, are three. Overfeeding of the mother with proteids, lack of exercise on the part of the mother, and too frequent suckling by the infant. It is well known that over-stimulation of an empty breast produces a milk of high fat. Unquestionably too, the physiological character of a mother's tissues is one cause for high fat production. The cause of the fat change that leads up to Leiner's disease we do not know; for the commoner and less menacing damages, attention to the mother's diet, to her exercise and a rigid insistence of long intervals between feedings, will nearly always remedy the defect.

If so much damage may follow ingestion of human fat, how much more may we expect the foreign fat of cow milk to cause in the human infant?

The fortunes that Horlick and Nestle have made are based on the fact that their almost fat-free diets are tolerated by hundreds of babies whose stomachs rebel at the fatty acids and the unsaturated carbon compounds of bovine milk fat. Normally, human milk fat contains only about 1-7 of volatile fatty acids and hardly any butyric acid, while cow cream fat contains more than 1-5. It is these differences that make it impossible to successfully feed, to most infants, the high percentage of cream called for by our percentage formulas, and it is this practical difficulty that has carried many of us to the point where we rarely attempt to use more than 2½ or 3% fat in feeding babies with cow milk mixtures. If one examines the formulæ of those like Winters of New York, who use especially high percentages of fat, it will be found that they also use large proportions of lime water, or other alkali, the effect of which is to form insoluble soaps by combining with the fat. These soaps are excreted as such and the fat as effectually withdrawn from digestion and metabolism as if it had been actually withheld.

Bovine butter-fat is a peculiar and individual complex that contains amongst its compound glycerides, fatty acids of low molecular weight. A glyceride is an ethereal salt of glycerol, and contains the radicals of butyric, oleic and stearic acid. From a physical point of view the butter fat is a solution of a fat of a high melting point in one of a lower and the melting point of the fat depends to some considerable extent on the food of the animal, and upon the melting point to some degree hangs the digestibility of the fat.

Fat inhibits the digestion in the stomach to some degree. It remains longer in the stomach than do proteids or carbohydrates and the gastric juice secreted in the presence of fat is less in amount and not so vigorous in action as in the absence of fat. It has recently been shown that there is some fat-splitting power inherent in gastric juice. In the gut the lipase from the pancreas hydrolizes fat with the formation of glycerin and fatty acids. The oleic acid dissolves the solid fatty acids which are then taken up by the bile and in part converted into soaps. These soaps and fatty acids are again built up into fat during absorption by the epithelium of the intestines. How fat is taken from one part of the body to another is not clear, but it is carried in some soluble form not injurious to the blood. It has been shown by Munk, and by Lowenhart that soaps are fatal in the blood stream of animals in very small quantities, and the experiments of Rachford seem to suggest that free fatty acids may be the form in which the transfer is made and it is also probable that neutral fat is conveyed in some cases by the leukocytes. The utilization of fat by the tissues is also a physiological mystery incompletely worked out. A certain proportion of fat when there is more than the animal needs for processes of combustion may be deposited as such, but the vastly greater proportion of ingested fat is burnt up and excreted by the lung as CO_2. The intermediate steps of this process of combustion have never been clearly worked out but Pohl's experiments suggest that the series of ethane products, malonic, tartronic, mesoxalic, and glyceric acids, which are fully combustible in the body, are the ones normally formed. On the other hand, it is also possible from this work to conceive that an incombustible acid of the series; oxalic, for instance, may be produced by some fault in metabolism, and it is not improbable that this may be the cause of certain cases of acidosis with convulsions and a pseudomeningitis. I was called to see such a case in the family of a physician.

A child had been diagnosed as suffering from meningitis; it was 4½ months of age, had thriven well and was in good physical condition but somewhat pale; the head was retracted; there was strabismus, a tendency to nystagmus; there had been general clonic convulsions following a tonic convulsion and a very well marked Kernig sign. The child was being fed with a mixture that on examination proved to contain nearly 7% of fat which it had never vomited, but which had given rise to the characteristic crumbling gray fat stool already described. The child also showed the very marked ammoniacal urine that accompanies such overfeeding and promptly got well on regulation of diet.

Such in brief, then, are the commoner disturbances that may arise from feeding infants with a food too rich in fat. This is the most usual error that pediatrists fall into in their attempts to feed babies. The remedy lies in proper regulation of the mothers when nursing infants, and the more recent practice of Czerny, Keller, Schlossman, Knopfelmacher and the German school in general of making children's meals four hours apart by preference from the time of birth, will in most instances, correct these errors in the breast-fed. In the bottle-fed, the feeding of more concentrated mixtures, either of whole milk or weaker cream, or if needs be, and for certain children, skimmed milk will in most in-

stances regulate the digestive process and prevent the development of damage to the child's tissues and the supervention of acidosis, wasting or anemia.

A very interesting clinical fact which many mothers have discovered for themselves is that a child overfed with cow's milk fat may have its symptoms ameliorated by the feeding of still more fat, provided that fat be rich in olein, which we have already said readily dissolves fatty acids and soaps. Olive oil which mothers use so extensively to relieve the constipation of bottle fed babies, fulfills this chemical condition, and is therefore effectual. Cod liver oil, which contains an even greater proportion of olein, is of still more use, and this explains its value in restoring the anemic, constipated and somewhat rickety over fed child to full health. In the London clinics, where the patients are extremely poor, many babies are fed on condensed, skimmed milk, to which the doctor orders cod liver oil added, and these babies do exceedingly well. Malted milk, as a substitute for milk mixtures may be used with great success for a few days or a week in the treatment of patients whose digestion or metabolism has undergone any of the damages we have already referred to in this paper.

In conclusion, it is a very clearly illustrated fact and a fact capable of daily demonstration in this city, that a large proportion of the distress, discomfort and disease among nurslings, both breast and bottle-fed can be traced to fat in the food, either in excess or perverted.

A very wide diversity occurs in the clinical manifestations that follow the continued use of excessive or improper fat ranging all the way from trifling vomiting or mild intestinal disturbance to grave even fatal anemia, and nervous disturbance serious enough to cause collapse and convulsions and to so disastrous a condition of the skin as erythema desquamativa, and one feels that it is the duty of every one who deals extensively with the diseases of children to insist on the possible disasters that may follow the too common practice of overfeeding with fat, and to urge a more rational and reasonable method of substitute feeding and of dealing with nursing mothers.

Discussion:

Dr. Henry Gibbons, Jr. I would say that my experience with the care of infants has not been clinical so far as public clinics are concerned, but has been gained from private practice and hence I think it would be less full of variety and serious manifestations. With regard to the treating of atrophic children I may say that beside the question of food other things are quite as important and these are particularly fresh air, sunlight and warmth. I will add, however, that diluted food has often served me excellently. I have said a great many times that digestive disturbance has come from too concentrated foods, whether too concentrated from the presence of fat, or casein or sugar, even the sugar of milk. Very often a food that otherwise is not considered sufficiently nourishing has served a much better purpose than food of the standard proportions, and again and again I have found that patients or children who were peevish and fretful and without appetite indoors, and sleepless, when taken into the sunlight quickly became restful and even sleepy and took food with relish and with capacity to digest it. This is a very common observation, as often have we observed the benefit of warmth with premature children. I believe I can entirely coincide with Dr. Brown in her conclusions. I have not been able to secure much advantage from the common methods, so-called, of preventing sore nipples. I do not believe that there is much advantage in them, I believe that sore nipples come from forcible nursing or suction by a vigorous child of the nipple of a breast that does not contain much milk. Again and again I have seen blisters drawn on the tip of the nipple by forcible nursing and then have seen the integument of this blister fall, leaving an excoriated or raw surface, which if not treated properly, soon becomes an ulcer and may become infected. For a good many years I have used Dr. W—— nipple shield as a protector during the intervals of nursing. I am satisfied that whenever the milk is of suitable character, even though insufficient in quantity, it is proper that the nursing should be continued. I agree with Dr. Brown in this regard. The milk is sometimes manifestly poor or deficient in certain constituents and when very low in fat may be entirely unsuitable to the child and incapable of nourishing it properly. At the same time we know that some mothers have milk with only 1% of fat and the child does pretty well. Unless the mother's milk manifestly disagrees I would not have the child cease the nursing. I have no objection to mixed milks or mixed cow's milk providing it agrees. With regard to the statements made by Dr. Porter in respect to the influence of fat, it seems to me that he accords it a very large part in the production of the complaints of childhood,—rather more perhaps than is warranted, or at first sight is warranted. I have not seen cases in which I could trace various evils to a large preponderance of fat. I have, of course, used an increase of fat sometimes in cases of constipation with advantage as advised by authorities and I have seen the disturbances which arise from very fatty milk. I am much more inclined to dilute milk than to strengthen it. I find very often that the milk that will disagree with a child because it is a little too rich, although it is of normal proportions, will not disagree if water is added. We know that a little water given to a child prior to nursing is often corrective. The tendency is to think if diluted it is not sufficiently nourishing. I remember physicians in this city who gave very young infants full milk and claimed that this was the only proper way to feed infants. I have never experimented in that direction because it seemed to me unscientific. Necessarily, since Dr. Porter was treating of the evil influences of fat, he would have little to say of the influence of casein. The preponderance of casein in cow's milk and its coarser character make it in my estimation, much the more important element to deal with in the modification of cow's milk for infant use.

"ARTHRITIS DEFORMANS."*

By L. D. MEAD, M. D., San Francisco.

While this case is primarily one of gonorrhoeal arthritis the patient has developed an interesting secondary condition of arthritis deformans which is well shown in the hands. He is thirty-eight years of age, a boilermaker's helper by occupation. In January, 1908, he acquired an acute gonorrhoeal urithritis which was supposed to have been cured in two weeks. One week after its disappearance the patient began to have signs of an acute inflammation in the left ankle, later in the right ankle and finally in the small joint of the right hand. He was admitted to the City and County Hospital, Surgical Division, and for several weeks subjected to the

* Read before the Polyclinic Gathering, April, 1909.

Bier's hyperæmic treatment with some improvement. He was discharged, but found himself unable to work on account of the severity of the arthritic symptoms and in December, 1908, was readmitted to the hospital. Both hands were badly crippled as well as both knees, ankles and right sterno-clavicular articulation. The patient was placed in bed upon urinary antiseptics and ichthyol ointment applied locally to the joints. Despite these measures he grew gradually worse and became markedly anæmic. After six weeks of such treatment Dr. Schmoll called attention to a peculiar deformity of the hands, that is, the characteristic appearance of arthritis deformans, with marked atrophy of the interosseous spaces, ulnar deflection of the fingers and thickening of the periarticular tissues. Having obtained good results in such conditions by the internal administration of arsenic in increasing doses he put the patient on that treatment with the most gratifying results. He gained rapidly in flesh and strength, his color improved and he was soon able to be up and around with fairly good functional results in all the affected joints, the hands showing the greatest improvement.

Dr. Freytag has made X-Ray plates of the patient's hands which show plainly the pathological lesions of arthritis deformans. Here we find in the phalanges and metacarpal bones, examples of the atrophic form of this disorder with rarefaction of the osseous tissue and in two or three places the actual formation of holes in the shafts of the bones. We also see about the articular cartilages certain evidence of the hypertrophic form of the disease. My object in presenting this case is twofold: First, as an example of arthritis deformans of the infections type due to the action of the gonoccus and its toxines in contra-distinction to the more common and more chronic form of the disease; secondly, to demonstrate the valuable therapeutic action of large doses of arsenic in this condition.

Dr. James T. Watkins, discussing: We are to be congratulated upon being permitted to examine Dr. Mead's case because it presents characteristics of each of the three types on non-specific joint lesions. Similar cases have been reported by several observers. When we think of these three, the hypertrophic, the atrophic, and the infectious type, we recall certain characteristics of each. The hypertrophic type is characterized by bony outgrowths of the periphery of articular cartilage. It occurs oftenest in men past middle age. The process is insidious and begins in the phalanges of the fingers but does not cause trouble until some large joint is involved. The joints most likely to be involved are those subject to occupational traumatisms, for example, in miners and coalheavers the joints of the hips and of the lower spine are most often affected. Arbuthnot Lane called this condition occuring in the last lumbar vertebra a spondylolisthisis. But in certain specimens of spondylolithisis studied in the Harvard Museum a true division into parts of the vertebra had occurred in such a way that the superior articular processes had remained united with the body while the spinous process, the laminæ and the inferior articular processes had separated in one piece from the others. The condition described by Arbuthnot Lane seemed to me to be much more in the nature of a rerefying astitis. I asked Dr. Zobel to moke a proctoscopic examination upon several of these cases and in each instance he was able to report evidences of some stoppage of the eliminative function. This was usually indicated by a blocking of the bowel through fecal accumulation. The atrophic type occurs oftenest in young women, and seems to follow upon too frequent pregnancies, excessive household cares and occasionally upon emotional outbursts of grief or fear. It, too, begins insidiously. Its points of selection are the second and third phalangeal rows, later it involves the wrists, knees, ankles, elbows and shoulders in about the order given. Pain is not a prominent symptom until erosions of the articular cartilage bone set in, but joint stiffness is complained of. Pathognomonic are first—the X-Ray plates, which give the faint shadows of the atrophic bones early in the disease with later the too close approximation of the two ends of the bones forming a joint,—and the spindle shaped swellings of the periarticular tissues caused by a round cell infiltration of the synovia. There is an obliterating endarteritis and while the disease process is active an excessive excretion of calcium salts. The infectious type of the disease begins acutely and follows an infection which may be local or remote. For example the primary focus may be in the middle ear, the tonsil, the teeth or the genito-urinary tract. The nature and severity of the attack will depend upon the character of the infective organism, but in general, and distinguishing this group from the first two, you will find an acute invasion, a rise of temperature, a rapid pulse, a leucocytosis and localized pain, tenderness, heat and swelling. Turning now to Dr. Mead's case we note that it began as a gonorrhoeal, that is an infectious, involvement, but that now our X-Ray shows distinct evidences of an atrophic process, while at the same time we note the presence of the bony outgrowths peculiar to the hypertrophic type. The clinical necessity for recognizing the three groups of non-tubercular joint disease is apparent when we take up the subject of their treatment. With the infectious type we proceed, whenever possible, against the primary focus, either surgically or by vaccines or specific remedies. The joint itself we protect and in addition thereto sweat it with the hot-air oven, or the rubber dam. Bier's passive congestion method is often of service. Occasionally it is necessary to open and wash out the joint. With regard to the therapy of the other two conditions I cannot speak with the same fidelity. For the past two and a half years I have been studying these conditions and dissimilar as are the clinical appearances the most successful therapy which has been instituted for the one condition has proved most efficacious in the treatment of the other. This would lead one to think that they might be different manifestations of an identical cause. Allow me just a moment more to illustrate this treatment. In every case of hypertrophic arthritis seen thus far where it was possible to obtain a proctoscopic examination the bowel was found to be

loaded with feces. Only after repeated flushings with saline solution and occasionally with warm oil was it possible to remove these accumulations which proved peculiarly offensive. Examination has proved this matter to contain excessive amounts of nidol and the aromatics, evidences of albuminous putrefaction being regularly present. Besides supplying the patient with appropriate protective apparatus the effort was made in these cases to obtain an aseptic intestine by means of calomel and saline flushings and to maintain it by cutting out the albumins as much as possible and by prescribing large quantities of a lactic acid preparation of milk. Under this line of treatment the results have been as gratifying as they were before discouraging. Dr. John Gallwey was on one of these cases with me. Observing the immediate and progressive improvement obtained he employed the same treatment in the case of a young woman who was suffering from a severe and advanced atrophic arthritis. This patient was unable to move almost any of the joints without suffering exquisite pain, extensive luxations and sublaxations were already present. At once she began to improve and when I saw her three weeks later she was able to walk up and down the block. I shall ask your indulgence at no late date while I take up at greater length this vitally important subject of autointoxication.

Doctor Chas. G. Levison, discussing: It might be of interest to mention the treatment of infected joints and gnorrhoeal arthritis advocated by Murphy. Murphy's results are equal to those obtained by the vaccines. His method is as follows: an infected joint which is always associated with temperature, is aspirated and a mixture of 2% formalin and glycerin is injected into the articulation. In one case that I saw treated the temperature dropped from 104 to 99 within 24 hours, and the condition went on to complete recovery. I saw several of these joints treated by Murphy in the same way and the result impressed me as being very remarkable. Formalin has been used before but Murphy maintains that his mixture must be made at least 24 hours before it is employed, otherwise the particles of formalin are not thoroughly mixed with the glycerin and these produce a tissue necrosis.

Paper, "Brief Convalescence After Operation for Chronic Appendicitis," Doctor Chas. G. Levison: The patient that I was to have presented this evening did not find it possible to get here. I wished to demonstrate him for two reasons, the first being on account of the time in which he was permitted to get out of bed following an operation for appendicitis. It was a case of recurrent appendicitis and the operation was performed in the usual way with the gridiron incision; the peritoneum and muscles were united with continuous chromic catgut sature and the skin was brought together by a fine subcuticular sature of plain catgut. The first forty-eight hours following the operation were without incident and after this he was allowed to get out of bed, since which time he has been up and around. There is nothing remarkable about getting the patient out of bed after forty-eight hours because this procedure has been advocated for a number of years by men, including Ries and Boldt, who have permitted their patients to get out of bed after the first twenty-four hours. These gentlemen believe that these patients get along better and that altogether it is the correct procedure to be carried out; this belief is rapidly gaining ground. The second reason for presenting the patient is in my opinion of greater importance; the patient was suffering from backache for a long time and he has experienced most of his pain in his right loin. As the pain was confined to his kidney region the question of stone in the ureter and kidney had to be carefully considered. It was with difficulty that I was able to exclude stone, but the urine was examined and found to be normal. There was also considerable tenderness in the right lower quadrant and rectal examination revealed tenderness high up in the pelvis. The diagnosis of appendicitis was finally established. The patient was suffering from digestive disturbance, which was present more or less continually. Pain referred to the kidney region has been most unusual in my experience in appendicitis. At the operation when the appendix was removed, the meso appendix was contracted and distorted and the appendix was sclerosed with an obliteration of its lumen, all of which was quite enough to cause the man's symptoms, which have been quite relieved since the operation. Strange to say, three days after I had operated upon this patient, another man was referred to me and the character of his pain and its position was about what has just been described, but the second patient had considerably more pain than the first and there was marked hyperesthesia, which extended across the loin toward the left side. Deep pressure caused the man marked pain, but the entire behavior of the man was strongly suggestive of the hyperesthesia of hysteria. The man had marked rigidly in his right side in the appendix region and there was dulness over this area. This patient also suffered from marked digestive disturbance. Diagnosis of chronic appendicitis was made and at the operation a large appendix, bulbous at its tip which was buried in adhesions containing a considerable quantity of encysted fluid, was found. Considerable difficulty was experienced delivering the appendix on account of the adhesions. Both of these patients have been relieved of their symptoms, including the backache. I operated this morning on another case which is interesting as far as the diagnosis is concerned. The patient was a woman upon whom I had operated ten years before for a cystic tumor of the ovary. She made a perfect recovery and I have not seen her during all this time until three or four weeks ago, when she presented herself suffering from abdominal pain. She gave a history of severe abdominal pain which did not have any relation to her meals or food and there was no history of jaundice or digestive disturbance; hyperacidity was not present. There was no occult blood in the stools, jaundice had never been present. Her pain, which was of a gnawing character, was most marked at

night and was growing worse. The examination revealed marked tenderness at the situation of the gallbladder, which was the only tender point present. When pressure was made over the region of the gallbladder at the end of a deep inspiration it made the patient shriek with pain and brought the tears to her eyes. The diagnosis of gallstones was made, having duodenal ulcer in mind, however. When the abdomen was opened a normal gallbladder was revealed and upon further examination it was seen that the patient was suffering from a duodenal ulcer, which was situated on the posterior surface of the duodenum. The ulcer was bound down by adhesions. There was no question but that the woman's pain was caused by duodenal ulcer. I performed a posterior gastro-enterostomy and buried the ulcer with a purse string sature and practically obliterated the pylorus. I mention this case because of the difficulties associated with the diagnosis of duodenal ulcer. There are many cases of duodenal ulcer that are overlooked because they are not accompanied by classic signs and we have much to learn as far as they are concerned. I can recall the case of a New York banker who recently died. He had consulted every medical man of importance in the East and Europe. He expired suddenly and at the autopsy it was found he had died from a hemorrhage proceeding from a duodenal ulcer.

Doctor H. A. L. Ryfkogel, discussing: I was interested in the remarks of Doctor Levison with regard to getting his patients up early after an operation. I have been for the last three years in the habit of forcing my laparotomy patients to get out of bed no later than the third day. I felt that getting them up the first day was perhaps too much, but by getting them out on the third day they have made more rapid convalescence than otherwise. Of course, I have been very particular about saturing of the wounds and also with regard to the type of dressing put upon the abdomen, particularly if the wounds are very long ones. If one puts a well patient to bed for a couple of weeks, at the end of that time the circulatory system is not in as good condition as when the patient was put to bed and certainly the same thing occurs in patients in whom we have made any kind of an operation. It is also true that the statistics have shown that thrombosis has been definitely less common in patients who have gotten up early after operations than those who have stayed in bed the classical three weeks. Another thing to be noticed in getting these patients up early is that you have very much less trouble with gaseous distension and constipation than with those patients who stay in bed longer. I have an appendix case now upon whom I operated yesterday morning who sat up in a chair this afternoon and will to-morrow walk. I instruct the nurse that the patients can do just as they wish with regard to getting up immediately. If they want to sit up, no matter what the position, I permit them to take that position and I find that the patients are much better for it.

PASSIVE MOTION.*

By S. J. HUNKIN, M. D., San Francisco.

During the last few months two patients have appeared at our office a few months subsequent to fractures around the elbow, with the elbow joint swollen, thickened, tender and practically ankylosed. The bones in each instance were in fairly good position and in my opinion the more or less ruined condition of these joints was due to the so-called "passive motion." Each year we see at least a dozen joints, especially elbows and knees, damaged to a marked degree by this crude and dangerous practice. While it may be within the skill of a Bardenhawer to play and meddle with fractures in and around joints before the healing process is about completed, and while perhaps such measures may be advantageous in such hands, yet in my opinion in the practice of the ordinary man, the procedure is dangerous and is generally productive of nothing but harm. That accidents even are not rare is evidenced by the fact that within the past two years, I have seen a severe hemorrhage into the knee, two instances of refracture at the elbow, one supracondyloid and the other at the base of the olecranon, one refracture at the wrist, and one streptococcus infection after repeated anesthetization for passive motion, with resultant destruction of the joint and grave risk of amputation; these accidents being in direct consequence of meddlesome interference with the fracture during the process of repair. Times without number during this period have we seen patients in the extreme of terror, horrified, trembling (and not all of them children) in abject fear of the doctor handling the extremity, so terrible has been their experience, and so much has the joint been hurt, damaged and abused, in misguided attempts to forcibly increase the range of motion. Ofttimes they tell of repeated anesthetizations, so that this so-called passive motion may be carried out. Again and again have I been a witness to this procedure. The patient sits or crouches before the operator, who grasps the tender, injured, rebelling limb forcibly and again flexes and extends it. The suffering structures are torn and wrenched and torn again, until outraged nature cries, and shriek after shriek peals from the patient, who grovels on the floor in entreaty and protest. Such practice measures the crazed fear, the frenzied anchylophobia of the worried doctor, and this is a protest against the need of any such treatment.

The pain provoked stands in evidence against its value. We do not believe that pain is a requisite part of the treatment of any fracture after the reposition of the separated ends. Sometimes, alas, it is a concomitant of our lack of deftness of hand, of our slowness of wit, which prevents the securing of immobilization, so promptly, so easily and so certainly as desired, but always its production is deplored and certainly never to be provoked. Let me recur to some words of John Hilton. Speaking of the early man he says: "Pain was the prime agent. Under

* Read at the Thirty-Ninth Annual Meeting of the State Society, San Jose, April, 1909.

injury pain suggested the necessity of and indeed compelled him to seek for rest. Every deviation from this necessary state of rest brought with it, through pain, the admonition that he was straying from the condition essential to his restoration. He must have observed with astonishment the breaking asunder of the newly formed tissue, or the steady development into normal structure, which occurred in exact accordance with the disturbance or rest to the parts which the sense of pain had enabled him to regulate so accurately. . . . Growth and repair bear an exact relation to due physiological rest, local and general."

Gentlemen, I need not call your attention to the difficulty in getting satisfactory repair in tissues where rest cannot readily be secured. Take an anal fissure, for instance, where the healing structures are ever and anon violently separated from the needed rest, how the tortured nerves cry for rest and immobility. You can also readily see what happens in the joint undergoing repair, when the tissues are put upon tension and bruised and torn and bleed again. It needs also but a cursory study to see Nature's attempt to give rest, the organization of the effused blood, the production of more and more callus, the building up, around, and within of more material, the pouring out of more lymph and the development of more and more natural splinting, perhaps a resultant ankylosis and the production of what was the chief object of the surgeon to prevent. It may be accepted as axiomatic that the closer the approximation of the fractured bones, and the more secure this position is maintained, and the less meddling attempted, the less callus is produced and it follows as the sunshine follows the rain, the better the repair and the quicker and surer the return of function. On the other hand, the greater the displacement and the more joggle permitted, the more callus and generally the lesser function. I take it, it is a truism in surgery, the more perfect the physiological rest secured during the entire process of repair, the more perfect the healing and the more likely the easy, rapid and natural resumption of function.

What is "active motion" and what is meant by "passive motion?" Active motion, we understand, is that movement made in a joint by the contraction of the muscles around the joint, or more correctly, if more narrow, perhaps, the movement produced in a joint by muscular action in even balance, of the subject. On the other hand passive motion designates the movement produced by outside forces (usually the hand of the operator) in the joint of the subject, while his muscular system is in complete relaxation. This absolute or even approximate relaxation presumes freedom from pain and this in its turn presupposes practically no mechanical barrier to movement. It is hardly conceivable that such relaxation can be obtained in a conscious patient, during any amount of movement, if adhesions exist, or any mechanical barrier is present in a joint. If such are not present, then no reason exists for the practice. Under complete anesthesia then only can passive movement be made against mechanical impediment and then it seems to me, it must only add new traumatism to the old, provoke new production of callus and in the large majority of cases, new adhesions must form and only harm result, unless anesthesia is maintained and movements kept up, during the whole process of repair, if repair would go on under such circumstances. If mechanical conditions are such in a recovering joint that forcible corrections under anesthesia appear advisable, surely it is better surgery to open the joint and either alter the condition or remove the barrier.

Discussion.

Dr. T. W. Huntington, San Francisco: This is a very opportune time in which to say a word in connection with a subject which has often been in my mind. The Society is to be congratulated upon having listened to so rational an expression relative to a subject to which too little attention has been paid in the past. There is one side of surgery which has appealed to me perhaps more than any other. This is not altogether scentific, but it makes for what I regard as humane. The impropriety of the unnecessary production of pain cannot be too clearly set forth. As a rule, it is not necessary to do such violence in the handling of joint injuries as to produce great pain. Finesse, gentle handling, and extreme delicacy of touch are essential qualities of the surgeon. I have learned to deplore the scream of the child or the groan of the adult, and I hope never to be disabused of this idea.

Dr. S. Stillman, San Francisco: While I think we all agree with the proposition that the old method of forcible breaking up adhesions, and passive motion in the sense of "brisement forcee" is wrong and has been abandoned by the profession, there is still, however, need of passive motion in the proper sense. Colles' and other fractures at or near joints and in people who will not move their fingers or wrists or other joints, are cases requiring judicious passive motion. Abel Mix Phelps of New York laid down the law ten years ago that passive motion should never be given under anesthetic because one could not tell the damage one was doing the joint, that consciousness to pain must be present and that pain must be produced in moderation, but should not go to the extent of actual suffering, that passive motion was necessary but should never be undertaken under anesthetic or never to the point of occasioning real suffering. That has been my guidance. I do not think I have ever hurt anybody or injured anyone, but I have had, even with such modified and such careful passive motion, a good deal of difficulty in getting old women with Colles' fractures to use any effort of their own to improve the function of their joints and I believe both passive motion and massage are of great importance in the treatment of these cases, as much as in fractures involving other joints.

Dr. L. J. Belknap, San Jose: I have had a good deal to do with joints, especially ankylosed joints, and also joints after operations and have obtained the best results from a treatment similar to the Bier treatment, but using the hot and cold air treatment. After fractures we massage the thigh above and take the large toe as an index, watching the color change. We also use the deep breathing exercises to improve the circulation. We recently had a case sent in from the lumber camps, where a large log had rolled on the patient breaking the tibia and fracturing the fibula. When he came to us it was terribly swollen and after packing with ice, examination with the X-ray showed the fracture. After putting the leg in place, we treated with massage with excellent result. With the hot and cold air treatment the tem-

perature carried to about 250 degrees and we used the cold to stimulate the deeper tissues. In these fracture cases we also use heat and cold to the spine, beginning with friction.

THE INTERRELATIONS OF GLANDS WITH INTERNAL SECRETION.

Since Brown-Sequard guided by the fatal results of the extirpation of the suprarenal glands first established the idea of internal secretion, the physiological and clinical significance of the function of the ductless glands has been the subject of great controversy. On the one side it was looked upon as a fantastic creation of the imaginative mind of the great French physiologist, on the other hand general conclusions without experimental or clinical foundation were drawn. The whole theory of internal secretion was placed upon solid ground by clinical experience; the occurrence of myxedema after the complete extirpation of the thyroid. The chain of evidence was closed when the cure of myxedema was obtained by the feeding of thyroid extract or gland.

This was soon followed by the work of Mering and Minkowsky demonstrating the diabetes following the extirpation of the pancreas. The theory of Mobius relating the symptomcomplex of exophthalmic goitre to the hyper-secretion of the thyroid gland found enthusiastic reception after the thorough establishment of the theory of internal secretion. The recent researches showing the relations of tetany to the parathyroid glands, of acromegaly to changes in the hypophysis, completed the list of new facts gained in the domain of internal secretion.

Clinical and experimental data pointed to the fact that the product of these internal secretions regulated certain very definite functions of the animal economy easily demonstrable by experimentation.

The first fact establishing the relation of two glands to each other is due to the experimental genius of Bayliss and Starling.[1] Pawlow had established the fact that the contact of the acid stomach contents with the mucosa of the duodenum produced a secretion of the pancreas. The mechanism of this action became clear when Bayliss and Starling demonstrated that an acid extract of the mucosa injected into the blood started the secretion of the pancreas. They established at the same time the fact that the subsance formed in the mucosa withstands boiling and therefore does not belong to the category of ferments; its was classed as a hormon and named secretine.

A second hormon was found by the same two physiologists in the ovaries of pregnant animals. They obtained a substance, withstanding heating, which, when injected into non-pregnant animals, caused enlargement of the breasts and lactation.

Of the greatest interest are the recent discoveries of Leo Loeb.[2] He extracted from the corpus luteum of pregnant animals a substance, which when injected into a normal animal caused the formation of a decidua.

Very nearly related to the hormons is the product of the internal secretion of the chromaffine system; adrenalin. A number of cells are found throughout the body, principally in the medullary portion of the suprarenal glands, partly scattered throughout the sympathetic nervous system, characterized by their affinity for the chromic salts. The chromaffin substance these cells contain is adrenalin. Like the hormons, it withstands heating; its constitution is so simple that its chemical synthesis has already been achieved.

Adrenalin besides regulating the tonus of the peripheral vessels has a very important function in the metabolism. Blum [3] first discovered that the injection of adrenalin produced constantly a glycosuria. Under the influence of muscular work the cells of the cromaffin system lost their affinity for chronic salts showing that their adrenalin has been used up. As at the same time the glycogen disappears, Schur and Wiesel [4] suggest that this process of melting down of glycogen is due to the action of adrenalin and that in general the mobilization of the carbohydrates in the animal body is regulated by adrenalin. It is highly probable that the glycosuria after the intravenous injection of adrenalin depends upon a too rapid and excessive mobilization of carbohydrates.

On the other hand the pancreas secretes a substance which oxydizes sugar into CO^2 and H_2O. The absence of the internal pancreatic secretion causes a hyperglycemia, as the tissues have lost the ability to oxydize sugar. Under normal conditions the mobilization of carbohydrates by adrenalin and the oxydation by the pancreatic secretion go hand in hand and the percentage of sugar in the tissues and in the blood is kept at a constant level. If this equilibrium is disturbed through increased mobilization by adrenalin or diminished destruction by the pancreas hyperglycemia results with excretion of glucose in the urine.

The carbohydrate metabolism is, however, not only regulated by these two internal secretions; an important part is played by the thyroid gland, which exerts an inhibitory action upon the pancreas. Hyperfunction and hypersecretion of the thyroid gland as observed in exophthalmic goitre results in a diminished activity of the pancreas. It has long been known that small amounts of glucose fed to patients with exophthalmic goitre produce alimentary glycosuria; the complication of Graves' disease with diabetes is by no means a clinical rarity. These clinical facts are easily explained by the inhibition of pancreatic activity by the hypersecreting thyroid.

On the other hand, enormous quantities of glucose are oxydized in myxedematous patients as the action of the pancreas is increased. Larger quantities of its internal secretion are in circulation, so that even a surplus of mobilized sugar can be taken care of. Experimentally the injection of adrenalin does not produce any glucosuria in thyroidectomised

dogs; the hypersecreting pancreas oxydizes all the available sugar.

If the pancreas of a thyroidectomised animal is extirpated the resulting diabetes differs from the ordinay pancreatic diabetes. The metabolism of the proteins is hardly increased above the normal, while in ordinary pancreatic diabetes the destruction of proteid is increased to about 4 times the normal amount. This demonstrates clearly that the thyroid is in a state of hyperactivity after the extirpation of the pancreas and has its usual favoring action upon the destruction of the tissue proteids.

The activity of the chromaffine system is also tremendously increased after the extirpation of the pancreas. The adrenalin mobilizes every molocule of the polymerised glucose, the glycogen, explaining the complete absence of glycogen in pancreatic diabetes.

The influence of the thyroidea and the chromaffine system extends also to the fats. We know that hyperfunction of the thyroidea leads to a rapid loss of fat; that myxedema is characterized by an accumulation of fat in the body. Feeding of thyroid extract leads to a rapid loss of fat, as we know from therapeutic experience. Injection of adrenalin produces a rapid loss of fat, which according to the experiments of Eppinger, Falta and Rudinger [5] is mobilized by adrenalin, oxydized by the thyroid secretion.

These results lead to the following conception:

Under ordinary conditions adrenalin mobilizes albumen, fat and carbohydrates which are oxydized under the influence of the thyroid secretion. If the thyroid is hyperactive the mobilization by adrenalin is increased; chromaffine system and thyroid have a mutually favoring action upon their functions; if the activity of the thyroid is diminished the mobilization by adrenalin sinks. As thyroid and pancreas have an antagonistic action a diminished pancreatic secretion will lead to hyperthyroidism and a corresponding increase in activity of the chromaffine system; active pancreatic secretion leads to an inhibition in the thyroid gland and secondarily in the chromaffine system.

The relation of the parathyroids to the thyroid in regard to metabolism is not fully elucidated. Only one fact, which points to a marked antagonism in their action, has been established experimentally; while in thyroidectomised animals the injection of adrenalin does not produce any glycosuria, excretion of sugar follows the exhibition of adrenalin in animals whose parathyroids have been extirpated together with the thyroid.

The relation of the sympathetic nervous system to the glands of internal secretion is of great interest. Adrenalin has a specific irritant action upon the endings of the sympathetic nervous system. The vasomotor nerves contract if adrenalin enters the circulation; adrenalin instilled into the extirpated eye, in which the action of the sympathetic nerve is not overcompensated by the oculomotor, produces a dilatation of the pupil. The internal secretion of the pancreas has an inhibitory action upon the sympathetic nervous system. Lack of pancreatic secretion results in a hyperexcitability of the sympathetic nervous system. Stimuli which with an intact pancreas were unable to overcome the restraining action become active; the pupil dilates after instillation of adrenalin in the intact eye.[6] This reaction has pointed in one of my cases to an atrophy of the pancreas, verified at autopsy.

On the other hand thyroid extract increases the irritability of the sympathetic nervous system. Injection of thyroid extract very frequently leads to mydriasis after the instillation of adrenalin into the pupil of the intact eye. This reaction indicative of hyperactivity of the thyroid occurs in a number of cases of exophthalmic goitre.

The relation of the adrenal to the genital glands is of great interest. Histologically the adrenal consists of two parts: the medulla containing the chromaffine substance and the cells originating from the sympathetic, while the cortex consists of cells rich in glycogen and originating from the mesodermic epithelium which covers the fore part of the Wolffian body in front of the germinal epithelium. Pathological observations show that in a number of cases lesions in the cortical part of the adrenals are related to changes in the sexual characters, a fact extensively discussed by Bulloch and Sequeira.[7] They report a typical case in which a girl began to menstruate at the age of 10 years, after which there was a rapid development of the generative organs and female characteristics with marked obesity and excessive growth of hair as well as on the pubis and axilla. These changes accompanied the appearance of a tumor which at autopsy was found to be a tumor of the left adrenal with the structure characteristic of the adrenal cortex. In the literature they found eleven cases, involving chiefly young girls and all characterized by the association of tumor of the adrenal cortex with premature sexual development and not infrequently pseudo hermaphroditism. In addition to these are cases in which precocious development chiefly in females has been found accompanied by simple hypertrophy of the adrenals.

In a case recently reported by Thumim [8] the formation of an adrenal struma in an adult caused excessive growth of hair and change in sexual characteristics.

The development of the genital organs and of the secondary sexual characters seems also to be influenced by the function of the hypophysis. In slowly developing tumors at the hypophysis there develops a set of symptoms first described by Frankl-Hochwart [9] and Frolich occurring in young people, who had not attained their full growth. As the tumor increases the same ocnlar symptoms develop as in acromegaly. Obesity, a pasty swelling of the face, stop in genital development, disappearance of pubic and axillary hair and impotence are very marked. It is exceedingly interesting that after the removal of the tumor some of the symptoms disappeared: the axillary hair began to grow again and erections recurred.

The relation of the thyroid with the genital or-

gans has been known for a long time and clinical experience has shown that increased activity of the genital glands leads to swelling of the thyroid and symptoms of thyroidism. The activity of the genital glands calls in some way for an increased amount of thyroid secretion. These are the cases of parenchymatous swelling occurring in pregnancy and during menstruation yielding to thyroid feeding. On the other hand, absence of thyroid in myxedema suppresses the genital functions.

The interrelation of two glands can be conceived in two ways: either by circulation or by nerve influence. Reaching the glandular cells directly by circulation the internal secretion can either stimulate or inhibit their action, or it may reach the nervous centres and inhibit or create stimuli. Very little so far is known in which way these interrelations are effected; a number of facts, however, point to the nervous system as the agent of communication and action. Falta, who has devoted a great number of experiments to the elucidation of these points, expresses himself as follows:

A portion of the nervous system, as is known, governs principally the vegetative functions; another, the functions of the heart, of the intestines, and the metabolism. Since glands of internal secretion control the internal metabolism, it is to be expected, *a priori,* they will control also these portions of the nervous system. This is, indeed, a fact. Among the symptoms of hyperthyroidism the majority point to a hyperirritability of the sympathetic nerves. So, also, adrenalin exerts its chief influence upon the nerve endings of the sympathetic system. So, too, puncture of the medulla causes glycosuria probably by stimulating the cells of the chromaffine system to an increased secretion of adrenalin. The mechanism, then, I conceive to be, that a period of excitation is established in the nerve centres of the fourth ventrical, from which impulses are sent by way of the splanchnic nerves to the chromaffine system. On the other hand, we observe that the internal secretion of the pancreas is associated with the tonus of the autonomous vagus. Important facts indicate that certain drugs which have a stimulating effect upon the vagus increase the internal secretion of the pancreas. One sees, therefore, that the interaction of the glands of internal secretion is paralleled by the relation to the sympathetic nervous system; finally, that there are relations with the muscular apparatus is evidenced by the excessive hyperirritability of the motor neuron, which results from failure of the parathyroids. E. S.

1. Bayliss & Starling.
2. Leo. Loeb: The production of deciduoma. Journal of the American Medical Association, 1908.
3. Blum F. Uber: Nebennieren Diabetes. Deutsch Archiv fur Klinische Medicin, Vol. 91.
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7. Bulloch & Sequeira: Transactions Pathological Society, London, 1905.
8. Thumim: Berlinger Klinische, Wochenschrift, 1909, page 103.
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THE MALARIA ZONE.*

D. F. RAY, M. D., Stockton.

It is by a comparison of past and present that we arrive at a true measure of our progress in all things, all sciences, all arts and all professions. Such a comparison, expanding as it does the imagination, giving a freshness and renewed splendor to our hopes, and diademing the labors of an active and well-spent life with the coveted trophy of success, calls into action some of the great and more refined forces within us; becoming indeed a most wholesome exercise and one in which the medical man (be his branch what it may) experiences a supreme delight. Viewed either as a whole or branch by branch the evidence obtained attests a marvelous progress in all lines of the medical profession. The comparison renders most striking the advancement made in biologic science and preventive medicine as a review of the subject of this paper will reveal.

Recent historians [1] claim that the decline of Greek greatness was due to the introduction of malaria. The first mention of its occurrence is in the Wasps of Aristophanes 422 B. C., but the writings of the fourth century B. C. give evidence of its prevalence.

Empedocles,[2] a disciple of the illustrious Pythagoras, was evidently acquainted with it and advised the adoption of sanitary measures to save his own city from its ravages. His advice was taken and the city saved. Agrigentum was his home city and was periodically ravaged by fevers. He observed that the fevers became general in the same month of each year and that their appearance coincided with the return of the sirocco, which blows in Sicily on its western side. He advised to close by a wall, as by a dam, the narrow gorge from which this wind blew upon Agrigentum. His advice was followed and the city was made free from the fever. Selinus, Greece, was also accustomed to the perils of periodical fevers, undoubtedly malaria. Here again Empedocles gives evidence of possessing some knowledge of malaria and preventive medicine as well. The fever in Selinus, he thought, was caused by a sluggishly flowing stream of water which passed through the most densely populated portion of the city. He advised the conducting of two small rivulets into it, increasing thereby the velocity of the flow and saving the city from the scourge. The sanitation here advised cannot be improved upon very much at this time—the "20th century." Whether the advice given here in sanitation is indicative of a training in sanitary science or of strong personal sagacity, is inferential. That Greece was first to suffer from malaria history abundantly confirms.

All nations have suffered in consequence of its prevalence at some time in their history.

Reviewing the different statistics and mortuary reports of the United States and several of the different states, together with reports from foreign countries, we find a very decided decline in the prevalence of malaria throughout the civilized

* Read before the San Joaquin Valley Medical Association, 1909.

world. Many places where it formerly prevailed are now free from it. In England malaria was at one time the nation's scourge; it is now seldom seen there. France, at one time a sufferer from malaria, is now free from it, and has been for the past twenty-five years. Italy, while still showing a high mortality rate from malaria, has reduced it two-thirds in the fever-ridden parts of her territory in the last five years. With such a rapid reduction in the mortality due to the malaria, with well-trained men actively engaged in preventive medicine, supported by an enlightened government, we shall very soon expect to find Italy, like England and France, free from the disease.

The inroads it has made in the population of the United States may be seen from the following statistical table:

	Year	Deaths from Malaria
In the United States	1890	18,594
In the United States	1900	14,874
In State of Mississippi	1890	1,273
In State of Mississippi	1900	983
In State of Texas	1890	2,102
In State of Texas	1900	1,331
In State of California	1890	153
In State of California	1900	119
In State of California	1907	70

(Mississippi is in state population about equal with California).

While these statistics show a marked decline in the mortality due to malaria, they also manifest a needless sacrifice or loss of life to a preventable disease. Many sections of our country have been slow in growth and general development by reason of the extreme prevalence of this disease. To what degree it has affected our greatness as a nation or as individuals, is a subject worthy of careful study. Should the child who is infected with malaria or its cachexia be considered a desirable subject for the school room, or the laborer for the field or the judge for the bench?

To what the disappearance of malaria in England, France and the United States is due is not easily explained. It is, doubtless, due to the drainage of land and improvement of sanitary conditions in general. The theories for the existence of malaria have been as numerous as color is varied, some classing it water born, others advocating its cause to be conditions of soil and air. Galen, the father of medicine, was acquained with fevers and distinguished between the Continued and Intermittent. Quotidian he thought, caused by phlegm, tertian by yellow bile, quartan by atrabile. The true cause of malaria was discovered by Laveran in 1880—the malarial parasite. The names of Ross and Golgi, Bignami and Grassi and Bastianelli, all prominent biologists, share about equal in the honors of the completion of the discovery of Laveran, each adding an important link in the chain.

That the Anopheles mosquito is the agent which carries the infection from one individual to another, is no longer questioned. It is the female that sucks human blood only and she is active at night. Two factors are, therefore, evidently essential for the spread of malaria—the parasite in the human blood and the mosquito. The mosquito which conveys malaria is bred in pools, puddles, ditches, canals and other bodies of stagnant or slowly moving water. Malaria is prevalent in the country or district surrounding such breeding places and the name "malaria zone" is very soon acquired. With an effective system of drainage the breeding place is destroyed, malaria disappears, but the title acquired, "malaria zone," lives on and on, indelibly staining the good name of that locality and affecting property values most disastrously. Many sections of the country have suffered great financial loss by the unmerited application of "malaria zone."

The San Joaquin Valley, California, at one time, doubtless, was quite generally infected with malaria and merited the application "malaria zone," but now, showing as it does a two per cent mortality rate from the disease, will medical men continue to apply the vesicating term "malaria zone"? Thirty years ago the disease prevailed in this, my home city (Stockton, Cal.), epidemically. It is now practically free from it as the following report of a mosquito survey, which was made two years ago, will demonstrate:

The preventive measures consist of drainage of all pools, puddles and stagnant waters (different kinds of oils poured upon the water is said to be effectively preventive), and mosquito-netting to protect the sick and prevent access to the houses of the well. For the application of preventive measures and prophylaxis in a broad sense, we rely upon our state and local boards of health. The demands of both the public and medical profession on departments of Public Health increase each year, and will continue to do so as long as there is growth in knowledge. Diagnostic laboratories where microscopical examinations are made of various character are becoming quite generally the rule. These examinations are made at the request of the attending physician in all suspicious cases. It is evident that the directions of these Boards of Health and departments should be under the control of specially trained sanitarians and microscopists. The public at one time was satisfied with the Health Officer who was successful in getting the position, his ability to fill it never being questioned.

In England the Degree of Doctor of Public Health is conferred. I note with pleasure that some of the medical schools in this country have added a like course, specially designed to meet the increased demands for trained men in the public health departments.

No one realizes more fully the need of these diagnostic laboratories than the busy practitioner, and no one will support more fervently the increased demands on the department of Public Health.

The advance in biologic science and preventive medicine in the last twenty years has been marvelous. The discovery of Laveran, Ross, Grassi and Bignami, placing malaria in the list of preventable

diseases, and the discovery of quinine as a specific for the disease, were two of the greatest in the world's history. To no branch of the great tree of medicine does humanity owe a more lasting debt of gratitude than to biologic science and preventive medicine.

It has made possible the building and enjoyment of prosperous homes in sections of the country previously shunned by all mankind.

With the rapid decline in the prevalence of this disease, as is indicated by statistics herein given, with a more rigid application of preventive measures supported by an enlightened and patriotic government, may we not reasonably expect to see this disease, which devastated ancient Greece, the home of philosophy, of high ideals, the spirit of beauty and the birthplace of Homer and Demosthenes, banished from the land?

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LOCAL ANESTHESIA.*

By V. G. CLARK, M. D., San Diego.

The use of local anesthesia, especially in America, has until recent years been relegated to an extremely limited field. In 1905 Braun of Leipsic published a book on the subject, and in the United States the work of Matas, Cushing and Crile, together with the clinical experience and articles of Bodine, Mitchell and others has done much to place this method of obtunding pain during surgical procedures on a more popular basis with the profession in general.

That the method still has its limitations, even its most enthusiastic advocate will not deny. Nor can it be denied that all other methods of inducing anesthesia are bounded by restrictions over which we may not step with safety. At the present time it is generally conceded, by those in a position to speak with authority, that the dangers and failures which attended the use of cocain and its derivatives in the past were due to a faulty technic and an ignonance of the proper strength and amount of solution necessary to suspend sensation in the tissues. It should be borne in mind that cocain produces toxic symptoms, only when an amount in excess of that necessary to produce anesthesia of the parts to which it is applied, is given. Cocain is a protoplasmic poison and forms an unstable combination with the tissues, which disintegrates slowly and after which it cannot be absorbed into the circulation, nor recovered from the tissues as cocain.

Bodine [1] says "That a solution of cocain, amounting in sum total to any fractional part of a grain intermittently injected during an hour of time is less dangerous than cerebral narcosis for the same period is obvious, and that it is entirely without danger to the patient is probable."

The Anesthesia Commission of the American Medical Association[2] in their preliminary report include the following recommendations:

First. That for the general practitioner and for all anesthetists not specially skilled, ether must be the anesthetic of choice; ether administered by the open or the drop method.

Second. That the use of chloroform, particularly for the operations of minor surgery, be discouraged, unless it be given by an expert. All points of the foregoing being considered, the local should be the method of choice in all minor operations and the borderline operations where the anatomy of the parts will permit of its use.

The commission reports in regard to local anesthesia: "Within recent years surgeons speaking with authority have urged us to employ local anesthesia in the case of many major operations, and last year J. F. Mitchell of Washington read before this section an important account of his experience with local anesthesia. Your commission have had the advantage of Dr. Mitchell's co-operation in preparing this report. With widening practice and endeavor, he finds the scope of local anesthesia to be surprisingly broad. The method is applicable not only to minor operations, but to all amputations of limbs, to operations on bones, to the exploration of the abdomen, for typhoid perforations, for appendectomy, for all forms of hernia, for all operations on the male genital organs and for most benign tumors."

Bodine[3] in a paper on "The Adequacy of Local Anesthesia in Inguinal Hernia Operations," after a series of over four hundred operations, says: "Every modification of the Bassini has been practised, varicoceles, lipomata and cysts have been met, transference of the rectus muscle, deviation of the sac neck and placing an undescended testicle have been practiced. The signal advantage of the method is the preservation of the structural integrity of the nerves in this area. Thinning and atrophy follow division of the nerves and must invite recurrence of the hernia. A hernia is as satisfactory as a circumcision under local anesthesia." And closes with: "It is the conclusion of this paper that local anesthesia is entirely adequate for the cure of inguinal hernia."

The surgeons of Europe have used local anesthesia much more extensively than those of this country. The late Prof. Miculicz employed the method for about one-third of the abdominal operations at his clinic; Kocher, Roux and others in the goitre zone give the local method the preference for thyroidectomy. In Kocher's second thousand cases of thyroidectomy reported in 1900 there were only four deaths. Mitchell's [4] comment on this is: "The greatest single factor contributing to this low mortality was undoubtedly the substitution of local for general anesthesia."

Among the contraindications we find fat ranking first in the estimation of the majority of those who make use of the method; it cannot be infiltrated and is painful during incision, also it limits the retraction necessary for the exposure of deep wounds. The fat subject can be operated successfully but not absolutely painlessly.

The personal equation of both the operator and the patient presents contraindications of varying degrees.

* Read at the Thirty-Ninth Annual Meeting of the State Society, San Jose, April, 1909.

Patience and gentleness on the part of the operator are essential to success and the surgeon who operates at a high tension should not expect an unqualified success with the method. The individual susceptibility of the patient to psychic influences may form a barrier to the use of local anesthesia. Time is an element which may deserve consideration in some cases; the method is necessarily slow. Very young children are not usually amenable to the method. Old age, disease of the heart, kidneys and vessels present no contraindication. Danger to life from the anesthetic is so small that it is practically not to be considered.

It has been argued by surgeons in the past that the tissues did not unite as readily after infiltration as otherwise. Whatever consideration this may have deserved in the earlier stages of the development of local anesthesia, it is deserving of none at all at the present time, for if a solution isotonic with the body fluids is used the old objection to the introduction of a foreign solution into the tissues is overcome, and the careful handling of the tissues which is necessary is conducive to an exceptionally speedy union, with a lessening of the chances of infection.

There are three methods of producing local anesthesia. First, by pressure; second, by the application of cold; third, by the application or injection of drugs.

Of the first two no more than a mere mention is necessary, their very narrow field of usefulness is well known, and if we attempt to apply them beyond this restricted area we produce more pain in the effort to anesthetize than would be caused by the operation itself, to say nothing of the disagreeable and dangerous after-effects.

A number of drugs have been proposed as having some advantages over cocain, and the probabilities are that each of these may possess some points of superiority in individual hands and in selected cases, but cocain and eucain B still hold the balance of favor with the majority of operators who use local anesthesia to any considerable extent.

The technic is exceedingly simple, except for the massive infiltrations of Matas, no special apparatus is necessary, the aseptic hypodermic syringe fulfilling all requirements. The two solutions proposed by Braun, the 1-100 cocain in normal salt solution with adrenalin, for the perineural (Halsted) and the endoneural (Crile, Matas and Cushing) nerve blocking, and the 1-1000 solution prepared in the same manner for infiltration, each of which may be still further diluted, are sufficient.

Morphin in one-eighth to one-sixth gr. doses, should be given one-half hour before the beginning of infiltration, and the dose may be repeated during or after the operation, either to quiet the patient or to control the toxic symptoms if such should appear. The more minute the knowledge of the distribution of the sensory nerves, the greater the facility and ease with which the procedure will be carried to a successful termination, seems almost axiomatic at present.

The "Indirect Local Anesthesia" of Bier, in which the veins are utilized to carry the anesthetizing agent between two tourniquets on a limb previously rendered bloodless, will undoubtedly prove valuable in surgery of the limbs. The anesthetizing solution is afterwards washed out by the use of a normal salt solution before the removal of the tourniquets.[5] [6]

Conclusions. It is the conclusion of this paper that local anesthesia is deserving of, and will receive, more attention in the future than has been accorded to it in the past.

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Discussion.

Dr. T. C. Edwards, Salinas: I have seen Dr. Bodine do this work and I know that it can be done thoroughly and with safety. I know that many surgeons avoid using the general anesthetic and I have seen expressions used, "local anesthesia was given because of the low hemoglobin count or because of heart complications, or because of kidney trouble, or because of shock which existed at the time." If we apologize for the local anesthesia on the ground that it can be given where general anesthesia could not be given we should use it more frequently than we do. I have done appendix operations, have resected ribs, opened empyemas with local anesthesias and other men can do the same thing, and this paper should have more recognition and discussion.

Dr. A. J. Belnap, San Jose: I have had considerable experience in the use of local anesthesia and have removed testicles, fingers, have done cervical and peroneal lacerations and also curettments under it and everything was repaired nicely. No pain was felt on the part of the patient. My experience has been very good. I use eucain rather than cocain.

Dr. H. A. L. Ryfkogel, San Francisco: I use, and have for three or four years, local anesthesia in all of my hernia operations. The doctor's paper omitted the discussion of perhaps the most important thing in the use of local anesthesia, and that is the psychic treatment of the patients before and during the operation. I recently had occasion to do a herniotomy on a physician of San Francisco and decided to use the local anesthesia and met with the first failure in my series of cases. The reason was evident. This man had a number of his friends present who assured him that it was cruel to do such an operation and that they knew he would be badly hurt, and he really was hurt and it became necessary to go on with the general anesthesia. This is the very thing we must not let happen. If he is at all nervous, one-quarter grain morphin will help. The patient must be assured that he will not suffer, and he should have some one talking to him during the operation. Either in herniotomies or goitre operations I have some one talking to the patient and encouraging him. In this way you will have no great difficulty. I think it unwise to do appendectomies under local anesthesias on account of the complications which might arise.

Dr. Carl R. Krone, Oakland: I am glad to hear the local anesthetic so well supported. There is an excuse for using the local anesthesia. You will find that the local anesthesia can be used in such cases where we do not interfere with the structural tissues which are very sensitive. You can go through the skin and work with the intestines if you are not rough. The beauty of the general anesthesia is in keeping the patient just enough under the anesthetic to prevent the sensitiveness of the tissues. Three or four days ago I gave a patient a general anesthesia with chloroform for a severe disease of the pelvis and during that operation that patient talked to me three or four times in the half hour. If you can give choloroform so that you can keep your patient floating on the surface of unconsciousness, you will not need the local anesthesia so much, and then you will not need to furnish friends to talk to your patient during the operation, and when you make a slip and sew up the urethra instead of your wound, it will not be so disagreeable for you.

Dr. Chas. G. Levison, San Francisco: There are two points that I desire to mention in reference to local anesthesia. The first is the time which should be allowed to elapse between the injection of the anesthetic and the time that the operation is commenced. Kocher has been quoted as being a great exponent of local anesthesia and as he operates upon his goitres by this method, he has had a large experience. Kocher's clinic is full of goitre cases and at the end of the semester when housecleaning is going on, I have seen as many as twelve goitre operations in one morning. The situation in the Kocher Clinic that the visitors lose sight of, is, that after the injection has been made, the assistants leave the room to indulge in their second breakfast or as the Germans call it, "zweites Fruehstuck" and after they have eaten this, return to the operation. This generally occupies from ten to fifteen minutes so that by the time they have returned, the patient is well under the influence of the local anesthetic. This factor is often lost sight of and will account for many of the failures that are experienced. Another point is the strength of the solutions used. Professor Reclus was the pioneer in the employment of the infiltrated anesthetics, he having used it long before Schleich. Reclus maintains that three grains of cocain can be used if the solution is not stronger than ½%, and he says that he has performed 10,000 operations without complication. The reason for his success he claims are that the patient should be kept in a recumbent position for at least one hour after the operation has been performed and that the solution should not be stronger than ½%. Reclus, however, at present employs stovain in a ½% solution.

Dr. Chas. G. Levison, San Francisco: I have been pleased with the fact that Dr. Krone has interested himself in the question of anasthesia as he has done. His method seems ingenious and is calculated to administer the smallest quantity of anesthetic necessary. It is only now that we are beginning to appreciate the fact that the anesthetic is one of the most important factors in surgery. For years all over the world, the anesthetic has been administered by almost anyone, and in France today, the anesthetic is being administered by students who have not yet graduated. In the United States the internes are generally the anesthetists. In some of the San Francisco hospitals professional anesthetists are now being employed. It is my belief that the condition which is generally called surgical shock, is most often caused by an excessive amount of anesthetic administered. Dr. Krone's method is calculated to be productive of excellent results. He mentions certain points concerning the mouth gag and the tongue forceps that are supposed to make it possible for the anesthetist to administer the drug to better advantage and to prevent the formation of mucus and other unfavorable conditions. It is my conviction that the mucus in the throat as well as snoring, imply that the patient under ordinary circumstances is being badly anesthetized, for I contend that if the stage of excitation is avoided, which means that the patient requires but a small amount of anesthetic, that an excessive formation of mucus and snoring do not occur. In my service tongue forceps are practically unknown.

Dr. H. A. L. Ryfkogel: Dr. Krone's paper certainly deserves discussion. I think that this method could be used in a way also that Dr. Krone did not mention and that is to protect the operator in the amount of anesthetic given, so that a definite amount of ether for a definite period of time could be estimated and the attention of the operator brought to it. I remember a case in which such a method would have been of much assistance. A cholecystectomy for gallstones was being done and we met with no difficulty in the operation, the time of the operation being about sixty minutes. After the operation the patient did very well for about forty-eight hours when he developed vomiting, a sweet odor of the breath and shortly died notwithstanding the injection of saline solution and alkaline enemata. In looking for a cause for the death, we found that more ether had been given to this patient in the forty minutes of operation than ever before to a patient in that operating room independent of time. If the anesthetist had been instructed to notify us when a certain amount per period had been exceeded, we would have been able to stop and the patient might have been saved.

OUR STATE BOARD EXAMINATION.

By H. D'ARCY POWER, M. D., San Francisco.

The subject of the medical license to practice has long been debated in the State, and recent events have lent more than usual warmth to the discussion. The charges concerning the August examination, the long and nearly successful attack in the legislature, and lastly the general tone and purpose of the report of the Committee on Education at the State Society, are all evidence that we are dealing with a vital and still unsettled question. I would scarcely have interjected myself into the discussion were it not that circumstances have given me an unusual opportunity to observe and form some opinions, and the gravity of the case seems to demand the expression of anything likely to be of service. Twenty-five years' close connection with medical education, both here and in Europe, has enabled me to view with some knowledge, the requirements and usages of examining boards, and at various times since the inauguration of the present system, in California, that knowledge has been requisitioned by various parties and interests, to examine and report on the work of the board. Let me say at the outset, that with one or two minor exceptions, I have never had reason to doubt the fairness of the examinations or the examiners; or to find fault with the general tenor of the questions asked. Nor do I think that the standard demanded has been too high, or the markings arbitrary. Acting on behalf of rejected candidates, of schools who imagined their students discriminated against, and in one instance on behalf of a higher authority, I have from time to time gone over papers in Medicine, Pathology, Physiology, Hygiene and Chemistry, and always, without knowing the marks

awarded, have given practically the same, and very often lower ratings. It will thus be understood that any criticism I offer is not in a hostile spirit, but in the fullest appreciation of the valuable work the examining boards have done, and the inestimable benefit that they have conferred on medical men and medical teaching in this State. But we have need to be more than correct in a general way; it is needful to eliminate every possible cause of complaint, and no question should appear on an examination paper that can be subjected to hostile criticism. It is to be remembered that the law and the obligations of medical ethics demand that, while we protect the public, we equally place no hardship or handicap on the applicant who is our prospective colleague, and if a practioner of another State our professional equal. As the law stands we must subject to the same examination the student fresh from college and the practitioner of twenty years' standing whose theoretical knowledge is likely to be the inverse of his practical experience. Now I maintain that while we can never do perfect justice to both classes in a single examination, we must nevertheless carefully avoid questions that are outside the reasonable reading or reasoning of either. Owing to the perhaps necessary, but yet unfortunate exclusion of college teachers from the board of examiners, the duties of the office devolve on gentlemen who, however excellent as practitioners, are rarely practically conversant with the existing standard of teaching, nor are they always equal to the difficult art of asking a searching yet clean-cut question. The result is seen in questions that are too often ambiguous, or unscientific in their phraseology. A few examples will suffice:

"What two important elements occur in the blood?" Carbon, Hydrogen, Oxygen, Nitrogen, Iron, Calcium, etc., are among the most important elements in nature, and the blood could not be blood without them. Did the examiner mean any two of these? If so, the question is childish, if not, who can guess what he did require?

"Differentiate Hypertrophic cirrhosis of the liver?" Did the propounder of that question forget that there are two distinct diseases characterized by hypertrophy and cirrhosis? How is the candidate to know which the examiner has forgotten?

"What are the typical anatomic findings, post mortem, in puerperal eclampsia?"

Did the examiner wish to imply that the gross anatomy is changed either ante or post mortem by the advent of eclampsia, or did he wish for a description of a possible, but not necessary morbid histology? Students are not supposed to read terms in anything but their normal meaning. Also we have had foolish questions. To ask the formula of quinin is to show an utter lack of true chemical knowledge, because the structure of quinin is such that its formula could not be deduced from any knowledge the student could be expected to possess. It has no significance and could only be remembered by a tour de force that would require the candidate to memorize the formula of every unrelated substance in the pharmacopœia, which is preposterous.

"What products of phenol are of interest in medicine?" What is meant by "products?" Substances directly manufactured from phenol? Things containing phenol? or derivatives of phenol? Ought a candidate with two hours to answer ten questions, spend time in searching his brain for all of these, or in wondering which was meant, or would it in any way affect his standing as a trained student, or a reliable practitioner if he could not remember any?

Occasionally we have questions asked that are unfair because outside the knowledge that a competent physician can be expected to store. For example, "Describe the gross appearance of the skin lesions in Coccidoides," or again, "Give the substitutes frequently used for barley, hops, and malts?" Finally, let me remark that it is derogatory to the dignity of the board, and in fact of the medical profession to set questions in bad grammar. "What are the origin and significance of urea." "Give the period of eruption of the *exanthema?*" (ta), or the use of *neuritis* for *neurites,* do not look well, and should not occur.

The above does not exhaust the list of questions that ought not to have been asked. It may be conceded that in the aggregate they are exceptional, and have probably done little injustice, but they have provided the enemies of medical education with their most effective weapons, they loom big in the imagination of the student, and are a disturbing element to the teacher. What students and teachers alike want is a *standard.* For my part it may be as high as any in the world, but it must be standard of known capacity and consistently maintained. Speaking as a teacher I would say that the great fault of medical education is its extent and superficiality. Let us have a standard demanding thorough, exhaustive knowledge within a circle limited to the useful. Let us test the knowledge of and application of principles, rather than the memory of unimportant facts. An examiner that is fit to examine can set the severest examination on quite familiar ground. Personally, I believe that no question should go outside the facts, or deductions on facts, contained in the latest text book on the subject in question. Men engaged in the hard grind of preparatory reading have no time for watching the vast mass of contemporary medical journalism.

Further, let examiners stay by their subject. How is the teacher of chemistry to prepare for the examiner, who under that caption asks for the "symptoms of the three stages of trichinosis?" The examination as it stands is not a test of fitness to practice. Firstly, because it does not ascertain ability by practical tests. The men are not required to do things, analyze urine, or stomach contents, examine blood or sputum as they are in Europe and in some places in the East. Secondly, there is no sufficient test of their ability to reason and draw correct conclusions. Ten short answers (the time limit is about ten to twelve minutes apiece) may test extent of knowledge but not the power to apply it. It makes for quiz compend instruction. This could and should be altered. Lastly, I would make a plea for the old practitioner—let at least some of the

questions in each subject be set with a view of bringing out the esxperience he ought to have acquired. If he fail where he ought to be strong, then reject him without mercy, but give him the chance the law intended, and professional courtesy demands.

Our present standard must be raised rather than lowered, but if we are to succeed in the salvation of an excellent law we must give no points to the enemy.

COOPER COLLEGE SCIENCE CLUB.

Discussion:

Doctor Wm. Fitch Cheney: It is only a few years since we were taught that ulcer of the duodenum was very unusual as compared with ulcer of the stomach. And it is only comparatively recently that the Mayos have determined that ulcer of the duodenum is as frequent as ulcer of the stomach and according to their statistics a little more so. But from the standpoint of the clinician it does not seem to me that it makes very much difference as to whether the ulcer it situated one or the other side of the pylorus. Many are situated across the pylorus and defy the powers of the physician to decide whether the ulcer is on one or the other side. After all if we consider the matter as belonging all to the same group of eases it does not make much difference. At the utmost, a space of three or four inches is involved; and for a man to make up his mind whether the ulcer is in the first, second or third inch of that space is impossible. After he has seen his cases operated upon a few times he mistrusts his conclusions. The diagnosis of the ulcer in the exact situation is a very difficult matter and does not make very much difference as to which side of the line the ulcer lies. The points which Doctor Levison has made are all very good. I have no fault to find with his methods of diagnosis and nothing to say regarding his methods of treatment. In chronic ulcer nothing can be expected from the medical treatment, and where there is a history of the condition going on for years, changes occurring in the vicinity of the ulcer, stenosis or perigastric, or peri duodenal adhesions, or attachment to the stomach or bowel, it is incredible that any medical treatment should be expected to cure and mechanical measures are the only cures. The question of differential diagnosis as between uleer and conditions of the gallbladder has been brought up by Doctor Levison and this always causes a great deal of difficulty in diagnosis. The upper right quadrant of the abdomen is one of the most difficult regions for diagnosis. In gallbladder troubles or pancreatic conditions it takes time and work to reach conclusions by which we are able to make our diagnosis. Gallbladder cases differ in their history with regard to the occurrence of the attacks, and secretions of stomach and absence of blood from the bowels. We do not expect to find occult blood in the feces in gallbladder disease but peptic ulcer or in duodenal ulcer we do expect to find this; furthermore we find a comparatively clear interval of perfect health between attacks whereas, in the interval between the attacks of ulcer there is a great deal of dyspepsia; the character of the pain is usually different in the two. There is a very much greater intensity of the attack in the passage of gallstones, there is an absence of stomach symptoms whereas in ulcer there is the characteristic gastrology. After all this has been gone over I believe that again and again we find ourselves unable to decide. We may have a firm conclusion and yet we find ourselves deceived when the abdomen is opened. The only solution we have in the matter is that any one of these serious conditions call for surgery and the patient does not suffer by being submitted to operation. In the early cases of ulcer, whether in the stomach or duodenum, cure can be effected by medical means, but I think it very important to realize that after the case has gone on for years with recurring attacks it is absolute folly to expect permanent cure by medical means. We can improve these cases but sooner or later recurrence occurs and the confidence of the patient in the medical means suffers very materially. It is far wiser to urge the patient to submit to operation.

Doctor Emile Schmoll: As for our abdominal conditions we are indebted to the surgeon for the recognition of duodenal ulcer about which we knew very little before the time of abdominal operations. I think, however, that at present there is a tendency to exaggerate the frequency of duodenal ulcer which is often diagnosed and the ulceration is really situated at the minor curvature. Such cases are primarily gastric ulcerations and involve the duodenum afterwards. The differential diagnosis between duodenal ulceration and gastric ulcer is usually based on the following symptoms: bleeding by rectum and the occurrence of pain a long time after meals. I would like to say that exclusive bleeding by rectum is not characteristic of duodenal ulceration, as I have seen in gastric ulceration. I remember one case in which, as four or five large hemorrhages occurred through the intestines, the diagnosis was made of duodenal ulcer; there was, however, one point which attracted my attention and which made me doubtful; I finally decided to diagnose gastric ulcer in preference to duodenal based on the fact that the pain depended upon the position of the patient, occurring only when he laid on his left side. This is a most valuable sign in gastric ulceration. If gastric pain changes on changes of position I never hesitate to diagnose gastric ulcer; if it is dependent upon food and does not change on change of position I usually diagnose duodenal ulcer. In this case the patient could not lie on the right side, he was free from pain as soon as he turned over on the left side. My diagnosis of ulceration of the minor curvature near the pylorus was verified at operation. So far as treatment is concerned I do not think that we are justified in sending every case to operation; we know too little of the clinical history of dnodenal ulceration, we have not known the condition long enough to observe the ultimate outcome. In cases of gastric and duodenal ulcer the treatment usually does not extend over a sufficient length of time; it is my conviction that treatment is not complete unless the patient has been kept in bed for at least six weeks on a soft diet. There are especially two complications of duodenal ulcer which are often put to the physician before the question of immediate operation: bleeding, one of the most dangerous complications,—and still I think it wiser to wait as a general rule until the hemorrhage has stopped before operation. First of all we are not sure to find the bleeding point which I have seen looked for in vain in a number of operations. I remember especially one case which a number of gentlemen present have seen where hemorrhages have persisted over a period of ten years and in which at operation no trace of the bleeding point could be seen. I think, however, that if an ulceration keeps on bleeding notwithstanding rational treatment, operation should be performed. The second complication is perforation, which of course, demands immediate operation. Perforation is a complication which, of course, demands immediate operation. I have seen in the last year two perforations of duodenal ulcer which were characteristic. In one the perforation had led to a pouch which was localized between the stomach and the liver. A case occurred recently at the City and County service of Lane Hospital. A man had come in with a history of long-standing dyspepsia which had grown worse in the last two or three years, but we got no his-

tory of sudden sharp pain or shock; he had simply grown worse in the last forty-eight hours. On examination we found rigidity of the muscles over the epigastrium, and Dr. Rixford and I were not quite sure whether it was a case of acute pancreatitis or whether there was perforation of a duodenal ulcer. On operation we found perforation of the duodenum with extra-sation of gastric contents all over the abdomen. This patient recovered.

Doctor J. Wilson Shiels: I find that a great number of men allow these cases to continue so long that the surgeons can do no good at all. If ulcer is diagnosed it would be wise to call in a surgical consultant, just as one should be in the habit of keeping in touch with a surgeon during a patient's third stage in typhoid. The physician should not wait until the stomach has lost its function before consulting the surgeon.

Doctor Chas. G. Levison: I am very glad to hear Doctor Cheney express himself as he has done concerning this subject, and I think it shows the result of his intimate association with surgeons. Medical men are apt to treat these cases as intestinal dyspepsia, neurasthenia, etc., which surgeons as the Mayos and Moynihan have shown to be organic. The surgeons have been a long time educating the medical man to favor operations upon the appendix, and now a physician is more apt to advise operation than the surgeon; frequently at consultation, operation is more strongly advised by the physician. Doctor Schmoll has referred to the acute ulcers, but these conditions are not those which have been discussed this evening. It is well known that many acute gastric and duodenal ulcers heal under treatment or even spontaneously. When these cases recur after a period of rest of six months or a year, they are not apt to disappear entirely. A marked characteristic of a chronic duodenal ulcer is its periodicity and the interval during which time the patient is free from symptoms. I have now three patients who undoubtedly have duodenal ulcer. One is getting ready for operation after several years of observation; during this period the patient has never been free from symptoms. This is the class of cases that does not get well under diet. They do not often pass into the hands of the surgeon and eventually develop carcinoma, where naturally the prognosis is exceedingly grave even when the patient is operated upon. There is only one thing that can influence the prognosis in carcinoma, and that is to operate before metaplasia has taken place, for it has been shown that between 50% and 60% of gastric carcinomata give a history of gastric ulcer. On the other hand, duodenal ulcers are not prone to develop into carcinoma, but are more frequently complicated with hemorrhage and perforation. The opinion is general now that no operations should be performed upon the stomach where an indurated base to the ulcer is not present, and that an ulcer for operation should be visible to an onlooker six or eight feet from the operating table. There is no reason for performing a gastro-enterostomy unless obstructive signs are present, and if it is done where no stenosis is demontrable, nothing is accomplished, for the anatomic opening will close and the pylorus will functionate as before.

DEMONSTRATION OF A SPLEEN.*

By WM. FLETCHER McNUTT, M. D.

Mr. M., age 46, miner by occupation, resident of Nome, Alaska, for the last seven years. He complained of a large tumor in the splenic region which he had noticed for a year and a half, frequent attacks of indigestion and vomiting, and great dyspnea. History negative, never had malaria, syphilis, typhoid, nor had he been a resident of the tropics. Six years ago he had a fall and sustained a severe blow in the splenic region. Has been an alcoholic all his adult life. Examination showed an enlarged spleen filling the left side of abdomen and extending to crest of ileum. Heart action irregular, apex displaced upward and to the left, lung normal, kidneys and liver negative, blood red cells slightly diminished, and no leucocytosis. Operation, abdomen opened over spleen, which was found to be firmly adherent over the entire surface. Breaking up these adhesions caused great hemorrhage and profound shock, which continued throughout the operation. Adhesions broken up, spleen removed, and hemorrhage controlled by packing. Patient was returned to bed in condition of shock. Lived six hours. Weight of the spleen when removed was twelve and a half pounds.

Discussion.

Doctor J. W. Shiels: It may be of some interest for me to mention a case of splenectomy which ended fatally within twelve hours after operation. This particular case came to my office, telling me that his wife had told him that he was sick, that his wife had told him that he perspired, that his wife told him that he was breathless, and that he had dyspnea. He had found nothing to account for all these symptoms and he went on working, but because of continued urging of the wife he came to the city and here discovered that he was suffering from bleeding hemorrhoids. Upon examination we found the blood pressure somewhat high, a very large spleen, much larger after operation than even the physical signs indicated. Upon palpation the spleen was extremely free and moving with respiration quite easily, and did not seem to distend very low, the border being above the umbilicus. But upon operation we found the spleen to be enormous, as though most of its growth had been thrown up rather than descending, although from any movement during operation it was evident there were an enormous number of adhesions. The cause of death was probably due to collapse and hemorrhage. Returning to the clinical history, the spleen was extremely large, did not show any cachexia, the liver was very large, so large indeed that we hesitated in giving a diagnosis of Banti's disease; the blood count showed large lymphocytes, but a very small blood count of leucopenia. The man progressively got worse, the heart was in good shape, he showed great discomfort from the large spleen, suffered from all forms of movement severe acute pain. He was under large doses of arsenic. We put him through a long course of mercurial treatment without any result; we did all we could to get him into a better state of health. At the end of all this we confronted him with the alternative, operation. We removed one or two glands to ascertain whether he had Hodgkin's disease; having excluded that and having excluded syphilis, and having no reason to believe the man in any sense tubercular, we gave him the alternative of operation. The operation was performed, but he lived only a few hours.

Doctor H. D'Arcy Power: In the matter of diagnosis it is interesting to note that the position of the spleen varies quite frequently in these cases. I have seen two or three cases within the last two or three years; one was an enormous spleen. There was a typical splenic notch on the right side, although the spleen itself was far down toward the pelvic cavity; that case was not difficult to diagnose. A few months ago I saw a case with Doctor Morton which was interesting and to some extent puzzling. Here the whole cavity was filled with a tumor that had steadily grown for seven or eight months. The diagnosis had been made by someone of sarcoma of the kidney. The splenic notch was palpable on the right side across the mid line and down in the pelvic region. I do not know the result of the exam-

* Read before the regular meeting of the San Francisco County Medical Society, April 13, 1909.

ination of the specimen, because I have not seen it since. The spleen was successfully removed.

Doctor Chas. G. Levison: I am sorry that not more has been said with reference to the diagnosis of this condition. Death following splenectomy performed for splenic anemia is frequently the result of a post-operative thrombosis of the mesenteric vessels. It seems to me that thromboses are more apt to occur in splenectomies performed for these conditions than following any other operation. In several splenectomies performed in this city, death was caused by a thrombosis of the mesenteric vessels. In a splenectomy that I performed the patient developed a thrombosis of the right innominate vein which was removed at an operation performed to remedy the condition. The patient subsequently recovered, not having suffered from the effects of the splenectomy, but the thrombosis nearly cost him his life. As far as the diagnosis of splenic tumor is concerned, I can recall one case of a Grawitz tumor where I made the diagnosis of a spleen. This diagnosis was made because of the fact that the tumor was transversed at its lower border by the transverse colon, and as we are led to believe that the colon is always in front of the kidney, I diagnosed the growth as a splenic tumor. At the autopsy the tumor was found to be an adrenal growth which had grown downwards in front of the kidney and had pushed the transverse colon below. Another tumor of interest from a diagnostic point of view was seen by me recently and was seen by a number of gentlemen none of whom were able to make a correct diagnosis. The tumor occupied the position of the spleen, but it was not closely applied to the ribs, as is always the case with splenic tumors; a notch could be felt, however. Its relation to the ribs made me hesitate to call the tumor spleen. At the autopsy a sarcoma of an undescended testicle was found.

Dr. Wm. Fitch Cheney: I would like to know a little more about the indications for operation in this case. Even admitting that we have definitely made up our minds that the tumor is an enlarged spleen, with evidences as to the nature of the splenomegaly, we do not advise operation in every case, and even when we do we try every other measure first, because the mortality is so high. We generally prefer to let a man live as long as he can without surgery. I would like to know the indications for removal in this case.

PULMONARY TUBERCULOSIS AS AFFECTED BY CERTAIN OTHER DISEASES.*

By JOHN C. KING, M. D., Banning.

While observing some thousands of cases of consumption, I have become interested in noting the apparent effect of other diseases on the pulmonary condition. The complications of tuberculosis are apt to be tubercular. Thus in connection with pre-existing pulmonary tuberculosis we find metastatic affections of other organs, typified by meningitis, pleuritis, orchitis, cold abscesses, etc. They are merely extensions of the original disease and have little or no effect upon the parent, except as they assist in destroying vital resistance. Even in the rare event of their origin from independent infection their influence over the course of the lung disease is negligible. However, this paper will not consider metastases.

Any disease may attack the victim of pulmonary tuberculosis and the question arises whether mutual reaction between diseases may occur. Our medical fathers were fond of tracing antagonisms between diseases; for instance, some of them claimed that consumption and cancer were mutually exclusive. Coley's treatment of inoperable sarcoma is a modern example. We shall not discuss the basis of these supposed antagonisms because, in most cases, the fact of their existence remains in doubt. However, we are persuaded that one disease may influence the clinical history and prognosis of another.

I have seen many cases of co-existing consumption and typhoid fever, cases from the Imperial and Coachella Valleys and from Banning. Advanced tubercular patients do not seem to easily acquire typhoid but many in the second stage do. The course of the fever seems influenced by the chest trouble. On the other hand, in every case observed by me, the pulmonary disease has gradually improved and the improvement has continued to final cure—or is so continuing (for I do not call a case of pulmonary tuberculosis "cured" until after it has remained well three years). I am not familiar with an adequate explanation of this phenomenon—simply present the facts as they have occurred in my practice. At least four of these patients were in bad condition when attacked by typhoid.

My tubercular friends have finished a fair percentage of cases of gonorrhoea. Even in otherwise well people I feel somewhat incompetent to cope with the gonococcus. In patients suffering from pulmonary tuberculosis the effort is still more discouraging. The discharge continues indefinitely or, if it clears up, recurs again and again. The mucous membrane seems especially prepared to become the abode of the germ. Acute inflammatory complications, as orchitis, are not apt to occur. The disease seems chronic and sluggish from the start. However, the point is how, if at all, does gonorrhoea affect the pulmonary conditions? All my patients have suffered from decided aggravation of pulmonary symptoms. I can recall three young men who had been doing remarkably well and who, after gonorrhoea, rapidly failed and died. This result, while not so precipitous as in the three cases referred to, has been quite constant in my experience. I have learned to look upon the acquirement of a clap as a greater misfortune to a consumptive than to others.

On the other hand, syphilis does not seem to possess such an unfortunate influence. Of course, we may find deposits of gummata in the lung, may find them co-existent with tubercular deposit. Gumma of the lung may even simulate tuberculosis. Still, tubercular syphilitics frequently recover from tuberculosis, especially when syphilitic treatment is persistently followed. It does not seem to me that syphilis when recognized and cared for, very much affects the prognosis of pulmonary tuberculosis, apart from the general anaemia and depression incident to syphilitic disease. Venereal infection is so extremely common that many, of both sexes, exhibit the complication. And yet, I do not remember having read any discussion of the effect of venereal dis-

* Read at the Thirty-Ninth Annual Meeting of the State Society, San Jose, April, 1909.

eases upon tuberculosis. It is a point worthy of attention and one that does not seem to have been other than very casually emphasized.

Nephritis is a common complication of pulmonary tuberculosis. In many instances, no doubt, the kidney inflammation is of tubercular origin. Indeed, one can with difficulty differentiate between a tubercular and non-tubercular etiology. Albumin and casts are present in either case and tubercle bacilli can only rarely be recovered from the urine. Routine examination of the urine will disclose unexpected frequency of nephritis. If the urine is not examined this condition often eludes notice. The implication is that nephritis has little effect upon the pulmonary disease. I have not found a combination of pulmonary and kidney disease to be necessarily fatal. Many patients recover who have exhibited albumin and casts in the urine. To what extent the combination reduces the percentage of recovery I am unable to state but am confident the condition of the lungs is not materially aggravated by the nephritis.

The laity place great stress upon the appearance of edema, especially of the feet, as an indication of approaching death. Undoubtedly, in tuberculosis, edema is often a terminal symptom, the result of renal insufficiency which, in turn, depends on tubercular kidney. In this discussion all such cases are eliminated.

Pneumococci are found in the sputum of three-fourths of those who come to Banning on account of pulmonary tuberculosis, sometimes very few—again very many. Nevertheless, I have never seen a case of genuine acute pneumonia among these people. Indeed, I have not seen over a dozen cases of pneumonia since coming to Banning, twenty-five years ago, and only two of them were Banning products. Consumptives here are occasionally attacked by a sub-acute form of bronco pneumonia, which stimulates the activity of the tubercular process in the lung. This occurs more frequently during seasons of epidemic influenza. The affected portion of the lung rarely clears up in toto, even when previously free from tubercular infection. When the disease disappears, which it does slowly, the tubercular infiltration will be found to have invaded additional territory. The sputum, during attacks of this character, may display a preponderance of any one of many germs, pneumo-strepto or staphylo-cocci, or Friedlander's or influenza bacilli. I found one almost pure culture of micrococcus tetragenus. Whatever the origin, these sub-acute inflammations of the lung should be treated with promptness and energy, and even then retard or prevent recovery from the tuberculosis.

Pneumonic hepatization may result in breaking down and dissemination of an old, incapsulated tubercular focus, or it may provide suitable soil for implantation of tubercle bacilli, but the mere presence of even large numbers of pneumococci in the sputum is of little significance. An attack of pleurisy is always menacing, and each recurring acute attack renders the prognosis graver. Many chest pains are insignificant as regards prognosis. Pleurodynia, intercostal neuralgia and the pain resulting from the stretching of old pleural adhesions are not necessarily evidence or cause of advancing disease in the lung. But a fresh inflammation of the pleura, usually tubercular, is nearly always followed by further involvement of the lung or by renewed activity in the already diseased portion.

Pregnancy and childbirth have always been deemed hazardous to women suffering from pulmonary tuberculosis, not per se but because such patients have been supposed to decline rapidly thereafter. Some obstetricians have even advocated emptying the uterus in order to afford the woman a chance to recover from the pulmonary disease. I have advised prevention of conception that the woman might be saved the danger of child bearing, because, to my mind, there is a vast moral difference between prevention and destruction of life. In looking over my records I find twenty-four women, in various stages of consumption, whom I have attended in confinement. Six of these died later from the pulmonary affection, three of them within a month after delivery. Their children are all living and well. Eighteen, or 75 per cent recovered, a much larger proportion than we have been led to believe possible. Of course I have had under my care a much larger number of women who have borne children subsequent to the appearance of tubercle bacilli in the sputum, but am unable to report the mortality in such cases owing to imperfect records. The results, however, have been excellent. In some instances, doubtless, the burden of child bearing has turned the scale against recovery. Still I am sure that modern hygiene and treatment have modified this particular danger. I have never felt justified in advising production of abortion because of consumption. If the mother's condition is hopeless such a course is unnecessary and criminal. If the woman may otherwise recover, the procedure is equally unnecessary and abhorent to good morals.

The idea of the extreme danger of child bearing, to such women, has been handed down to us from the fathers. They also insisted upon the heredity of the disease. The production of abortion was justified, in their eyes, as much by the latter factor as by the former. We no longer believe tuberculosis to be hereditary, except in the sense of predisposition to the disease, therefore abortion on that ground is no longer thought of. Anyhow no man would deem himself at liberty to abort life in a syphilitic woman because the child might inherit syphilis. Our conception of the pathology of tuberculosis and our method of its treatment have radically changed and, to my mind, the change has obviated the necessity of abortion. I am aware that many consider it a simple thing to dilate the uterus, remove its contents and curette thoroughly, with aseptic precaution. It is not. Aside from the morality (or immorality) of the situation, the effect on the lung of the tuberculous mother is bad. Spontaneous abortion and, particularly, abortion produced by the woman herself often, indeed usually, results in manifest aggravation of pulmonary symptoms. And this is the case where no evidence of sepsis is apparent. I believe that delivery at term is the lesser evil. The

experience of any one man can never determine any problem. However, my present view, the result of my personal experience, is exactly opposite to that held by me thirty-five to twenty years ago. I predict that in the future this form of crime will cease.

Surgical operations seem well borne by pulmonary invalids. I have never observed a deleterious effect upon the lungs following surgery upon other organs. We are warned to avoid the administration of anaesthetics in these cases. In my work both ether and the A. C. E. mixture have been used without obvious injury. I regard pulmonary tuberculosis a partial contra-indication to general anaesthesia but do so in deference to authority. My own experience teaches otherwise. Hemorrhage and shock seem as well borne as by other patients of lowered vitality. Indeed, well indicated surgery appears of decided benefit in these as in other patients. Women especially, are benefited. I have done many curettements, trachelorrhaphies, perineorrhaphies and a few major abdominal operations incident to female pelvic diseases with apparent benefit to the pulmonary condition. To me, it seems that in the presence of surgical diseases or conditions the pulmonary patient is less amenable to treatment, fails more rapidly, has less chance for recovery; and that pulmonary consumption, instead of being a contra-indication to surgical interference, is a positive indication for it when needed. Necessarily, one should use judgment. Moribund cases, even when tubercular, are not attractive to the surgeon. Advanced tuberculosis is a bar to operation in most instances, but the ordinary consumptive should never be refused surgical aid because of tuberculosis.

The simple surgery of the nose and throat is particularly essential. Using care not to operate upon hopeless cases, at least not with the intent of benefiting the chest, I make it a point to establish free nasal respiration by removal of turbinates, spurs, polypi, adenoids, tonsils or whatever may produce obstruction. When such work is needed, the chances of recovery from pulmonary tuberculosis will be greatly enhanced if it is done.

Too little attention is paid to the nose by our lung specialists. Nose and throat men are constantly clearing away obstructions, but when the patient has been pronounced tubercular they are apt to let him alone, not appearing to realize that additional indication for this work has arisen. I have seen a nose full of polypi which had passed through the hands of several prominent lung men. Two or three of them did not examine the nose and the one who did thought an operation inadvisable owing to the condition of the lung. Now the lungs were in fair shape but all the air they received came through the mouth and was of too low temperature and unfiltered. Really, the operation was doubly indicated because of the lung disease. If ever a specialist in diseases of the whole body is needed it is for the tubercular. The patient can easily spare a little of the wonderful acuteness in determining percussion resistance, providing his physician is big enough to consider other organs as well as the lungs.

Of all surgical diseases appendicitis is, perhaps, most menacing. At one time I endeavored to avoid operation, believing that co-existing pulmonary tuberculosis rendered the surgical prognosis graver and that an operation would aggravate the pulmonary disease. In many of these patients the appendicitis becomes chronic, the suffering is severe and the inflammation in the lung advances rapidly. Recovery without operation is rarer than in other patients. When, as often happens, an abscess forms and must be opened, healing is slow and fistula common. I have removed the appendix for several consumptives and have had others operate for me, and I regret every delay. Not that any patient has died from the appendicitis or from the operation but because delay has injuriously influenced the lung. I am convinced that pulmonary tuberculosis is an additional indication for early appendectomy, regardless whether the appendicitis is tubercular or otherwise. And, by the way, diagnosis of the etiology is quite impossible prior to operation. These random observations cannot be dignified by the term "paper" but, to me, they represent practical deductions from personal experience.

POLYCLINIC GATHERING.

(March 10, 1909.)

Doctor Ryfkogel: I desire to present three patients who have been operated upon for varicose veins by venous anastomosis. You are familiar with the various types of varicose veins and will remember that in some patients you see localized varices accompanied by considerable edema, but with the valves in the saphenous vein competent. In these the deep veins are at fault and operation is useless. In another type in which the deep veins are probably varicose, you will see more or less extensive dilatations at the junctions of the deep and superficial veins and with no incompetency of the saphenous valves—these cases should only be operated upon for the purpose of relieving imminent rupture or possibly to relieve the patient of an annoying deformity. In another type there are extensive varices of the superficial veins and the valves of the saphenous are incompetent and the pressure of the column of blood extending from the heart to the leg is sufficient to interfere seriously with the nutrition of the skin, producing the well-known varicose ulcer. Delbet has made an interesting experiment to show the difference in pressure in these cases between the proximal and distal end of the vein. He proved that when a patient is lying down the pressure in the proximal end was greater by 5 ccm of mercury than in the distal. When he stood the difference was 10 ccm, but in violent exercise rose to 16 ccm. This experiment demonstrates the importance of the back pressure as an etiologic factor in certain varicose veins. Trendelenberg's operation removes this back pressure by removing a segment of the vein. The saphenous vein, however, has a definite function, that of forming a by-path for the blood when the deep veins are partially closed by muscular exercise and for that reason Trendelenberg does not entirely restore the normal condition. For this reason Delbet devised the operation I have performed in both sides on one of these patients and on one side of a second. The results of the operations are entirely satisfactory. The operation consists in making a termino-lateral anastomosis of the saphenous vein into the femoral below the first one or two valves. The blood column is then sup-

ported by the valves of the femoral while the flow through the saphenous is not interrupted. In making these operations, I frequently found a large branch of the femoral running in front of the parent vein, and my associate, Dr. Castle, suggested that it would be safer, more efficient and easier to cut the vein and make a termino-terminal anastomosis at the proximal end with the distal end of the cut saphenous. It would be safer because the femoral would not be disturbed, more efficient because the upper valves of this branch would be an additional support and easier because an end to end anastomosis is easier than an end to side. This operation was accordingly done on the third patient I present, and, as you can see, the enlarged bunches of veins before present are no longer visible. This operation should only be done when the Trendelenberg test shows a sudden downrush of the blood when the patient stands and the finger pressure on the valves is removed.

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ERROR IN THE OFFICIAL MINUTES.

In some way an error appears in the Official Minutes of the House of Delegates as printed in the May Journal. In giving the list of those elected to the Committee on Public Health, the name of Dr. N. K. Foster, which appears correctly in the Secretary's written minutes, was omitted.

CHANGE OF OWNERSHIP.

Dr. Geo. E. Pettey, of Memphis, Tenn., has closed his Denver and Atlantic City Retreats and has sold his interest in the Oakland Retreat to his former associate, Dr. C. L. Case, who will continue the work at Oakland in his own name. Dr. Pettey's entire work will hereafter be done at his Memphis Retreat.

Dr. J. A. McNaughton, Los Angeles.

The information regarding death of Dr. J. A. McNaughton received and published in December, 1908, was in error. New address, 311-14 Lissner Bldg., Los Angeles.

AMERICAN PHARMACEUTICAL ASSOCIATION.

The American Pharmaceutical Association will hold its annual meeting for this year in Los Angeles, beginning August 16th. The aims and objects of this association are very closely related to and identified with medicine, and undoubtedly a number of the papers and discussions at this meeting will be of considerable interest to physicians. Mr. T. W. Jones, 310 No. Los Angeles street, Los Angeles, is the local Secretary, and will be glad to furnish any information in regard to program, etc.

THE XVIth INTERNATIONAL MEDICAL CONGRESS.

The Direction of the XVIth International Medical Congress at Budapest (from the 29th August till 4th September this year) has just begun the despatch of the Second Circular. This considerable pamphlet, besides its scientific portion, contains a detailed programme of the Congress Excursions, and all the necessary information with regard to traveling and accommodation. It may also be expressly observed here that the question of lodgings has been settled, so that every one taking part in the Congress may without difficulty find suitable accommodation. The Membership subscription is 25 crowns; wives and daughters of Members 12.50. Remittances should be sent to the Treasurer of the Congress: Professor Julius Elischer, VIII., Esterhazy-utcza 7, Budapest. It may happen that, although upwards of 20,000 copies of the programme have been despatched, the majority of our Colleagues may not be provided with the same. The Direction of the Congress therefore respectfully requests them to regard this communication as an invitation to take part in the Congress. All who may be interested will, on application to the Direction of the Congress, immediately receive a programme and all their inquiries and wishes will be most promptly attended to. Address: Office of the XVIth International Medical Congress, VIII, Esterhazy-utcza 7, Budapest.

CREDIT TO LIPPINCOTT.

Through an unfortunate error in a recent book review, "Pain," by Schmidt, was stated to have been published by Appleton; the book is from the press of J. B. Lippincott Co.

PUBLICATIONS.

Human Physiology. By John W. Ritchie, Prof. of Biology, College of William and Mary, Virginia. Published in the New-World Science Series.

This is an elementary text book of anatomy, physiology and hygiene which attempts to relate the facts taught to the students' environment and show their relation to the fundamental causes of disease. The subject is developed along elemental lines with sufficient breadth to show the true relation of physiology to the daily life both individual and collective. Health is essential to happiness, hence an elemental text should teach with directness the reasons for the rules of health. This text develops the subject from the structure and function of the cell, indicates some points of contact with other lines of nature study, and shows the part played by bacteria, protozoa, alcohol, tobacco, dietetic and other errors in the production of disease. A chapter treats accidents and first aid to the injured. The reasons for public sanitary measures and preventive medicine are made clear in certain important instances. Each chapter closes with a summary and review questions.

F. W.

"Intestinal Auto-Intoxication." Combe. States.

Combe's "Auto-Intoxication," translated by States, is a book worthy of a discriminating perusal. The author has made an exhaustive collection of the literature extant on digestion, physiological and pathological, but his commentaries have not been so critical as they might have been. The translator might have made a more happy choice in some of the terms which he has employed.

The clinical portion of the work which is of especial interest to the practicing physician is not nearly so illuminating as one could wish. In days not so far gone, the stock phrases, when one was at a loss for a diagnosis, were "a touch of malaria" or "biliousness," now one would be tempted, in view of Combe's descriptions, to use "auto-intoxication" with the same easy grace.

The methods of diagnosis of this condition have undoubtedly improved—and they are all mentioned by the author. However, one could wish for a fuller explanation of technique and a more forcible demonstration of their utility. For example—methylene blue—as a test for hepatic insufficiency. Possibly the citation of a few cases with the diagnostic methods employed and the treatment with results would make the work more useful from a practical standpoint.

Organotherapy has received too little mention. While we are aware that hypothyroidism may contribute to auto-intoxication, nevertheless a description of the type of case to be aided by thyroid treatment would not be amiss. The portion devoted to therapy in general deserves close attention. The choice of cathartics and their results, and the properties and actions of the various intestinal antiseptics indicates careful study. The dietaries and the treatments by physical measures will be found very helpful. There is much to be learned from this work and we take pleasure is recommending it.

J. B. FRANKENHEIMER, M. D.

High Frequency Current. By F. F. Strong, M. D., New York. Rebman & Co., Publishers. Price, $3.00.

The technical portion of this book is well written, and undoubtedly the writer has the subject well in hand, but the overwhelming optimism in the therapeutic results of high frequency current as displayed in the therapeutic portion can not but call for condemnation. For example, the following paragraphs:

"Even where serious disturbance of the vasomotor system is present, such as the initial chill of lobar pneumonia, prompt and vigorous use of the Tesla current applied either by the effluve or wave current technic, will, if persistently applied, destroy the toxemia, break up the superficial chill and fever and actually abort the disease, the patient breaking out in a profuse perspiration, and the pulmonary congestion changing its character so that a mild catarrhal inflammation replaces the virulent pneumonic infection.

"In acute cystitis complicating gonorrheal urethritis a red vacuum electrode shaped like an ordinary sound is inserted in the bladder, while the red vacuum condensor is applied to the surface over the bladder.

"Epithelioma of the cervix uteri may be successfully treated by the double vacuum method recently devised by the writer. Cancer of the body of the uterus may be similarly treated substituting X-Ray condensor electrode for the low red vacuum electrode which is applied to the suprapubic region."

And so on ad infinitum from pulmonary tuberculosis to hemorrhoids, from tinea tonsuras to ingrown toe nails, all are treated more or less successfully, chiefly more. With such publications extant it is not surprising that the average physician and the average patient look upon all lines of electrical treatment with scepticism.

Pure Milk and the Public Health. A manual of milk and dairy inspection, by Archibald Robinson Ward, B. S. A., D. V. M., with two chapters by Myer Edward Jaffa, M. S. Ithaca, N. Y., Taylor & Carpenter.

Few men are better fitted to write a book dealing with milk in its relation to public health than Dr. A. R. Ward, Assistant Professor in the University of California, and few books are more needed at this time of sanitation and sanitarians than the one covering this general subject which he has given us.

There is no lack of books on the special chemistry and bacteriology of milk, and the various divisions of this many headed subject have been thoroughly treated in a voluminous and widely scattered literature but I know of no other volume that offers as much of value in a single publication or where one who is interested in this subject of milk, whether as health officer, sanitarian, milk commissioner or progressive dairyman will find so many puzzling questions answered by an original and practical observer.

And herein lies its chief value—that it is the simple record of the personal experience of an original investigator. Whatever its faults may be from a literary standpoint,—and it makes no claim to being a rhetorical model—the book will make a lasting place for itself for its humanitarian value—for the work it has done in bringing again and more forcibly before the people the importance of pure and clean milk.

In the chapter on Bovine Tuberculosis the author has presented a resume of the subject that all physicians will do well to read, particularly those who are unacquainted with the important bearing this subject has upon public health.

The mistakes usually made by those who are inclined to belittle the work of modern sanitarians along the line of the eradication of bovine tuberculosis are three, viz: that it is doubtful if bovine tuberculosis is ever transmitted to human subjects—that the tuberculin test is conclusive in revealing the presence of this disease in cattle, and that pasteurization of milk is certain to remove any possible danger that may be present due to pathogenic organisms—that these beliefs are fallacious no one after reading this book can remain unconvinced.

Dr. Ward has been intimately associated with the production of pure milk in California as bacteriologist and veterinarian to the Milk Commission of the San Francisco County Medical Society and to the Oakland Milk Commission. In his capacity as examining expert he has been able to follow for years the conduct of certified herds, and the record of his experience in the tuberculin testing of cows and the efficacy of the test when properly performed is one that professional or commercial obstructionists cannot afford to ignore.

In the matter of the evils of the pasteurization of milk as at present practiced the author is not as emphatic as I should wish. Most of us remember when the sterilization and the pasteurization of milk was hailed as the remedy for the frightful infantile mortality then existing, and the spectacular alteration of the death rate which followed the substitution of the cooked for the uncooked product. The reaction which followed the use of heated milk when it became evident that pasteurization was a poor makeshift at best is of recent origin while the ultimate and inevitable solution—the substitution of a clean for a filthy substance—is not yet fully accepted even by the profession. The medical mind, sad to say, like all ponderous bodies, moves slowly and likely in the solution of this question as in some others, the lay intelligence will get there first.

Dr. Ward rightly gives the credit for the most practical handling of the milk problem at present to the so-called Washington, or three class plan—viz: certified, inspected and pasteurized milk. The latter, including all milk not produced under sanitary conditions, pasteurized under direct oversight of the health authorities.

If it were true that milk merchants would pasteurize by the slow or interrupted process advocated by Dr. Rosenau and would handle the milk properly iced until its early delivery this plan would undoubtedly be worthy of further discussion, but this they almost unanimously refuse to do.

By heating to an indefinite temperature in a continuous flow machine for an insignificant period of time they succeed in destroying most of the adult acid forming germs leaving many pathogenic forms and their toxins unharmed, as well as those bacteria which act upon the proteid rather than the carbohydrate elements. This process is very effective in destroying the enzymes and protective antibodies as well as the more numerous, but harmless, sugar splitting forms so that the organisms that are left may grow unhindered as soon as the milk is brought to a favorable temperature. However, the so-called pasteurized milk will bear rough usage longer without suffering any evident change and the commercial interests are satisfied.

Caldwell and Sherman in the Journal of Biological Chemistry have recently (Oct., 1908) shown that rapid high temperature pasteurization is inefficient in destroying the peptonizing or proteid splitting group of bacteria and that these in the absence of the acid forming variety grow more luxuriantly after pasteurization than before, more ammonia being present in pasteurized samples than in sour, unheated milk.

In view of these facts, I do not see how sanitarians can do otherwise than to condemn utterly the present practice of making a dirty fluid more presentable by partial pasteurization, notwithstanding that ever ready and watchful bugbear of "Milk Famine." Famine of what, in Heaven's name! Those who have seen the conditions existing in some of the smaller outlying dairies—and large ones, too for that matter,—will agree with me that a famine of their product is one that can be viewed without terror and borne with a large measure of fortitude.

The subject of Medical Milk Commissions is treated satisfactorily although not so fully as the subject warrants considering that practically all the milk now produced under sanitary conditions in the United States is that which is marketed under the supervision of these bodies. However, those medical societies which are contemplating the establishment of milk commissions, and let us hope they are many, will now find abundant information along constructive lines in the transactions of the American Association of Milk Commissions.

It is not to be expected that the two chapters on milk analysis and milk adulteration contributed by Dr. M. Jaffa, Professor in the University of California, will take the place of the volumes written upon these special subjects. They contain, however, much of value not found in the larger works.

The record of the author's personal experience, well told, forms the basis of advice in the conduct of tests and the interpretation of results. They are a distinct addition to the literature on these subjects.

The press work is very attractive and the index is comprehensive and accurate. A possible omission is a list of authors quoted which would be a help in looking up the literature.

LEWIS SAYRE MACE.

Roentgen Rays and Electro-Therapeutics with Chapters on Radium and Phototherapy. By Mihran Krikor Kassabian. J. B. Lippincott Company, Publishers, Philadelphia and London; 32 and 545 pages.

The author gives a very comprehensive compilation of the various forms of electrical energy and their use for medical purposes. The first portion of the work, but the shorter one, deals with magnetism and electricity in general, their measurements and definitions and their applications as static, galvanic, faradic, high frequency discharges. With a great number of illustrations he shows the different instruments and their use. The second, and by far the most important part of the book, is devoted to the X-Rays, the third part to Radium and Phototherapy.

Entirely different from the standard German work by Doctor Albers-Schoenberg, whose translation into the English language would be of greatest merit and very desirable, this handbook does not give the opinion of the author only, but a review of the opinion of very many other people and, unfortunately, a great number of theories which have been corrected by the rapid progress of the latest years. This is especially true about the application of the galvanic and faradic currents in chronic diseases. The use of the wall plate has been entirely abandoned or greatly limited in a great number of cases. In a more critical way K. deals with the application of the high frequency rays which have found such great friends in France, but far less in Germany and other countries.

The value of the X-Rays as a therapeutic agent, though thoroughly established in epithelioma, carcinoma and sarcoma, seems to me very doubtful in many cutaneous affections like psoriasis, eczema, lupus, keloid, tuberculosis, etc., in all of which the author has compiled in a very extensive manner from the medical journals scattered reports of over-optimistic observers which have not been verified by later experience. A textbook is not supposed to be a collection of all that has been written somewhere on the subject treated, but rather the fruit of a very careful selection and elimination. The beginner who uses his textbook for his information will gain the impression that almost every human ailment can be successfully treated by some electric means, only to be greatly disappointed when he goes to work.

The same must be said especially about the clinical application of the X-Rays to diseases and tumors of the soft tissues. With the instruments of to-day, the differentiation in densities, especially in the skull and trunk, is not far enough advanced (and perhaps never will be) to enable us to make diagnoses of myomata, fibromata, etc. The skill of the clinician and pathologist must be depended upon in those cases.

What the worker in the new field of Roentgenology feels very deeply, is the lack of proper knowledge as to what can be done by the new method and what are its limits. K.'s book, I am afraid, will not improve upon the proper limitation of the field, and if ever, here it becomes true that less would have been more. Even in the description of instruments it will be far more useful not to show illustrations of half a dozen tubes and interrupters but to have reliable authority as to which is the best of them for the time being. The lack of system and critics, and the aim to give within the scope of a textbook all the details of the various articles makes it very hard to select the good grains out of the vast amount of shells, and has caused a great number of repetitions and commonplaces like the following: "When a patient comes for treatment, it is necessary to ascertain the nature of the disease, before deciding upon the kind of treatment to be instituted" (page 54).

The worst feature of the whole book is the index. If you want to see the author's suggestions as to an examination of the knee joint, you of course will expect to find something under "knee," but you will be badly mistaken. You will have to look up three pages under the head "X-Rays," and with patience and perseverance you will find X-Rays as a diagnostic agent in diseases of the joints (pp. 282-285), or X-Rays as a diagnostic agent in fractures and dislocations (pp. 258-270), and especially when you are in a hurry it will be a great comfort to you that you might find something on the subject by reading over sixteen pages in your textbook.

We certainly appreciate the energy and industry of the author displayed in the collection of a vast amount of material, but we are strongly under the impression that he has stopped where he should have only begun.

The rapid development of Roentgenology within the last year, the introduction of the multiple anode, Wehnelt interrupter for instantaneous work, the perfection of the alternating transformers with synchron current rectifiers by Koch, and their improvement by Snook, the introduction of greatly improved mercury interrupters has entirely revolutionized the field, and if a new edition of the work should become necessary, the author will do well to do away with all the ballast he is carrying now and to take his course more straightforward towards the destination. The illustrations contained in the book, so far as they are reproductions of X-Ray plates, need only to be compared with those of the "Forschritte des Roentgennesens" and other German papers to show the absolute insufficiency of the so-called "half-tone" process, which has been used by the publisher of K's book. The plates may have been perfect, but the reproductions give but a very faint idea of the original and its merits.

COUNTY SOCIETIES

SAN JOAQUIN COUNTY MEDICAL SOCIETY.

Stockton, Cal., April 30, 1909.

The regular monthly meeting of the San Joaquin County Medical Society met at the home of Dr. Peterson with the President, Dr. Hull, in the chair, and the following members present: Drs. Hull, Hoisholt, Langdon, Tower, H. N. Cross, Sanderson, Hopkins, Smyth, Fitzgerald, Peterson, Harry, Walker and E. A. Arthur.

The minutes of the last regular and call meeting of the Society were read and approved. The committee on ethics reported that their attention had been called to the fact that Dr. Blackmun accepted the position as examiner for the New York Life Insurance Co. without the company agreeing to the $5.00 rate. The committee thereupon called upon Dr. Blackmun, explaining the position of the Society in the matter, the doctor refusing to resign as examiner, but instead exhibited a letter from the local agent who personally guaranteed $5.00 for each examination and also promising that he would resign in favor of Dr. Fitzgerald if he, Dr. Fitzgerald, would take the examination at $3.00. This being unsatisfactory to the committee, they moved that Dr. Blackmun be expelled from the Society, and that no member of this Society be allowed to counsel with the doctor under penalty of expulsion from the Society. Carried.

The committee on incorporation reported favorably. It was moved, seconded and carried that the action on the subject of incorporation be postponed until the next regular meeting of the Society and that the Secretary inform all members the object of the meeting and request their attendance. Dr. Arthur reported that he had secured the signature of most of the members of the Society to the resolution lately presented the Board of Supervisors and it was again presented to the said board. Moved that a committee of five be appointed to confer with the Board of Supervisors and obscure the above resolution. Carried. The Chair appointed the following: Drs. Arthur, Hoisholt, Harry, Fitzgerald and Harbert.

A communication was read from Dr. Jones regarding the movement for the prevention of venereal diseases. It was moved that the communication be laid upon the table for further action. Carried.

Dr. Tower read a paper on Trichinosis, giving the history of four cases in detail, which was found to be one of the most interesting papers the Society has recently listened to. The doctor also exhibited microscopical slides showing the Spirilla trichinosis.

It was moved that the Chair appoint a committee of three to formulate a letter and also arrange, if possible, to appear before the various labor organizations regarding members of such organizations calling any physician who accepts practice for a fee less than that adopted by the San Joaquin County Medical Society. Carried. The Chair appointed the following: Drs. Walker, Cross and Peterson.

It was moved and seconded that the President and Secretary be authorized to consult with the merchants' association regarding the suggestion of an ordinance prohibiting the practice of itinerant physicians. Carried.

B. F. WALKER, Secretary.

SONOMA COUNTY.

The Sonoma County Medical Society met in Dr. Huffman's office, Healdsburg, May 7th, '09. The attendance was small but we had a good meeting, and elected Drs. Frederick Leix, Sonoma, and Marion B. McAulay, Petaluma, members of our Society. We have 51 members. Dr. J. Walter Seawell exhibited a specimen of carcinoma of sigmoid flexure, giving history of case; also related the birth of two children in his practice within a month of each other interuteroampution of arm at elbow and armless child. Neither child lived.

Dr. W. J. Kerr related the case of tapeworm in stomach of a 19-year-old young lady that was vomited up, but the girl failed in health, vomiting so often—finally after about six weeks she died of exhaustion.

G. W. MALLORY, Secretary.

SONOMA COUNTY.

The regular meeting of the Sonoma County Medical Society for June was held Friday, June 4th, at the County Hospital, and the following were present:

Dr. W. J. Kerr, President, presiding; Drs. G. W. Mallory, Secretary; C. H. Thompson, F. O. Pryor, E. M. Yates, J. W. Seamell, S. S. Bogle, J. W. Clark and P. A. Meneray.

Visitors: Drs. Ethan H. Smith, San Francisco, and E. E. Briggs, Watsonville.

Dr. S. S. Bogle showed a case, a man 45 years old, who had had an omental hernia. Dr. Bogle had removed about 100 cubic inches of the thickened omentum, and the patient was about well in one month afterwards. Now the patient says at time he feels a little pain about the pelvis, yet he works all the time. Dr. Bogle took us through the wards. Dr. Ethan H. Smith of San Francisco was introduced and exhibited a patient four years old, girl, double congenital dislocation of hips, also Radiographs, before and after operation, by the Hofper method. The child had good use of its legs, the head is in the acetabula on both sides. Dr. Smith gave an excellent talk on the operation and also on the subject. The next meeting will be in Sebastopol, July 2, 1909.

G. W. MALLORY, Secretary.

NOTICE.

We are going to try to issue the Register and Directory in July, this year. Will you please send in your own or any other change of address known to you. The accuracy of the work largely depends upon the co-operation of the members.

CHANGE OF ADDRESS.

Phelan, Henry Du R., from Fort Baker, Sausalito, Calif., to Fort Shafter, Honolulu, H. I.

Weston, Wm. H., from 315 W. 6th St., Los Angeles, to ———?

Dickinson, J. C., from 2316 So. 7th St. Los Angeles, to ———?

Besson, G. A., from 978 Ellis to 826 Eddy, S. F.

de Faria, J. B., from 1096 Clay St., S. F., to ——?

Mulligan, A. P., from 744 Devisadero to ———?

Harris, B. Y., from 135 Stockton to Whitney Bldg., S. F.

Sanborn, F. G., Pacific Bldg., S. F.

Bloch, H. I., from 1961 Pine to 323 Geary St., S. F.

Gillihan, Allen F., from Shattuck Ave. and Allston Way to Acheson Bldg., Berkeley.

Hardin, A. E., from Grass Valley to Nevada City, Cal.

Selzer, Edward, from San Jose to 518—9th St., Oakland, Cal.

Vanderpool, Mary F., Hayward, Cal.

Oliver, A. S., from 47 Santa Clara St. to 61 N 2nd, San Jose, Cal.

Johansen, E. A., from 138 Sutter to 133 Geary, S. F.

Berges, Edward R., from S. F. to 4800 E 14th St., Oakland, Cal.

Evans, Geo. H., from 2713 Sacramento to 133 Geary St., S. F.

Martindale, Jno. H., from Hotel Leighton, Los Angeles, to Hotel Netherlands, Los Angeles, Cal.

Simon, Grace, from address unknown to 754 Sacramento St., S. F.

Dudley, W. H., from H. W. Hellman Bldg. to Exchange Bldg., Los Angeles.

Todd, C. E., from Santa Barbara to Monrovia, Cal.

Whitney, Mary, from address unknown to Redondo, Cal.

Hyde, L. D., from Sacramento to 135 Stockton, S. F.

Zahn, L. Paul, from Douglas Bldg. to 1841 Monticello Ave., Los Angeles.

Berg, Adolph, from 525 Montgomery Ave. to 1462 Devisadero St., S. F.

Onesti, S. J., from 1556 Green to 271 Montgomery Ave., S. F.

Minnaker, A. J., 146 Grant Ave., S. F..

Myers, M. C., from Oroville, Cal., to Reno, Nev.

Winterberg, W. H., from 1925 Broadway to 323 Geary, S. F.

Brooks, Ezra, from Bodie to Holtville (Imperial County), Cal.

Pritchard, W. E., from 218 So. Broadway to Grosse Bldg., Los Angeles.

Taylor, Chas. S., from Douglas Bldg. to Wright & Callender Bldg., Los Angeles.

Lindsey, Philip S., from 439—3rd to Third and Oregon Sts., Santa Monica.

Huntoon, A. F., from Union Trust Bldg. to San Fernando Bldg., Los Angeles.

Palmer, W. H., from 930 W. 37th St. to 920 W. 35th Place, Los Angeles.

Janss, Edw., from 811 So. Beacon to Pacific Elec. Bldg., Los Angeles.

Wade, W. L., from 314 W. 4th St. to 4th and Hill Sts., Los Angeles.

Sawyer, E. O., from 2211 Cambridge to 2672 West Pico St., Los Angeles.

Wheeler, A. E., from Moskegon Bldg. to Bradbury Bldg., Los Angeles.

Wood, Frank L., from 26 Pine Ave. to Long Beach Bank Bldg., Long Beach, Cal.

Loper, Asbury N., from Fresno to Dinuba, Cal.

Hawkes, W. J., from Bradbury Bldg., to Wright & Callender Bldg., Los Angeles.

Manning, Edw. C., from Potomac Bldg. to 213 So. Broadway, Los Angeles.

Henderson, Edw., from address unknown to Union Blk., Pomona, Cal.

Thomas, Frank W., from College Ave. to Howard and 5th Ave. Claremont, Los Angeles, Cal.

Newman, W. H., from 337 Daisy St. to City Nat'l. Bank Bldg., Long Beach.

McConkey, Thos. G., from 986 Ellis, to 1156 Sutter st.

Larsen, Julian P., from Children's Hospital, to 240 Dolores st., San Francisco.

Burrows, J. R., from Lane Hospital, to 1236 6th ave., San Francisco.

Sawyer, H. C., from 115 Haight, to 246 Powell st., San Francisco.

Leib, Thos. N., from 2421 Broderick, to 424 Broderick st., San Francisco.

Lewis, J. C., from 1866 Golden Gate ave., to 1104 Devisadero.

Hartman, Emily, from Vallejo, to 1572 La Loma ave., Berkeley, Cal.

Robertson, H. M., from Riverside, to 1317 N. Main st., Santa Ana, Calif.

Pickett, J. C., from 1380 Sutter, to 133 Geary st., San Francisco.

Garceau, A. E., from 1380 Sutter, to 133 Geary st., San Francisco.

Philip, John H., from 2410 Steiner st., to 133 Geary st.

Thomas, H. G., from 1111 Washington, Oakland, to First National Bank Bldg., Oakland.

Walsh, Frank D., from Loyalton, to Bryto Bldg., Sacramento, Cal.

Chiapella, Jos. D., from French Camp to Davis, Cal.

McKellar, Jas. H., from 307 E. Colorado st., to Chamber of Commerce Bldg., Pasadena, Cal.

Alden, Eliot, from Todsworth Bldg., Pasadena, to 461 E. Colorado st., Pasadena.

McCue, Jas. E., from Oakland, to 707 E. 4th st., San Rafael, Cal.

Westerberg, Fre'k., from Mill Valley, to 268 Market st., San Francisco.

Ewer, E. N., from 1111 Washington st., Oakland, to First National Bank Bldg., Oakland.

Pascoe, Elmer R., from County Hospital., to Wright and Callender Bldg., Los Angeles.

Putnam, V. E., from 901A Haight, to 290 Devisadero st., San Francisco.

Bowser, J. C. N., from Ontario, Cal., to ———?

Maston, B. B., Union Savings Bank Bldg., Oakland.

Terry, Sam'l. P., from San Francisco to 1834 San Jose ave., Alameda, Cal.

Lowman, C. Le Roy, from Calif. Hosp. Los Angeles, to 430 So. Broadway, Los Angeles.

Rogers, Frances L., Nat'l. Bank Bldg., Long Beach, Cal.

Wright, Clifford A., from County Hospital, Los Angeles, to 213 So. Broadway, Los Angeles.

Smith, T. H., from 245 E. Holt to 161 W. 2nd St., Pomona, Cal.

Shaffner, Thos. L., from Bryson Bldg. to San Fernando Bldg., Los Angeles.

Randall, T. J., from 452½ So. Broadway to Lankershim Bldg., Los Angeles.

McArthur, Duncan D., from 959 So. Figueroa to Abbottsford Inn, 8th and Hope Sts., Los Angeles.

Mathias, E. N., from Laughlin Bldg. to Security Bldg., Los Angeles.

Voorhees, H. M., from 2202 W. 20th St. to Pacific Elec. Bldg., Los Angeles.

Up de Graff, T. S., from Dodsworth Bldg. to Chamber of Commerce, Pasadena, Cal.

True, Herbert F., from Auditorium Bldg. to Lissner Bldg., Los Angeles.

Rooney, H. M., from Fay Bldg., to Auditorium Bldg., Los Angeles.

McNaughton, J. A., from Citizens' Nat'l. Bank Bldg. to Lissner Bldg., Los Angeles.

Pearce, Lewis A., from Bank Bldg. to Bixby-Heartnell Bldg., Long Beach, Cal.

Kierueff, Benj. Franklin, 1936 Magnolia Ave., Los Angeles, Cal.

Kiger, Wm. H., from Ocean Park to Wright & Callender Bldg., Los Angeles.

Sassella, B., from 223 N. Spring St. to Temple Blk., Los Angeles.

Lochman, Wm. H., 552 So. Broadway, Los Angeles.

Stiles, W. H., from 5th St. to 741—4th St., San Bernardino.

Cameron, H. M. D., from Reno, Nev., to 530 K St., Sacramento, Cal.

Murray, H. W., B. O. Kendall Bldg., Pasadena, Cal.

Woodroffe, Helen L. H., from Laughlin Bldg. to Grant Bldg., Los Angeles.

Vaughan, Edwin L., from Frost Bldg. to San Fernando Bldg., Los Angeles.

Boyer, J. Silas, from 829 J St. to 920—6th St., Sacramento, Cal.

Koford, Henning, from 1103 Broadway to 1st Nat'l. Bank Bldg., Oakland.

Gray, Frank P., from 2407 Sacramento St. to 2401 Buchanan St., S. F.

Powers, Carl L., from 1694 Post St. to 323 Geary (Elkan Gunst Bldg.), S. F.

Parsegan, J. H., from 1529 Sutter to 323 Geary St., S. F.

Colburn, J. R., Delta Bldg., Los Angeles.

Whitlock, R. G., to Pacific Elec. Bldg., Los A.

MacDonald, Geo. C., 1141 Geary St., S. F.

Southard, Wm. F., from 1424 Gough St. to Phelan Bldg., S. F.

French, Chas. E., from 1178 Eddy to Phelan Bldg., S. F.

Young, W. S. S., 623 Louisiana St., Vallejo, Cal.

Reynolds, R. G., Jr., from Porter Bldg., San Jose, to Nevada Blk., Palo Alto.

Wortmann, Heinrich, from 1480 Church to 1507 Fillmore, S. F.

Frasse, Irvin N., (permanent address), Los Angeles, Cal.

Wilson, Thos. J., Hoops Blk., Pomona, Cal.

Barney, Thos. R., 1219 Broadway, Oakland, Cal.

Canac-Marquis, from 1380 Sutter to 323 Geary, S. F.

Wood, Geo. A., from 1458 Sutter to 135 Stockton, S. F.

Wiborn, J. A., from Ortmann Bldg. to 391 Sutter St., S. F.

Dunn, W. L., from 1065 Washington to Union Sav. Bank Bldg., Oakland.

Hunt, R. H., from 1460 Hayes to 1248—1st Ave. (Sunset District), S. F.

Maher, Thos. D., from 3545 23d St. to Anglo Bldg. (16th & Mission), S. F.

Shickle, Chas., from 251 S. Union Ave. to Grant Bldg., Los Angeles.

Squire, H. A., from 814 Francisco, Los Angeles, to Lankershim Bldg., Los Angeles.

Hindman, S. J., Inglewood, Cal.

Smith, E. H., from Hanford to Corona, Cal.

Harker, Geo. A., from S. F. to 1st Nat'l. Bank Bldg., Oakland.

Franklin, Blake, from 115 Plymouth Ave. to 29 Broad St., S. F.

Kirkpatrick, J. H., from Grant Bldg., Los Angeles, to Bradbury Bldg., Los Angeles.

Young, L. H., from 2327 Market to 2598 San Bruno Ave., San Francisco.

Moore, J. Ross, from Pacific Mutual Bldg., Los Angeles, to Fay Bldg., Los Angeles.

Corey, J. W., from address unknown to Compton, Cal.

Lavy, Wm. S., Stone Blk., Gridley (Butte County, Cal).

Trueblood, W. E., from Arbuckle to 2213 Haste St., Berkeley, Cal.

Molgaard, Jens, from 302 Church to 833 Market (Commercial Bldg.), S. F.

Holt, Wm. L., from Santa Barbara to Banning, Cal.

Cowles, C. D., Jr., from Los Angeles, to Zamboanga, P. I. (U. S. Med. Service).

Sampson, May H., from Alcatraz Bldg. to Wright Bldg., Berkeley, Cal.

Dodsworth, Robt. M., from 2730 Derby to Berkeley Nat'l Bank Bldg.

Putnam, C. B., from 702 I st., Sacramento, to 518 9th st., Oakland.

Campbell, G. E., from Stanton Bldg., to Chamber of Commerce Bldg., Pasadena, Cal.

NEW MEMBERS.

Dodds, Thos. G., Oakland, Cal.
Leix, Fred'k, Sonoma, Cal.
McAuley, Marion B., Petaluma, Cal
Hollingsworth, R. B., Jr., Fresno
Hopkins, Howard H., Fresno.
Hopkins, Grace Thorne, Fresno.
Reynolds, Louis G., Sacramento.
Martin, H. G., San Francisco.
Kavanagh, Jos. J., San Francisco.
Hanson, G. F., San Francisco.
Howe, Louis P., San Francisco.
Fleischner, E. C., San Francisco.
Raymond, Alex., San Francisco.
Luttrell, Peter Harrison, San Francisco.
Lewitt, Fred'k C., San Francisco.
Bricca, C. R., San Francisco.
Dickson, E. C., San Francisco.
Chiapella, Jos. D., Davis (Yolo Co.), Cal.
Woods, E. H., Riverside, Cal.
Southworth, H. E., Los Angeles, Cal.

DEATHS.

Payton, J. E., Redlands, Cal.
Wall, Wm. B., Santa Ana, Cal.
Nellis, J. G., Irvington, Cal.
Burgess, Oscar O., San Francisco.
Taylor, Oscar N., San Francisco.
Wightman, Wm. M., formerly of Angel Island Quarantine Station, died in Guayaquil, Ecuador, May 16, 1909.
Putzer, Geo. C., Los Angeles, Cal.
Watts, Plimy R., Sacramento, Cal.
Gray, Thos. J., Berkeley, Cal.

California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

PHILIP M.LLS JONES, M. D., Secretary and Editor

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All Scientific Papers submitted for Publication must be Typewritten.

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VOL. VII AUGUST, 1909. No. 8

EDITORIAL NOTES.

SUITS FOR MALPRACTICE.

In the vast majority of cases, suits for malpractice are nothing more nor less than attempts at blackmail. A great many of them are brought, not with the idea of really fighting them in court, but as a means to make the physician compromise by paying a few hundreds of dollars and thus have the suit stopped. The argument which the clever attorney puts up is to the effect that it will cost the doctor several hundred dollars to fight the suit and that he had better have it stopped by paying a couple of hundred dollars or so to the plaintiff and thus settle out of court. How many physicians are robbed this way every year, it is, of course, impossible to say; but there must be a good many. It is this, and not the danger from a legitimate suit, which has made medical defense insurance so very profitable. A physician who is insured is not in much danger, for the blackmailer avoids suing or trying to bluff a rich corporation with salaried attorneys that can afford to fight. A general recognition of this condition of things has existed in the minds of medical men for a good many years and there has been a growing feeling that physicians should unite to protect themselves against this form of blackmailing graft. It is outrageous that a physician who has done his best for some patient, and probably has done the best that could be done, should be held up by any rascally lawyer who wishes to do so. Thus it has come about that medical organizations have undertaken the defense of their members against such unjust attacks, and have adopted what is generally known as medical defense.

MEDICAL DEFENSE.

On June 24th, 1909, the Council of the State Society had a special meeting to consider plans for medical defense, acting under instructions from the House of Delegates. After a very careful discussion of the question, it was decided by the Council to undertake the work at once. In Pennsylvania, medical defense has been in force since 1905 and has cost the state society not over ten cents per member per year. In New York, the work was begun in 1906 and has cost the state society about fifty cents per member per year. In New York, the very first year the plan was put into operation, malpractice suits were decreased in number 25%; in the first two years of the work, not a single verdict was obtained against a member in any suit which was defended by the society. Since 1906, six other state medical organizations have undertaken the defense of their members, and in every instance the plan seems to be working satisfactorily. With these facts in view, the Council decided to undertake the work at once and to carry it on until the annual meeting, next April, when the House of Delegates may pass upon the matter as presented to them at that time. It is believed that the work can be done successfully at a cost not to exceed $1.00 per member per year, and possibly very much less than that when the work is once started and well organized. For one additional dollar a year, or possibly less than that, you can rest assured that you will not be blackmailed out of any money by this alleged malpractice suit game The State Society has an attorney retained to look after this work; it is no additional expense to any member; he knows that he will be defended and the suit fought to the last ditch, without compromise. A number of county medical societies have already discussed this proposed work and have written their approval to the Council; if your society has not done so, have it taken up at once, discussed, some action taken, and then advise the State Society Secretary, so that it may be a matter of record. It is quite possible that there will be some members who will not wish to pay another dollar a year, even to secure this absolute protection against malpractice suits. But doubtless the number will be small and a good many who are not now members will desire to join their county societies when they realize that this benefit —a very real and tangible one—has been added to the other benefits of membership.

WHAT TO DO.

Now how is the plan to work out? What must you do to secure this ample protection by the State Society? It is very simple. Indeed, the sense of the Council was that the machinery should be made as simple as possible, in order to give the fullest protection and the least inconvenience to the members. In the first place, be sure that your dues are fully paid up in your county society; only members in good standing, dues paid, are eligible to this protection. That being done,

if you are threatened with a suit, either verbally or by letter, communicate at once—*within twenty-four hours*—with the Secretary of the State Society, so that the matter can be taken up immediately by our attorney; this will, in very many cases, be the end of the matter. If you are threatened by letter, send the letter to the secretary together with a full account of the case, name, date, diagnosis, treatment, names of witnesses, nurses, consultants, etc. If you are served with a summons in a suit, this document, or an exact copy of it, must be sent *within twenty-four hours*, to the Secretary of the State Society, who will at once place the case in the hands of our attorney; all details must be sent at the same time, so that the attorney may be in possession of all the facts in the case. You will then be sent a blank to fill out and sign. This will authorize the Society to defend the action, through its attorney, and you will agree not to compromise or settle the suit without the consent of the Society, through its attorney. No judgments will be paid by the Society, but all costs of defending the suit will be paid by the Society. You will agree not to obligate the Society in any manner to the payment of any sums whatever. In other words, you turn the defense over to the Society, which will pay all the costs of action, and agree not to meddle. Is not that sufficiently simple—and safe?

HOW IT IS DONE.

All this medical defense work and the funds to pay for it will be in the hands of a special committee of the Council. They will stand back of the attorney, and of course back of them is the whole Council and the State Society. Each county medical society will be asked to appoint, as soon as may be, a committee of three on medical defense. It will be the duty of this committee, when a member of the Society is sued or threatened with suit, to investigate the case and make a full report of the exact facts. These suits are dependent upon matters of fact and not matters of law, and so it is essential that all the facts be in our possession at the earliest possible moment. When a local attorney is required to attend to an action in some distant county, he will be chosen in some satisfactory way to be determined; probably by the joint action of the defendant, the county society or its committee, and the attorney for the State Society. The main idea, however, is to get quick action; to let people know that we are not to be bluffed or blackmailed; to protect ourselves and our members from unjust and iniquitous attacks, and to do it as quickly and as thoroughly as possible. Now a word as to what *not* to do. Do not wait till a suit is actually filed against you, if you have reason to believe that it is coming; let the Secretary know about it at once, so that the attorney can take it up and perhaps prevent a suit. If a suit is filed, do not think about it for a few days and then write; write at once and send the papers and the facts to the Secretary. Do not employ a lawyer until the Secretary has been communicated with, unless you wish to defend the case yourself and not have the Society do it.

SIMPLIFIED OSTEOPATHY.

Judging from the number of copies that have been sent to the JOURNAL office, every physician in the state must have received the very remarkable circular letter sent out by the "Union College of Osteopathy," apparently located at Wheeling, W. Va. The offer contained in the circular is supposed to be very flattering; you are to be taught osteopathy by mail at the modest cost of $60.00 for the course, including the beautiful diploma. It is a special course for physicians who are urged not to lose all their patients to osteopathic practitioners, but to take this taught-by-mail bunch of canned information and thus become the real thing. It is unfortunate that this should come up at the present time, when the osteopathic standards are being raised in this state and when a fairly good number of applicants to practice osteopathy are passing our state board examinations and thus showing that they are really qualified; it will only tend to excite antagonism that was on the decline. It is exactly the sort of thing that certain medical diploma mills were doing a decade or two ago: turning out unlimited numbers of degrees, if the money was forthcoming. It was the examining board that put the medical diploma mill out of business; it will be the examining board that will put the osteopathic diploma mill out of business. That these institutions will exist until the various states require all applicants to practice any sort of healing art to pass the same examination, goes without saying. The independent examing board in every sort of cult merely permits these abuses. The one board law and the same examination for all, puts an immediate stop to this particular game of fraud.

LICENSE RECIPROCITY.

The subject of reciprocity between the states in the matter of license to practice medicine, is discussed most sanely by Dr. Jno. C. King, of Banning, in a recent issue of the *Southern California Practitioner*. Dr. King is certainly entitled to be heard upon this question, as he served for some years on the State Board of Medical Examiners and made a most careful study of the law and its operation. At the time that Dr. King was a member of the board, and its president, there was a clause in the law permitting the board to reciprocate; but the board never put the clause into operation. He most clearly points out that as medical education advances, the cry for reciprocity becomes more faint and its operation is regarded with less favor. Twenty-four states are united in barring reciprocity, either actually or practically, and several others have such intricate machinery as to make it nearly a dead letter. "In many states the law, wisely I think, discriminates against the old practitioner." Dr. King's point is that physicians who do not keep up their reading and their study should be prevented from treating the sick. He cites the well-known procedure of the government in dealing with its Army and Navy surgeons; at each stage of their official life they are subjected to examination; it is

not assumed that they have kept up; the fact is determined, before promotion, by a rigid examination. The suggestion that the same course be pursued with regard to physicians generally—that they be examined at intervals of years and their license be time-limited and contingent upon their passing such an examination, is, theoretically, most excellent; but we are afraid that it will find but little favor amongst physicians the country over.

THE SAME PITFALL.

The attempt to get physicians financially interested in concerns, either good, bad or indifferent, which manufacture the things that physicians use, is as old as the hills. The argument is always the same. In the present case we quote it from a letter addressed to a member of the Society by a gentleman who deals in "investments," and in this instance is trying to unload an unknown number of shares of stock in the "Olivoint Chemical Company, with office and laboratory in San Francisco." It may be said in passing that an inquiry as to advertising in the STATE JOURNAL the products of this company came to us some time ago and the applicant was advised to submit his preparations to the Council on Pharmacy and Chemistry, after which we could discuss the matter. So far as we are aware, the preparations have not yet been submitted to the Council for investigation. The letter says, among other interesting things:

> "An opportunity is offered you to obtain an interest now in a growing concern whose products rank with the best. Instead of making money for other people, you can become a stockholder, and every time you write a prescription you help build up the company, add to the value of your stock and increase your yearly dividend."

And there you are. Just think of your profits; don't waste any time thinking about the patient or the unnecessary prescriptions you will write and the patient will have to pay for; just think of your profits and the rapidly growing value of your stock. That's the main idea; keep it well in mind; think of the money. That there must be a good many physicians who will go into these things is evidenced by the number of them that come along. It is charitable to believe that those who do so invest do not see the matter in its proper light; do not realize that they are being seduced into a sort of petty graft that puts a few dollars into their pockets, very many dollars into some other fellow's pocket, and takes a lot of money out of the patient. It is only human nature to believe that the man interested in such a concern will order the purchase of its products on every possible occasion, whether they are strictly necessary or not; it is to his financial advantage to do so, and he will do it in spite of his better inclinations and without thinking of what he is really doing. Indeed, that very fact is emphasized in the letter quoted and that phase of human nature is just exactly what these people all bank on to make added profits for themselves. It is not nice to have to admit that physicians will do these things, but there are the facts.

SCHOOL HYGIENE.

A most notable advance has recently been made in the work of giving proper medical supervision to school children. The subject has been commented upon and commended a number of times in the JOURNAL, and the good work that has been done by Dr. Hoag in Pasadena has attracted no little attention. It is a pleasure to note that his usefulness is to be greatly extended, but Pasadena will be the loser by his taking away. Dr. N. K. Foster, so long the efficient Secretary of the State Board of Health, has been appointed Medical Director of the Oakland schools, and Dr. Hoag has been appointed Director of Hygiene and Medical Supervisor of the Berkeley schools, with a lectureship in the University on School Hygiene. Thus it is seen that these two most excellent men are to work together in the sister cities; that their efforts will be in common, and will bring to Oakland and to Berkeley very decided benefits, can not be doubted. Most of our communities are strangely blind to one of the most important and vital questions that presents itself to a growing community—getting its children started right in the world. If the children do not get a fair and a right start, how can they be blamed for going all wrong later in life? How many a child has been driven into crime because of some physical defect, unnoticed in the years of his development, but always acting as a drag upon his proper mental and physical growth? The fairly good salaries which are to be paid these two gentlemen for their work in the schools will be returned many fold to the cities employing them. A medical supervisor of school children is as good as a whole juvenile court system, when it comes to preventing children from going astray. Our hearty congratulations are extended to the cities of Oakland and Berkeley; that the work which Dr. Foster and Dr. Hoag are to do will be well done, needs no saying.

SOME OPEN LOCATIONS.

Just at the present time there are a half-dozen or more good locations open for the right men; some of these are practices for sale and some are not. In any case, the amount of money involved is not large and covers only the material outfit. One is a particularly fine chance for a young, sober, industrious and well prepared physician to step right in with an older practitioner and take up a very fine practice; but it must be a well equipped man who is capable of doing ordinary laboratory work. If you know of some physician who is not located or who is about to make a change, just drop a line to the JOURNAL office, or to the Secretary, and you will be put in communication with some one or more of the possible chances. Let us know what part of the state you prefer, for these openings are scattered from North to South.

ORIGINAL ARTICLES

PSYCHOTHERAPY.*

By W. JARVIS BARLOW, M. D., Los Angeles.

The time has come when the interest in psychotherapy is being seriously considered by the medical profession, and discussions of this subject, by physicians, no longer bring to their hearers the suggestion that we are getting away from the scientific treatment of patients into the field of cultism. It is the purpose of this paper to direct attention to the advance made in this treatment, and give it the place it deserves in scientific education and practice. Too long have we considered this belonging to the occult and mystic and have seemed afraid to accept the true value of mental and moral treatment. There has been a feeling, with large medical representation, that psychotherapy and all its branches was only a fad to meet existing conditions and would soon disappear as other fads have come and gone. To those who have seriously considered this subject, there has come the conviction that there is nothing new in psychotherapy, that it is no fad except for those who make it so, but that we are just beginning, through scientific investigation, to understand and develop a treatment that has always, in one form or another, been used by every physician and surgeon who has successfully treated disease.

From the earliest history comes the record of cures by supernatural and magic means. From the Temples of Isis and Aesculapius—through the age of magnetism, mesmerism and hypnotism—has developed an understanding of what these results in cure really mean and a method for the present age that seems now more natural. The future change in the treatment of the large class of diseases reached through suggestion will develop through the present wave of psychotherapy to meet existing conditions. Our knowledge of psychic influences on mental and physical diseases we owe chiefly to the development of hypnotism, through the studies of Charcot, Bernheim and Janet. For results of cure without the aid of hypnotism, through suggestion, persuasion, reasoning, re-education, etc., the teachings of Weir Mitchell, the studies of Du Bois of Bern and Barker of Baltimore, need no further exploitation. It is to the enthusiasm and knowledge given us by such men, and the neurologists who have made a study of psychology, that we owe the fact that more of our patients have not sought the necessary aid from outside the medical profession.

When scores of people are being cured by lay, unscientific people (I care not if these be proved functional neuroses, moral obsessions or neurasthenics, they are diseases that doctors have not helped to cure), there is something omitted from our treatment which we, if true to our vocation and training, should use. There is no one to whom I speak but must know and realize that there is much more to medicine and surgery than, after examining our patients, the prescribing of drugs or performing a surgical operation. The physical, mental and moral conditions of each must be satisfied. How many of us carefully note the physical findings and omit any notation of the mental or moral? This fact stares glaringly at us and must be judged by each correctly and honestly. Where is the fault that our patients seek relief in Christian Science, mental cults, faith cures, or the Emmanuel Movement? It will not do to say that they are merely emotional and need some form of mysticism or religious awakening which has been inherent in all humankind since the beginning of time, and that these individuals are at present straying from the right way. Exceptional is it that such is the case, but rather are the mass getting something which they need and which we can give but often do not. It must be here admitted that there is an epidemic raging which will not last, but from which much can be learned by the profession and much good for better treatment result. The causes of this epidemic may be somewhat obscure, but there is sufficient reason for all existing conditions. The great studies that have been made in surgery have saved hundreds of lives that could not have been saved by other means. Surgery, considered wholly scientific and positive, became so popular that most men wished to become noted surgeons, and even the youngest attempted major operations. Most necessary operations were done, and some that were not necessary. Has this been entirely corrected? Have these mental and nervous symptoms of your patient been always relieved by the operation performed for this result? Have surgeons ceased to consider surgery a means of therapy? Do they still recognize that a surgeon must be primarily a good physician? These are pertinent facts for surgeons to consider. The relations between medicine and surgery are well brought out by Sir Clifford Albutt in his lecture before the American Medical Association some years ago.

Findley,[1] a gynecologist, says that physicians are too prone to insist on a pathological basis for all diseases and fail to recognize the existence of purely psychic disorders which have no organic basis but are psychic in origin. This fact is true of the gynecologist who locates the existing cause of nervousness in the uterus and ovaries, and at the time of Emmett and Battey, saw in erosions and lacerations of the cervix the incentive for all sorts of neuroses.

Too often there is no connection between the two conditions, and the physician who examines a neurasthenic patient and tells her of lesions in the pelvis of which she has had no knowledge, often does untold harm. The case often needs the help of a neurologist rather than a gynecologist.

Medicine as a science has recently become more popular through the great studies made in the laboratory and resulting in the prevention and cure of certain diseases. Internal medicine is more respected by the surgeon, and bacteriology continues to be most useful to both. With the brilliant results of anti-toxin, and positive relief afforded in a few

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

diseases by specific sera, has come an overenthusiasm and overestimation of sero-therapy; and a few men would have the people believe that they must be injected for every disease. Here is a cause which must be remedied in our own ranks. Has this been corrected and medicine not claiming too much? These are pertinent questions for medical men to consider.

Now to the sick room itself, and to the patient who would seek the office constantly with a chronic disease. Is such patient getting all the help needed? When the mind or nervous system is abnormal, either in primary or secondary trouble, is he getting from you the thought and time so necessary—in other words, the proper psychic treatment for psychic trouble? When mental and moral help are not yours to give your patient, is the neurologist asked to come and furnish the right suggestions and help? or, when spiritual help is wanted, is the priest or pastor notified by you and asked to do what you think the patient needs? If we, as physicians, would carefully note such facts and observe closely the requirements of our patients, not only the physical but the mental and moral, there would be no necessity for the church to try to take our place, which she is not trained to do. Unquestionably, the age of materialism has been a great factor in causing the existing conditions. The physician and the clergyman should be co-laborers in the field for the betterment and uplifting of mankind, for each has his own work and sphere of labor, and in co-operation the best work for humanity can be done. There is no necessity, however, for one to assume or take the place of the other. The physical and mental diseases have belonged to the physician since the time of Aesculapius, and there is no need to change it at the present time.

Again, great benefit by specializing in medicine has resulted to the public, and particularly so when a man has specialized after general work. Over-specializing is doing harm and not giving patients what they seek. Unless the specialist knows all about the general condition of his patient, he cannot do justice. Here, team-work with the general practitioner must be had to be just to the patient, else the profession had better return to the family doctor. It is with the general practitioner, after all, that most cases find the greatest satisfaction, because he enters more into their lives and knows their failings and faults; he has the opportunity for suggestive treatment on lines that the specialist fails. Only a *consultant* can afford to sacrifice the personal relation to the patient who really wishes only his expert professional opinion. How many specialists see that their patients get from others than himself what they need? It is entirely possible that practitioners of medicine and surgery might themselves provide this necessity. This, however, can only be done by adding to our medical training such instruction as has hitherto been lacking.

Medical Schools: Here comes a plea for introducing into our medical schools a course of psychotherapeutics such as has been done this past year in the Tufts College Medical School under the title of Principles of Psychotherapeutics, based on psychopathology.

It must be admitted that considering the large number of nervous patients, those in whom no organic lesion can be discovered, that frequent the offices of the practitioner of medicine and surgery, the profession has been wholly negligent in not demanding instruction in the modern methods of psychotherapy in our medical schools. Dr. Morton Prince[2] has emphasized this since the advance in knowledge of the pathology of symptoms of the psychoneuroses has made such strides through recent investigations that these diseases should be systematically studied and become the subject of regulated instruction. He thinks it strange that functional diseases and psychoneuroses should hold such insignificant places in our curriculum, and the reason is that the diseases are obscure and lack the definite character that appeals to the intellectual and scientific man. Partly for this reason he thinks has developed the crude and unscientific systems of psychotherapeutics known as Christian Science, mind and faith cures, etc., which should be a reproach on medical education and not denounced as evils. There is none better fitted to treat any form of ill-health, including all neuroses, than men who have given their lives to the study of human physiology and pathology; but until the student of medicine has familiarized himself with the recent methods of handling the disordered mind or vagaries of the neurasthenic, he must expect those suffering from functional neuroses to be often successfully handled by unscientific and frequently uneducated laymen, who though skillful in speech and suggestion, could not pass the examination of a first year medical student.

There is so much in psychology yet to be learned, and the subject is so vast, that it would be impossible to have our students well trained in this branch; but at least an elementary study of psychology could be introduced which would change the attitude of our younger members toward the patients suffering from functional neuroses. By attitude is meant the causes that result in our ignorance and impatience toward a purely nervous trouble. That there is a physical basis for the symptoms present is well recognized; the exhaustion accompanying the attacks must be treated with physical aids as well as through suggestion, and we should never lose sight of such facts. The neurologist may explain the difference in a case of psychasthena and one of neurasthenia—the terms mean much the same to the writer—but perhaps psychasthenia sounds more fitting with psychology and neurasthenia with suggestive therapeutics.

We may expect something from the interest the subject has produced in eastern cities, the establishment of the Phipps Psychiatric Clinic, with a $1,000,000 endowment, at Johns Hopkins Hospital, and the proposed establishment of a similar hospital at the Massachusetts General Hospital by the State of Massachusetts.

By instructing our students to treat these cases under modern psychic methods, we are training ourselves to meet the advances made in this treatment

by our scientific neurologists. If this is not done and seriously conducted, we are leaving certain diseases to the care of laymen and outside movements where leaders who have no medical knowledge assume the attitude of knowing how to treat and cure patients that the medical profession cannot or will not. Christian Science has awakened us most thoroughly to such a view; though unscientific and wrong in its teaching and its denial of the existence of diseases, it has, through its mystic influences and power of faith, given to many the relief not received in legitimate ways. So much at least must be admitted. Social workers also have added to our knowledge of psychic treatment, and now the Emmanuel Movement adds further instruction for our guidance. This movement would unite religion and medicine, and make clergymen do a work in which they are untrained and which essentially belongs to the medical man. Without assuming the practice of medicine, the church has more than it can do in its own sphere with the moral and spiritual training of its people; besides it has the further extensive work on social lines and may justly instruct its people to live hygienic, healthful lives, leaving the treatment of all disease, functional or organic so often inseparable, to the doctors of medicine and surgery.

Classification for Treatment: The methods for the therapeutics of suggestion are not as yet clearly classified, but each reaches its results through a similar course—by its effect on the mind conscious or unconscious. Whatever the method employed, the same thing—suggestion with other aids—is used.

In order to state more definitely, we will form what seems a rational list of methods for using suggestion as we know it to-day, modified after Edes;[3] it is, however, assumed here that each method is a form of suggestion, and may be used indirectly or directly by the physician.

1. Positive assertions with aid of drugs, rest or exercise, massage, hygiene, diet, electricity, etc.
2. Persuasion and encouragement with similar aids.
3. Instruction and re-education.
4. Confession, including the Cathartic or Analytical method of Freud.
5. Deception with use of placebo.
6. Hypnotism.

First—Positive assertion: This form of suggestion is used by every successful physician with the aid of remedies and material things at his command. When giving a drug or prescription for massage or electricity, we tell the patient what result we expect, and depending upon how much confidence the patient has in us, so, often, will be the result. With this method we have the same power for good suggestion in ordering rest or exercise, diet to be followed, or the principles of a hygienic life. Much depends upon the positive way the suggestion is given, if the orders are to be followed.

Second—Persuasion and encouragement: These words speak for themselves and are powerful aids to the physician in combating any trouble, whether organic or functional. This method, too, is used by most practitioners, consciously or unconsciously, with similar aids, in the way mentioned above.

The isolation treatment, practiced by S. Weir Mitchell, is an important factor in his rest cure, and would come under this heading. The results he has obtained can only be duplicated by a man of similar magnetism with a like power of persuasion, so that as many cures have not resulted elsewhere.

Third—Instruction and re-education: This method is fully understood by all neurologists, who find it most helpful. The element of time and patience is here a great factor, and unfortunately, too many men have neither the one nor the other to properly use it. Yet there are many psychasthenics who require just such training, and it is to the medical adviser to see that patients get what they need. Assistants, properly instructed, could carry out the treatment. They usually have the time and patience; but, unfortunately, so many of us are not broadminded enough to see the value of such teamwork, or are too commercial to have the necessary assistants. This method and that of the former, "Persuasion," are the forms so successfully used by Du Bois of Bern, and gave the greatest stimulus to suggestive therapeutics by his book—"Psychic Treatment of Nervous Disorders."

Exercise with a purpose in view belongs to this method and has been found most helpful in chronic diseases both organic and functional, such as gardening for the neurasthenic, graduated labor for the tuberculous, and mental diversion for the insane.

We have in the three above methods the most powerful suggestive agents in the treatment of all diseases, but especially the psycho-neuroses. The three others are of minor importance, if the fourth —Confession—may be excepted. This method of Freud's, called "Cathartic," based on the fact that some sexual disturbance or abnormal sexual habits have earlier been the cause of hysteria, has not been made of general use. Freud says that it takes six months to three years to bring about successful results with the treatment, which would seem of itself an objection; but from the results that Freud has reported, where other methods have failed, his treatment will be further studied.

This method is freed from hypnotism, and, contrasted with other methods, the results are not supposed to be due to suggestion. It is impossible to see how indirect suggestion can be excluded under this method; the very fact of asking the patient not to suppress any painful or shameful thoughts is in itself an indirect suggestion. Dercum[4] discusses this treatment at length, giving the limitations and objections, and concludes that it offers doubtful advantages. "In certain cases," he says, "even the rehearsal of sexual details, repulsive and revolting, probably does harm rather than good."

Fifth—Deception is too often made a part of psychotherapy. The use of placebo should be discouraged as in most cases deception is entirely unnecessary. Never should chronic cases be deceived

through suggestion, for any one who has considered the matter carefully will find that a frank explanation and understanding with the patient will not only prove the right course, but will bring the desired results. It is, however, conceded that deception and the use of placebo may be warranted in acute organic diseases with nervous manifestations.

Sixth—Hypnotism is only to be used in expert hands and is very rarely necessary. Personally, the writer feels that it is an unsafe and unwise procedure, when other therapeutic agents are equally successful.

The study of hypnotism, Barker says, has led to a great increase in interest in the effects of suggestion made in the waking state, both hetero-suggestion and auto-suggestion.[5] Undoubtedly, through this method which is being rapidly discarded, we have reached our present knowledge of auto-suggestion.

Of the six methods it must be left to the physician in charge to determine which shall be used. Each case must be individualized. There is greater psychic power in the use of the second and third, the drawback being the time and patience required. It must be remembered too, as Barker says,[6] that patients past middle life do not yield to psychotherapy so readily as those between twenty and forty years. An important fact, too, must not be forgotten, that childhood is most susceptible to suggestion. Physicians should instruct parents that a child from one to five years is ready to grasp any suggestion. It may be practiced in the sleeping as well as in the waking state.

Conclusions: This epidemic of moral and mental treatment, outside medical science, has done much to awaken the profession to the important fact that too many patients are leaving medicine for help gained by so-called new movements, and has stimulated scientific men to a closer study of psychotherapy.

To a few of our rank, who refuse to accept the situation seriously, it has seemed to weaken their respect for patients who need mental and moral treatment.

The remedy lies within our own profession.

Instruct individuals and the public and in all conditions tell the truth.

A thorough course of training in the suggestive methods, and a better understanding of psychotherapy should be introduced in our medical curriculum.

The classification and methods to be employed should be regulated by professional men who have given their lives to the study of diseased conditions.

Every physician should do his work well, whether he is called upon to treat physical or mental diseases, and not try, from any spirit of commercialism or unfitness, to hold under his care any patient who manifestly can be better cared for by a better trained person. The words of Reverend George A. Gordon,[7] a Congregational minister, fit exactly the feelings of the writer: "It remains for the individual man to do the small bit of work for which he is fitted, to let religiously alone the work for which he is manifestly unfit, and to bear in mind that about the best thing that good men can do for the noblest causes is to go through the world with a level head."

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7. Congregationalist, Feb. 13, 1909, and Journal of the American Medical Association, Feb. 20th, 1909.

Discussion.

Doctor J. T. Orbison, Los Angeles: Inasmuch as Doctor Barlow has been kind enough to ask me to discuss his paper, as my impromptu efforts are generally abominable, I will ask to be allowed to read what I have to say. Psychotherapy, like drug therapy, may be divided into good and bad, wise and unwise. Just now the whole world and his doctor is looking at it through a powerful magnifying glass. What the world sees in this way must therefore be distorted and partake of the unreal. The means of measuring values being a magnifying glass, the objects viewed, both good and bad, must appear out of proportion to their normal worth. To speak in terms of psychology, the mental picture that the world sees is one of disassociation; it is a magnified field of vision that is arbitrarily split off from its surroundings. In fact, it is just that kind of an abnormal mental picture which an hysteric sees in his own mind's eye. The cure for such a disassociation in an individual can be effected by psychotherapy; the cure of national hysteria must likewise come, in the main, from us physicians. But—how can the physician teach unless he knows what he is put to teach; and how can he know what to teach unless he in his turn has been taught? A new duty is imposed upon the up-to-date medical schools. It is such papers as that of Doctor Barlow, coming from one who is in touch with the processes of teaching medical students, that will point the way and blaze the path. The world looks through its magnifying glass and sees various conditions at work. They all appear big and their relative worth is lost sight of. There it sees Christian Science. Near by to Christian Science and somewhat in the shadow is seen the Emmanuel Movement. Not far away is New Thought. Older than them all but arrayed in new garments is Psychotherapy. Now, the world has learned by much hard experience that it pays to stick to truth and honesty. So, when it has become convinced in which camp rests the Ark of Truth just so will the end results be as follows: The Queen Bee of pathological auto-suggestion, psychic auto-intoxication, to use a more scientific term, Mrs. Eddy will take her place with the Mesmers, painless-Parkers and Perkins Fractors. Another end result will be the sight of medical students hot-footing it to the lectures and clinics of the neurologist and psychiatrist, where they will be taught some useful knowledge relating to the mental processes of their future patients, which mental processes, by the way, primarily determine about fifty per cent of their ills and ailments.

And this is only as it should be. In this country we are steadily building up our own methods of procedure in psychotherapy. These methods have been thoroughly tried out and are standing the test of American high-pressure nervous diseases. It is no longer for our students to rush over to Germany, France and Switzerland to take a hasty psychotherapeutic quick lunch only to hasten back home for its emesis. Of course it would be an excellent addition to the home course to go to Paris and see Professor Dejerine's ward, or to Berne where Duboise holds sway. Or to Nancy where Professor Bernheim does

his own work in his own way, as the apostle of hypnotism. Morton, Prince, Putnam, Mills, Dana and Mitchell, of this country, and many more of the leaders in neurology, do not place as much confidence in Duboise as do many physicians who have read his book. His methods are too spectacular and, like Rev. Dr. Worcester's cures, too easy of accomplishment to be lasting or real. The glamour of a personality may hold in abeyance the symptoms of a grand hysteric but it does not cure permanently. As was said before, it is not necessary for our young men to go abroad to receive instruction in psychotherapy. If they do so they will view clinics filled with the excitable hysterics of the Latin race, or the phlegmatic inertia-loving Teuton. In America we have a different problem to solve, and we must solve it in our own way. In fact, Doctor Wharton Sinkler of Philadelphia, my honored chief at the Orthopedic Hospital, told me more than once that he considered we were away ahead of the French and Germans in our methods, especially in our private practice methods. Now, the question is—what is to be done? Doctor Barlow has thrown out the right suggestions and laid down a good working model, as far as methods of treatment go. And he gives six of these methods for consideration. The man who treats any considerable number of nervous cases must know methods and will in time work out his own. The student of medicine must know rather the normal and pathological states of the mind and the methods will follow. Doctor Morton Prince gives the classification of subjects he considers necessary for the student to know. Thus, we are working along scientific lines and gathering data from which to formulate our knowledge about the mind, its abnormal states and the treatment of these states. When we have worked it out we can impress it upon this nation. The American people may be relied upon to see pretty clearly after they are told, though they get unmercifully bitten during the acute stages of their hysterias.

This is no place to go into any general discussion of such a big subject. The time is much too limited. There is no doubt as to the demand made upon us by the public. There is just a little doubt concerning the awakening of the profession. Three formal papers will be read to day. Look in the literature, up to 1905, how spare it was! Since that time how fertile. This means something. Not only is there a growing literature but it is not now confined to the Journals of Neurology, Psychology and Psychiatry. On my desk are ten journals and as many more could be added, each containing one or more papers on the subject of psychotherapy, and these ten are not journals of neurology at all. This has an immense meaning. The medical and lay mind is at work. The eyes are open. The magnifying glass will soon be laid aside, the hysteria past and the truth retained. The rest will be swept aside. It were the part of wisdom to meet the demand made upon us physicians in a spirit of wise endeavor to teach the truth that is known and hunt for that which is yet hidden. If we do not we too will be found amidst the sweepings.

Doctor H. D'Arcy Power, San Francisco: When it is suggested that the medical profession should make more extensive use of psychotherapy on the ground that outside practitioners often command undoubted success, it seems to me that an important difference in our relation to the patient is overlooked. As physicians it is absolutely necessary that we speak the truth, and this obligation places us at a disadvantage with most of the agencies that employ these methods. The cures effected are primarily due to suggestion, but for suggestion to be effective there must be a receptive condition of the patient's mind. Now if you study the history of the various movements using psychotherapy, whether in the middle ages or in recent times, you will note that they first secure control of the patient's mind by religious enthusiasm, startling assertions, or some form of charlatanry. First comes wonder, then belief, lastly suggestion. The wonder is nearly always based on a lie. We can not take the first step, we therefore can not expect to attain the last with the same surety as those who are under no obligations to truth or are themselves the victims of delusion.

Doctor J. H. Parsegan, San Francisco: I am glad indeed to know that the medical profession is taking an interest in this new movement. A few years ago when I started with this treatment the circle was very small indeed and great objections were raised by members of the County Medical Societies. It is a fact, however, that we medical men have to be driven by the laity before we take up the branches which it wants. The osteopaths had to show us the need of massage, the Christian Scientist is teaching this new doctrine. We are supposed to be large in our scope and charitable, but if we would look into these methods as they come to our attention we would do well. We are supposed to be educators and philanthropists, but we are too ready to turn down new ideas. Now psychotherapy is a science with us, but we must confess that we have been using it unconsciously daily. The surgeon is using it when he tells his patient that he will surely come out all right from the anesthetic. That is a better dose of medicine than morphin or strychnin. Take cases of hysteria; in most of these cases you will find after having devoted six months or a year with first one physician and then another, that they fall into the hands of the Christian Scientist. If when we are giving our drugs to those cases we would take the time to sit down and listen to the troubles and talk to them using a little Christian Science we could do as much within that time as we could by writing our prescriptions for a week. We must acknowledge that the mind has power over the body. The time has come when psychotherapy will be of value to both the laymen and the professional man. It is necessary that we should educate the people and have their support.

Doctor Wm. Fitch Cheney, San Francisco: This is a subject in which I have been interested for some time. While in accord with what Doctor Brown and Doctor Barlow have said, still there are certain points which remain to be emphasized. First of all, we must admit the necessity for some psychotherapeutic treatment on the part of somebody. If we doubt the necessity for it, we have had the proofs. Thousands of people have, within the last decade, turned away from the regular methods of medicine and are loud in their assertions that they have found the cures which we could not give them. Just how it was done I am not convinced, but it has been done. I think every physician here will testify that we have had patients fail to respond who have gone to Christian Science and have become perfectly well. Admitting that there is something outside of our material methods of treatment, is it not well we should look into it and not leave it to other hands. Are we going to take up the work ourselves, or leave it to the clergy or to the charlatans of both professions? To me it seems that the whole question depends upon who is prepared to employ it, whether in the church or out of the church, in the medical profession or out of it. No man has a right to employ it unless he is fitted to do it. First of all, it depends upon his character. A man can not make suggestions unless he knows himself and he must have a good moral character, individuality, personality; and in the second place he must have training. He must understand psychology, he must understand what is meant by suggestion and by re-education, and until he is so educated he has no

business to try to employ the method. Our medical schools have been occupied with the affairs of the body, and have given no attention whatever to affairs of the soul up to the present time. Ultimately physicians will be able to employ psychotherapy, but not now as a class. For the present we have not the education, and to place this matter in the hands of men who are not prepared by character and by training to undertake it will inevitably bring discredit and failure upon the procedure.

Doctor E. von Adelung, Oakland: I would like to say just one word with regard to a point which was brought up and left unfinished in relation to the Emmanuel movement toward tuberculosis. I speak of this point because I am aware of a misapprehension that is pretty prevalent, and that is that the Emmanuel movement is something mystic that cures tuberculosis independently. Last September I visited the International Congress in the East, and I visited Boston and I looked around to see what this Emmanuel movement is in its relation to tuberculosis. I could not see myself how any form of psychotherapy could take the bacillus of tuberculosis out of the lung. I found that the statement of facts were these, that the so-called Emmanuel movement in tuberculosis consisted of a certain number of persons, who, seeing the great problem of tuberculosis throughout the world, conceived it their duty to help persons suffering from this disease. They did not go to them and say, "you are not sick"; they went to them in their homes and established a system of visiting the homes through their nurses and personally, and they got these people out into the fresh air and urged them to believe that this was the cure of tuberculosis, and they held out the hand of hope and in this way pursued the ordinary course of treatment. If this is anything peculiar which should be labeled "treatment of tuberculosis in science," I fail to see it. When we hear of the Emmanuel movement doing so much, it is because they are employing our methods. That, added to the encouragement which they hold out, and which it is really the duty of all of us to give, helps with the cures obtained. Many years ago I heard our tuberculosis authorities in this state speak, and it was emphasized that the personality of the physician in charge of these cases was of great import in the results obtained, and it behooves us to remember this. I have seen different classes of cases that had need of psychic treatment. In one case, for instance, I was called to see a man who had been six weeks in bed with great pain in the abdomen. I went through a thorough examination and found no organic lesion. I applied the psychotherapy in this case and in 24 hours he got well. In another case, a woman was operated upon in the right iliac region, and was three weeks in the hospital. She complained greatly of a continuance of pain, and after I worried over her case it suddenly struck me one morning that there was nothing the matter. I changed the treatment and applied the psychotherapy, and in three days the patient was up and has been well ever since. We have all had numerous cases of that kind. In another case, a girl of 8 years of age, was able to see with one eye and not with the other. It was merely a case of hysterical blindness, and instillations of pure water, with proper suggestions, were immediately followed with success.

Doctor W. T. Barry, Santa Barbara: Our profession is a scientific one, and I claim that anything unscientific should be let alone by us. It is granted that both Christian Science and the Emmanuel movement are both unscientific, and we should let them alone absolutely. I believe that we are on dangerous ground when we try to undertake this work, and that the next thing will be that we will be having spiritualistic seances.

Dr. J. D. Arnold, San Francisco: This is a question which has been so often and thoroughly discussed that no one can hope to say anything new upon the matter. I wish to advert to one aspect of the subject, and that is the attitude of the medical profession towards psychotherapy as instanced in these modern movements. After all, they are a recrudescence of an old subject which in the beginning was only pseudo-scientific, but in our day really appears in the guise of true science. The two attitudes usually assumed toward the Emmanuel movement were very well illustrated by the two papers read to-day. Perhaps I should not speak of them as two distinct attitudes. They are the attitudes which a scientific man will take toward a subject at two periods of his education. Dr. Barlow made a full resume of the subject and abounded in wise advice. Dr. Brown probably found himself in that earlier situation at one time, and now assumes another attitude full of enthusiasm, and the latter does him great credit. If we are sincerely concerned for the good of our patients, we will welcome any means under Heaven that offers us promise to help us to that end. Of course, this is not entirely a disinterested view because Dr. Brown admits that the primary reason for sending his patient to the priest is because he really can not afford the time to treat that patient as he will be treated by his priest. That is an economic view of the question. Let us not forget a fact too often overlooked in considering this subject—namely, that the physician stands distinctly at a disadvantage as against any of these various cults, though all of them are not cults in the bad sense of the word. He stands in this point of disadvantage, that as a true and scientific man he can not deal on an equal footing with these people. He must be truthful, he must be sincere. He may not pretend to be the possessor of a power to heal and cure, though such pretense is an advantage to him in his ministrations. It is unfortunately true that in order to best affect the individual through hypnosis by suggestion in any other state, you have first to impose upon that individual. Take, for instance, such a performance as that of Carpenter or of Bishop. They carry with them a lot of fake subjects and put these subjects through their paces and by the mere exhibition of a false hypnosis, bring their audiences into a receptive state of mind for real hypnosis. During the performance of these fraudulent "tests," it is not at all uncommon to see a number of sensitives in the audience fall over hypnotized. In fact, the scientific physician must explain to his patient that what is to be accomplished by his ministrations is to be wrought by simple suggestion. This appears commonplace and has little effect in rendering the patient receptive. The "fakir" permits his subject to consider him the repository of a mysterious influence—a belief in which produces a very helpful receptivity on the patient's part. The quasi-miraculous cures wrought by the exhibition of the remains or relics of diseased saints belong to the class of "cures by suggestion." What would become of such results if the subjects affected by these and all other analogous kinds of "suggestion therapeutics" were given a complete understanding of the underlying scientific rationale, and the honest physician is bound to do this.

TRICHINOSIS.*

With a Report of Four Cases.

By A. M. TOWER, M. D., Lodi, Cal.

Trichinae are widely distributed, because of the wandering of rats, and, no doubt, inhabit the muscles of all carniverous animals. As a recognized

* Read before the San Joaquin County Medical Society, March 19, 1909.

disease in man, trichinosis is limited to persons who eat rare or raw pork.

The parasite undergoes three stages of development:

First. The *adults* live in the small intestines, the male, one twenty-fifth of an inch in length by one one-hundredth in diameter; the female, one-twelfth of an inch in length by one seventy-fifth in diameter. They are circular in cross-section and appear as minute, thread-like bodies. The males die shortly after copulation. The females may live for weeks in the intestine or bore into the mucous membrane, where they deposit their numerous young, about fifteen hundred to each female.

Second. The *embryos,* from one-fortieth to one-tenth of an inch in length, migrate directly through the tissues into the striated muscles. They begin to reach the muscles in from seven to ten days after infection, and, in the muscle fibres develop into

Third. The *encysted larvae.* These may remain alive in the muscles for years, cases being reported for as long as thirty years. Lime-salt is deposited about the invader soon after the first week he has reached his natural home. These larvæ need only to be taken into the stomach, where the capsule is destroyed, and they pass to the small intestines, there to develop within two days to the adult. The latter copulate, the male dying, and the female delivering the embryos in less than a week after the infection.

Source of Infection. Man obtains infection from eating pork, the pork from eating rats or infected pork, and the rats from eating pork-meat or one another; thus keeping up an endless chain of infection.

Duration. Trichinosis may last from a few days to several months, usually running its course in from three to eight weeks. Convalescence is slow and may require from two to five months. Some cases are recorded in which patients do not recover for years.

Symptoms. The symptoms depend entirely on the amount of infection received at one time or repeated infection from the same source. Some infections are no doubt entirely overlooked. The more severe, typical cases present three fairly defined periods: the gastro-intestinal, the muscular, and the secondary-edema.

On January 4th I was called to attend the family of Mr. Klebe, which consisted of Mr. Klebe, wife, sister, and little daughter, aged thirty-two, twenty-six, twenty-one, and five years, respectively, American born of German descent. They reported the following conditions:

The family had eaten Christmas-dinner together, all enjoying good health. On December 27th they became ill, slightly so, at first, with gastro-intestinal symptoms, were nauseated, had pains in the stomach, felt chilly, and three of them were suffering from a diarrhea. Some had vomited several times; all appeared anemic and had edema of the eye-lids. Upon examination, I found them to be suffering from pain over the region of the diaphragm, which was tender. There was a slight tympany, the tongue, mouth and throat were congested, and they complained of pains in the back and thighs. The pulse rates ranged from 90 to 120, with temperatures from normal to 101 degrees.

My first impression was that they had been poisoned and I began a searching inquiry as to diet, canned meats, vegetables, fish, milk, cheese, etc., but nothing out of the ordinary seemed to have been eaten. Finally, I found they had been eating freely of fresh pork. This meat they had purchased December 15th. Part had been pickled in salt brine in a galvanized tub, and part had, about December 20th, been freely spiced with pepper, salt and garlic and made into summer sausage, stuffed into gut, and allowed to dry.

Here, we thought, we had the cause of the illness, probably lead or zinc-poisoning from the tub. I gave all liberal doses of magnesium sulphate with opiates to relieve the cramps and vomiting. The following morning, the patients were not improved as I anticipated, and, suspecting trichinosis, I obtained specimens of blood, urine, excreta, and the meat. These I sent to Dr. E. A. Burchard of Lodi for examination. The doctor reported in the afternoon that esinophiles were present in large proportions in the blood, about thirty per cent; also the urea increased to four per cent in the urine, showing a rapid tissue-waste as in ptomain poisoning. Upon further search in the evening, the doctor reported the sausage full of trichinæ-spirellæ.

The Skin, Mucous-Membranes, and Lymphatics. All the patients appeared very anemic during the full course of the disease, the anemia remaining well into convalescence. Puffiness of the eyes was plainly noticeable on my first visit. This remained prominent for ten days, gradually subsiding. It appeared very similar to edema from over-doses of arsenic. There was a pale, bluish discoloration in this edema of the lids. The little girl during the first, second, and third weeks, had an eruption, red patches, similar to urticaria, on the back of her hands and over the body. These disappeared and reappeared at intervals during the three weeks. From the early stages of the disease in the second week, the skin was covered frequently with profuse perspiration, the more severe in those who were the more infected.

Secondary edema developed during the third week of the disease. Mrs. Klebe, who died on the twenty-ninth day, had edema of the hands and lower limbs with considerable swelling about the jaws. Miss Klebe developed edema of the limbs, jaws, and neck, presenting the appearance of the German's "disease of the big head"; this swelling was accompanied about the neck with an otitis-media, developing edema about the mastoid, which was lanced. The tympanum ruptured and there was a considerable discharge from the ear for a period of two weeks. The secondary edema remained for five weeks, gradually subsiding. The little daughter developed an edema during the third week, which extended from the feet to the axilla. The skin was dry and shiny, with deep indentations on pressure, which remained for some time after the pressure was removed. In the regions of the axilla and hips, the edema was

from one to two inches in depth, and lasted well into the tenth week of the disease, gradually subsiding.

Gastro-intestinal symptoms prevailed from the onset, ranging from nausea to severe vomiting. During the first days, tenderness was elicited over the diaphragm and abdomen, being most severe over the epigastrium. Mrs. Klebe was slightly constipated and needed catharsis during the course of the disease. Mr. Klebe, at intervals, suffered part of the time with diarrhea followed by constipation. Miss Klebe vomited frequently during the entire course of the disease and had watery movements, averaging from four to fifteen stools daily. The vomiting seemed partially due to nervousness. Though she suffered from a complication of the ear, her symptoms remained always most favorable. The little girl suffered from chronic constipation, and daily doses of calomel, salts, and cascara were necessary for the relief of this symptom.

The appetite remained good with all the patients, and they were allowed a liberal diet of milk, cream, puddings, rice, soft egg, whiskey, icecream, etc. Nourishment was given freely, with the exception of a few days in the case of the two who died, when, owing to the closure of the mouth, it became necessary to administer nutrient enemas; the jaws became locked, and the patients were unable to swallow the food offered them. Miss Klebe and the child, during their convalescence, had ravenous appetites.

Nervous Symptoms. Mrs. Klebe suffered from insomnia and pain, was much distressed and extremely nervous for days, wishing to be turned over every few minutes. She became quite delirious a few hours before death. Mr. Klebe pursued a very resigned course, and, outside of being turned frequently and asking occasionally for rest, sleep, and relief from pain, remained clear of mind up to within a few hours of death. Miss Klebe showed a very nervous condition, owing to the ear complication. She also vomited frequently. The child ate and slept continually, only asking to be turned sometimes. Medicines were not resorted to for relief of pain or to produce sleep at any time during her long illness.

Muscular Symptoms. The muscles of the diaphragm, abdomen and back were sore and stiff during the early period. Within three days, stiffness and cramping of the thighs and shoulder muscles developed, being more painful at the tendinous insertions, though not directly in the joints. Within another three days the muscles of the forearms, hands, lower limbs and feet were invaded, the lower limbs were semi-flexed, the arms and forearms flexed upon the chest, any attempt at movements of extension causing excruciating pain. The muscles of the jaw and pharynx were also affected; the patients who died becoming unable to get their teeth apart. After the fifth and sixth weeks, the other two gradually came back to extension of the muscles. This improvement came about slowly and, in Miss Klebe, was not complete for three weeks, and in the child, for five weeks.

Urinary Symptoms. The urine early in the disease became scanty, amounting during the stage of profuse perspiration, to from as low as three to twenty ounces daily. Specimens, when fair quantities were being voided showed four per cent of urea, instead of one per cent. The urine remained nearly all the time, free from albumins or sugar, was of light specific gravity, and light in color. During convalescence in the eighth week, the specific gravity of the specimen I examined was 10-30.

Temperature and Pulse. Mrs. Klebe's temperature remained during the first and second weeks between 99 and 101 degrees, showing very little fluctuation during the twenty-four hours. The pulse beat 120 to 130 per minute. Three days before death, the temperature rose to 102 degrees to 104 degrees, the pulse 130 to 160, being weak and irregular.

Mr. Klebe's pulse and temperature during the first week, ranged similar to that in typhoid fever; morning temperature, 99 degrees, afternoon up to 103 degrees, pulse 80 to 100. The second and third weeks, the pulse remained quite stationary, 100 to 120; temperature 99 to 101. Three or four days before death, the temperature again rose to 103 degrees, pulse 130 to 140.

Miss Klebe's temperature for five weeks remained from 98 to 102 degrees, pulse rate 108 to 125, while, in the case of the child, the pulse remained almost stationary for six weeks at 120 to 140, temperature 98 to 100.

Clinical Diagnosis. Some authorities make a point of differentiating between typhoid and trichinosis. Though it is true that, with the exception of Mr. Klebe for a few days, the pulse and temperature did not appear at all like typhoid, while the anemia and edema of the eyelids have nothing in common with that disease, still this point does not seem to be of much importance.

As for chronic, muscular rheumatism, the steady, gradual, orderly appearance of the invasion is a distinct symptom of trichinosis, while in ptomain poisoning, we have a more rapid onset of all symptoms. Where it is possible to procure specimens of a portion of the infected part, the trichinæ are easily found with the aid of the microscope.

The picture of acute, gastro-intestinal irritation accompanied by soreness and tenderness over the abdomen, with gradual development of pain in the thighs and shoulders, then in the forearms and lower limbs, with early prostration, early general anemia, puffy eyelids, with a rapid pulse and corresponding low temperature, once seen, is never to be forgotten, and can hardly be mistaken for that of any other disease. To be sure, many light cases have, no doubt, been entirely overlooked.

Pathology. We obtained specimens of the meat from the same pig in a neighbor's family. Though the meat was infected, none of the family suffered from the disease, the meat having been thoroughly cooked. Other specimens of meat from the same butchering, contained no trichinæ.

Dr. E. A. Burchard of Lodi, also made microscopical examinations of the urine, feces, and blood during the progress of the disease. First, the urine showed no particular change with the exception of

lessened quantity and an increased percentage of urates, indicating toxemia.

The feces, the doctor examined several times for the adults and embryos, but was unable to find them; they must remain in the mucous lining of the intestines. A peculiarity of the fecal material under the glass was its constant motion, though sealed, which may have been caused by the glycerine taken by the patients.

The blood showed the most changes as a diagnostic feature. It showed secondary anemia all the time after the first few days with leucocytosis. Then the esinophiles commenced to increase, so that by the end of the tenth or twelfth day, a different leucocyte count showed over thirty-five per cent. The esinophiles should be about three per cent. In the two patients who died, they remained round and compact. In the two who lived, as soon as they showed signs of recovery, the esinophiles began to break up and the granules became scattered all through the specimens. Increased quantities of blood plates also appeared at this time.

In the muscles, the embryos increased in numbers in the tendinous portions. They destroyed the striated muscles, cutting up the tissue. Within their body walls, granular masses were found, and in some of the specimens, these granular masses formed the beginning of capsulation about the trichinae. In a specimen, obtained from the deltoid of Mrs. Klebe, the estimated count was thirty-six thousand to the cubic inch. In a specimen from the forearm of Mrs. Klebe, by actual count, one hundred and sixty were found in one-twelfth of a cubic inch, so that we could estimate two hundred and seventy-six thousand per cubic inch. They could be seen for thirty-six hours alive and in motion, coiling and uncoiling. The pointed ends showed great elasticity, the diameters increasing and decreasing, and no doubt they are capable of moving through tissue, as do the leucocytes. At no time were the embryos found in the blood; they must travel directly through the tissue.

Prognosis. The prognosis seems better in children than in adults, and better in cases with severe diarrhea. It is good after the sixth week. When appetite, sleep and respiration remain good, the prognosis is favorable. Elevation of temperature and extreme dyspnea are bad signs. I found the choking, the dry throat, and the closure of the jaws the most distressing of all symptoms.

The mortality ranges from zero to one hundred per cent; this depending entirely on the amount of infection, and bodily resistance. Mr. Klebe undoubtedly infected himself day after day for a week, as he was continually nibbling at the summer sausage until I began the investigation.

Prevention. Prevention may be brought about by thorough cooking of all pork, or by government inspection of all pork butchered.

Treatment. One of our nurses partook of some of the fatal sausage, taking within twenty-four hours an emetic and cathartic. While she felt very uneasy and was in bed a few days, it is doubtful if she had symptoms of the disease. During the early days of the disease, by recommendation of different authorities, calomel, glycerin, resorcin, thymol and iodin were all tried. Mr. Klebe, who had the latest infection, and who was the last to go to bed, was able to take the anthelmintics and retain them without much disturbance of the stomach and intestines for several days. Yet, we evidently obtained very little result from their use, and it is very doubtful if any of them can do much good. We soon resorted to stimulants and nourishing food, with hypnotics and analgesics to produce sleep and relieve pain.

The nursing was trying and tedious. The patients were given warm baths and alcohol rubs. They needed constant turning. Mrs. Klebe's position was changed every ten to thirty minutes during her last week, this being accomplished by slowly turning the body, head, shoulders, the body and feet alternately. As the patients were suffering pain during all motion for days, they were unable to help themselves and lay stiff and doubled up.

Convalescence was slow, sure, and gradual, once it had begun. At the present time Miss Klebe is doing the housework, and the little girl is playing about the yard. Outside of motion, they do not feel much ill effect of the disease.

CASE OF HYPERTROPHIC PYLORIC STENOSIS WITH AUTOPSY FINDINGS.*

BY ALFRED BAKER SPALDING, M. D., San Francisco.

A primipera twenty-one years old, born in San Francisco, gave birth to an illegitimate male child on November 29th, 1908, at the Central Emergency Hospital. Mother and child were transferred the same day to the Obstetrical Department of the University of California Hospital. On account of the child being born the interne neglected to take the usual history of the mother. For the following two weeks the record of the mother was negative except for a marked odor to the lochia. She nursed the baby for nine days and then gradually weaned it as she intended to leave the baby with the Associated Charities for adoption.

The child weighed on admission 2K 760 gms. and was normal except for a supernumerary toe on the left foot. On the second day an active gonorrheal ophthalmia of the right eye developed, which persisted with a less active involvement of the left eye for three weeks. The extra toe was removed on the twelfth day without anesthesia. A persistent attack of snuffles followed the ophthalmia.

Whey was alternated on the ninth day with the breast feeding, and the food was gradually changed according to routine plan for such bottle babies so that on the twenty-first day the baby was taking twenty ounces of a mixture containing 20% of upper 16 milk, 5% of milk sugar, 0.5% of sodium chloride and 80% of water, which was divided into ten feedings of two ounces each. Gain in weight was satisfactory. On the twenty-first day the baby

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

weighed 3K 60 gms, a gain over birth weight of 300 gms. The baby would have been discharged had it not been for a slight irritation of the right eye.

From birth the child cried more than the usual baby and was considered by the nurses to be an ill-tempered, spitting baby. The stools varied in number and character. At times perfectly yellow normal stools were passed usually two or three daily. On other days constipated and undigested stools of various green colors were passed. Colon irrigations were of frequent resort. On the twenty-first day vomiting was first noted as a prominent symptom. The vomitus was sour and watery and contained curds and mucus. The vomiting occurred on some days only once or twice. At other times nearly every feeding would be vomited. Ordinary regurgitation would at times change to vomiting of a forcible character so that the bed would be soiled a foot from the baby's face. From the quantity and character of the vomited material it is probable that portions of several feedings were vomited at the same time. After feeding, the child would apparently be in pain and would turn on the right side with head back, arms up and legs extended curved, and slightly rigid. Gain in weight continued until the twenty-fourth day when the maximum weight of 3K 90 gms was attained. The food ration at this time consisted of ten three-ounce feedings of a modified milk containing fat 2%, sugar 6.5%, barley 0.5% and proteid 1%.

Examination revealed the fact that besides a general shotty adenitis the baby had a large spleen and markedly enlarged kidneys. These facts in association with the snuffles caused the digestive disturbances and the loss in weight to be attributed to a luetic taint, and the baby was placed on inunctions of mercury. On this point, however, Dr. Montgomery and other members of the skin department reported negative findings. Treatment consisted practically of daily lavage, colon irrigations and various changes in the food formulæ. As in addition to the pain, vomiting and rapid loss in weight it was noticed that the stomach appeared distended and was traversed from left to right by distinct peristaltic waves a diagnosis of pyloric spasm was made. Dr. Lartigau seeing the child advised operation, while Dr. Tait at the same time agreed with the writer that the child stood a good chance to recover without laparotomy. Attempt was made to nourish the child with milk from a foster mother but without avail, and vomiting continued from four to five times daily. The loss in weight during the ten days following was 440 gms. Dr. Lewitt saw the child on the 35th day and suggested using soda-bicarb. with the daily lavage. He considered the prognosis good in spite of the loss in weight. On the 37th day Dr. Sherman saw the child and said the child would die if not operated upon at once. After a delay of 24 hours and an added loss in weight operation was set for nine o'clock the next morning. Dr. Langley Porter saw the child that afternoon and suggested feeding small amounts of whey with tr. of belladonna and soda-bicarb. at hourly intervals. Of the following eleven feedings seven were retained and four regurgitated. In the morning the child looked much improved and had gained 30 gms. By general consent operation was postponed for twenty-four hours. The belladonna was continued, one drop every hour, together with the stomach washings and alkaline whey diet. Sixty cc of normal salt solution was also given by hypodermoclysis. The nurses' report at the end of 24 hours was: Total food given, 260 cc; amount regurgitated, 40 cc; gain in weight, 190 gms.

Operation was indefinitely postponed and until the development of a terminal pneumonia it looked as if a gradual recovery would occur.

The baby continued to look better, vomiting was less frequent, the stools were better digested and gain in weight replaced the previous loss so that in three weeks the baby had regained a total of 480 gms of the original loss and again weighed 3 kilos. The blood and urine were negative and the stomach contents gave a total acidity of 42.

Unfortunately through an oversight a baby was admitted one night to the same room with this baby. The new baby, supposed to be suffering merely with malnutrition also happened to have a pneumonia. The rule of the department that new babies shall be isolated for twenty-four hours before being placed with other infants was violated and as a result of the general mix-up the baby with the supposed pyloric spasm developed a pneumonia and died. The condition found at autopsy was a surprise, for in place of a supposed spasmodic condition of the pyloris there was a very marked hypertrophic pyloric stenosis.

Clinically it was apparent that more or less food was passing into the intestine. No one who saw the case diagnosed a stenosis and the men who had had the most experience with cases of pyloric spasm and stenosis were the most positive that this case was one of simple spasm. One valuable suggestion of taking an X-ray picture of the stomach after feeding the child bismuth was neglected.

This case is reported simply to add to the already large number of cases of pyloric spasm and stenosis recently reported in San Francisco. The literature will be found to be well covered in the paper of Dr. Langley Porter in the March number of the California State Journal of Medicine for this year, vol. 8, No. 3.

The following is a report by Dr. A. W. Lee of the autopsy findings. The autopsy was made about one-half hour after death:

Body about 52 cm. in length, and extremely emaciated, still warm. No rigor mortis, no post mortem lividity. Pupils slightly dilated, equally. Skin clear. Palpable lymphatic glands enlarged Abdomen moderately distended. Subcutaneous fat practically absent. Muscles poorly developed, pale; recti separated 1 cm.

Pleuræ clear on both sides. Hypostatic congestion upper lobe of right lung, and throughout the whole of the left, posteriorly. Thymus rather small. Pericardium normal save for slight turgescence of vessels. Heart normal.

Omental fat very much reduced in quantity.

Liver small, otherwise normal. Spleen slightly enlarged, otherwise normal. Gastro-pyloric portion of small-bowel enlarged into a firm, oval mass, about 2 cm. in length, and of slightly less diameter. Urogenital organs normal.

The stomach was slightly enlarged, its mucosa showed, however, aside from an inconsiderable thickening, no change from the normal. The following procedure was carried out:

The gastric end of the esophagus was tied off as well as the anal end of the rectum, and Zenker's fluid injected into the stomach under considerable pressure. The stomach immediately filled out, and, by constricting the duodenum a few cm. beyond the pyloris, the fluid could be seen to collect very slowly in the bowel. However, this transpired so tediously, due to the narrowing of the pyloric canal, that injection through the stomach was discontinued, and carried out by way of the ileum.

Shortly afterwards an infant came to autopsy whose gastro-intestinal tract was normal, and its age was approximately the same as that of the baby described above. Here again the gastro-intestinal tract was distended with an injection of Zenker's fluid, and, after fixation, the gastro-duodenal portion of the small-bowel was excised, mounted in celloidin, cut serially, and stained in hemotox. and eosin. These sections were used as controls in examining sections, cut serially and stained in hemotox. and eosin, from a corresponding region of the gastro-intestinal tract of the infant first alluded to.

Fig. 1.

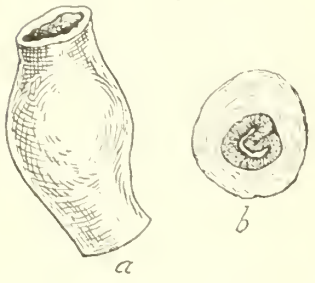


Fig. 2.

Fig. 3.

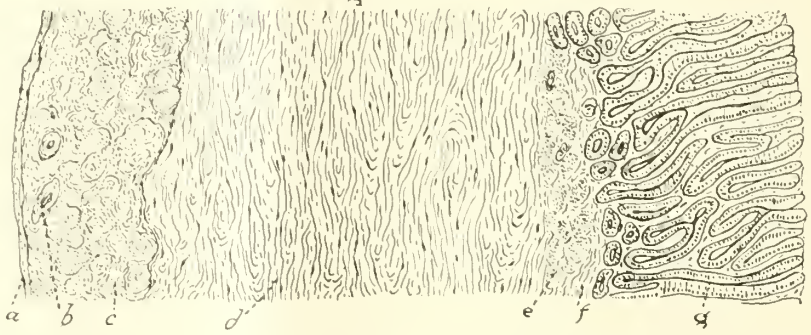
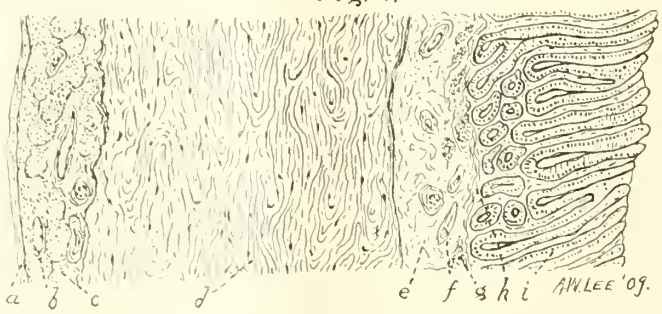


Fig. 4.



Referring to Fig. No. 1, *a*, the gastro-duodenal region of the small bowel from the first infant is seen enlarged about ¼. In the same figure *b* represents a cross-section of this structure at its middle. Fig No. 2. *a* pictures the gastro-duodenal region from the second infant, likewise enlarged ¼, and *b* shows a cross-section at about its middle. The marked difference in size is seen at a glance when comparing *a* and *a* of Figs. 1 and 2. By comparing both cross-sections, the mucosa of the preparation from the first infant is found to be considerably thicker than that from the second. The pattern of the mucosa-foldings is very much less intricate than seen in the normal specimen. The remaining division of the wall of the bowel is also thicker than in the control preparation. These differences are more clearly shown in low-power magnifications of these sections, as illustrated in Figs. 3 and 4. The tunica serosa in both preparations shows no divergence from the norm, *a, a*. But the longitudinal muscle-bundles are greatly in excess in the case of the first infant, Fig. 3, *c*., but individually considered the muscle fibres wherever found in the wall of the bowel are free from any pathologic change. The blood-vessels dispersed among the longitudinal muscle-bundles are fewer in number in the sections from the first infant, Fig. 3, *b*, although they are quite normal in histology. The circular muscle-strands are also more abundant in the first infant's gastro-duodenal portion of the small-bowel, Fig. 3, *d*, than those appearing in the control, Fig. 4, *d*. The next most striking variation between the abnormal and normal specimens is the almost total absence of the areolar connective tissue in the submucosa, this area being occupied by the distinctly hypertrophied muscularis mucosae, Fig. 3, *e* and *f*. In Fig. 4, *e* shows the normal areolar tissue in the submucosa, while *g* and *h* represent the longitudinal and circular fibres of the muscularis muscosae. In Fig. 3, *g*, and in Fig. 4, *i* designate the mucosa in both preparations. Aside from their greater length, the glands of the mucosa from the abnormal specimen do not differ markedly from those in the normal one.

Conclusions: The stenosis in this case seems to have arisen from an hypertrophy of every muscular integer of the pyloric division of the bowel, and probably dates back to a very early period of the child's intra-uterine life.

Discussion.

Dr. R. Langley Porter, San Francisco: The important point to be made is whether these children shall or shall not be operated upon. In consultation, in practice and by the courtesy of friends I have seen seven of these cases within the last two or three years. Four have been operated upon and all are alive and well. Gastro enterostomies were done in every case and the children are beautiful, strong, well developed infants. The other three died. Another case I know of, treated medically by Doctor Lewitt, is well now after five months. The point to be made is between true stenosis and stenosis of spasm. Much of the symptomatology is due to the spasm of the hypertrophied pylorus. This specimen allowed a sufficient amount of milk to pass through the pylorus to cause good stools. Perhaps Doctor Spalding's case died from starvation more than from pneumonia. I saw this case and I did not advise operation because I thought enough food was passing into the intestines to warrant temporizing. I believe the right procedure is to do gastro-enterostomy immediately. In each of my cases I waited ten days, attempting to feed with fat free milk and the use of lavage. These patients seemed to improve for a time under that treatment and there was some relaxation of the spasm. To sum up, there is a condition appearing at about the third or fourth week in which vomiting, projectile in character, and visible peristalsis are the dominant features. The children are most of them breast fed. In most cases there is a marked contrast between the upper and lower abdomen, the lower abdomen being narrow and shrunken. In neither of these cases was the abdomen definitely shrunken and in both the intestine was functionating. Besides, there are the characteristics of the stool which were absent in both of these cases.

Doctor J. H. Barbat, San Francisco: With regard to waiting too long in these cases, I found, when I was in the East, that a number of pyloric stenosis cases had been operated upon and that most of them died, and were not reported. I found that the majority of cases which had died were children who had been brought to the surgeon too late because the medical man had waited until the child was in extremis. The children who are operated upon early recover, but when the physician delays they are so reduced that operation will kill them. If they are operated upon early enough, as my friend Arbuthnot Lane said, they take the anesthetic like milk and the operation as a joke. I operated upon one child in the morning, and in the afternoon the baby took the breast and never had any trouble. While the operation is beset with some difficulties on account of the small size of the intestines, if a little delicacy is used no trouble will be had.

Doctor A. J. Lartigau, San Francisco: Dr. Spalding has brought forward a subject which is well worth your very serious consideration. It is bound to attract more and more attention and as infants are more carefully studied, the number of reports of these cases will increase. That has been our experience in San Francisco. Though I have seen a number of cases of my own and some belonging to others, and have successfully operated on one such case, I am not prepared to take the extreme view voiced by Dr. Porter, nor am I, on the other hand, willing to take the position of others who believe that an operation is practically never indicated. While the diagnosis of the condition usually presents no difficulties, for the symptoms are clear in most of the cases, nevertheless it will require fine judgment to discriminate between those cases in which operative interference is justifiable and those in which it is not: in other words to distinguish between the so-called spasmodic form of stenosis and the true hyperplastic type. Personally it seems to me that the middle course is the safer. In any case the therapeutic attitude would largely be determined by the individual peculiarities of the case with which one is dealing. I know of no way in which definitely to determine, especially early in the disease, that you are dealing with the spasmodic form or the hyperplastic form, except by watching the case. If you find that the case does not do well by the usual medical treatment, then without waiting too long until the child is too emaciated and weak, surgical interference is probably justified in most instances.

CHYLURIA WITH A VESICAL SINUS.*

By SAXTON POPE, M. D., Watsonville.

I don't know who invented chyluria. My early reading of the Bible leaves no memory of any reference to the subject; not even in the Book of Job. Possibly the Eber's papyrus mentions it but I am not good at Egyptian hieroglyphics.

Whether Hippocrates and Galen dwelt upon the subject I can not tell you. But I have read that Gubler, in 1858, first suggested that chylous urine was due to the passage of chyle directly into the urinary tract and that Wucherer first detected an unknown worm in the urine of a woman at the Misericordia Hospital at Bahia in 1866.

In college and hospital, of course, we heard of this condition but it remained for me to discover it for myself when a Japanese boy walked into my office with a bottle of this characteristic urine in his pocket. One difference between an expert diagnostician and a country doctor lies in the fact that the former thinks first of all the improbable diagnosis and that the latter thinks of the most obvious. So, being a country doctor, when this bottle of milky urine was presented to me, I immediately thought: here is another neurasthenic Jap with a lot of phosphates in his urine; and he is scared to death; he has what they call "shinke" or hypochondriacal introspection.

Here I am minded to quote the great surgeon, Pirogoff: "There are in everyone's practice, moments in which his vision is holden, so that an experienced man can not see what is nevertheless clear, at least I have noticed this in my own case. An overweening confidence and preconceived opinion, rarely a weariness, are the causes of these astonishing mistakes."

I shook the bottle, gazed through it like an ancient urine caster,—lo and behold!—a light broke in upon my weak brain; in my second thought I recognized the specimen as one of chyluria. The urine looked like city milk with a deposit of blancmange in the bottom. It lacked the flocculent eddies that occur in phosphatic urine when shaken.

A hasty examination proved that the fluid was macroscopically homogeneous, creamy white, and

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* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

contained shreds of fibrin and a gelatinous coagulum in the bottom of the vessel. The filtrate did not clear upon heating and the addition of acids, but contained an abundance of albumin, nor did an equal quantity of ether clear the solution. The unfiltered liquid microscopically was full of small granules and cells resembling large lymphocytes. No casts, no ova and no parasites were visible.

The Japanese said his name was S. Miamoto, that he was 28 years of age, had been 4 years in this country, was a resident of Monterey and previously had lived 4 years in Hawaii.

The first milky urine appeared in the winter five years ago and had recurred every succeeding winter, lasting about two weeks every time. It was usually only the morning urine that was white and not always clotted. He had never been seriously sick except in infancy when he had what probably was spinal tuberculosis with a psoas abscess. Two years ago he had Rimbyo (gonorrhea) but never had Kasa (syphilis) or Kaki (beri-beri) or any swelling of the legs (Suiki). I made a physical examination which gave no evidence of disease in his heart, lungs, cerebro-spinal axis or abdominal organs.

His upper lumbar vertebra were rigid and slightly kyphotic. There was a slight compensatory lordosis in the lower dorsal. There was an old scar in the left groin which he said marked the site of his abscess in infancy. Save this there was no trouble referable to the original spinal lesion. His lymphatics all seemed normal. There was no edema; no ascites. His genitalia were small, which is characteristic of the Japanese, but showed no abnormality. He said that his sexual function was perfect. Rectal palpation demonstrated the prostate normal in size and consistency, but above it and between the seminal vesicles, leading off to the left side, there was a diffuse induration suggestive of an organized inflammatory exudate. This was not tender. The seminal vesicles seemed normal. I did not strip them nor express the prostatic secretion. No enlarged lymph nodes were to be palpated in the pelvis. His urine passed in the office was clear and free from albumen and glucose. Microscopically it contained a little pus and a few erythrocytes. A blood count proved normal and there were no filariæ present at 11 a. m. or 8 p. m.

The following day he reported for a cystoscopic examination and presented me with another sample of chylous urine. He said that the gelatinous coagulum came out near the last of micturition and gave some pain. I introduced a Bransford-Lewis direct view air cystoscope into the bladder with no difficulty, using distilled water as a dilator in place of air. His bladder was absolutely normal. The ureters were easily found and were seen emitting rhythmical jets of clear urine. I did not catheterize them. The trigonum vesicæ from the level of the ureters down became more corrugated and vascular as it approached the urethra. Withdrawing the cystoscope to the extreme lower angle of the trigon, there was plainly visible the orifice of a sinus whose diameter was about that of a ureteral catheter. The mucosa surrounding this aperture was edematous and covered with a fibrinous exudate. There was no bleeding so I had ample time to allow a creamy white discharge to issue from this sinus and slowly collect in the end of my cystoscope, until it threw the light into a dense fog and obscured the field of vision. I then removed the cap of the tube and permitted the turbid water to flow into a test tube. A later examination of this fluid proved it to be practically identical with the chylous urine.

As a prophylactic measure I gave the patient some hexamethylene tetramine and asked him to return in two days. This he did, saying that his urine was clear. He was requested to come again in a week for further study but he failed to materialize and I have not been able to find him.

Dr. C. M. Cooper of San Francisco made an examination of the urine, but the analysis was incomplete owing to a lack of material. His informal report is as follows: "The urine I allowed to stand, separated into three layers. An upper cream scum of about one-tenth of the depth of the fluid. This scum under the microscope showed globules ranging from about the size of a megaloblast to that of a so-called hemoconium glanules. Shaken up with twice its volume of ether it lost its milky color, the resultant fluid being of a turbid grayish appearance. The middle layer consisted of fluid that was turbid like pale turbid urine and was about seven-tenths by volume of the whole. The fluid contained considerable albumin. The third layer consisted of a curd-like looking deposit, milk white in color, and shaken up with ether it became somewhat grayish while also losing its pure milk color. Microscopically many of the same kind of globules were present, but also granular material, some crystals and some granular cells."

This seems unmistakably a case of chyluria. That no filariæ were found in the blood or urine upon two examinations certainly does not exclude a parasitic origin. Filariasis is not uncommon in Hawaii. The intermissions and the nocturnal occurrence of the chyle are interesting but not unique. In thirty cases collected in literature the intermittent character was present three times. A pelvic or inguinal abscess preceded chyluria twice in this number. The nocturnal filtration corresponds to the case lately reported by Magnus Levy in which chyle appeared at night or only when the patient lay down, issuing in a milky stream from the right ureter. Doubtless both cases permit of a mechanical explanation.

The possibility that an old tuberculous sinus extending from his lumbar vertebræ to the triangle of Scarpa, might in its wanderings have opened some portion of the chyle apparatus, must be considered. The induration posterior to the bladder and the sinus in the trigonum invite a tentative hypothesis that chyle gravitated from a tuberculous erosion of the receptaculum chyli, through the old sinus, strayed down the psoas muscle, followed the ureter to the lowest possible point of retro-peritoneal dissection and inadvertently entered the bladder.

All of which occurred October 5th and 6th in the year of our Lord 1908.

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"THERAPEUTICS."*

By JOHN L. AVEY, M. D., Redlands.

By therapeutics I refer to the therapeutic platform of the regular medical profession, or the use of anything by which we can relieve suffering, or aid any or all of the vital forces of the body to approach nearer the normal; a platform certainly broad enough for any one who has the good of humanity at heart.

The subject of therapeutics therefore is the broadest, the most difficult to master, and the most important of all branches of medical knowledge; for it is the ultimate aim toward which all other lines of medical knowledge converge.

It has been stated, "that in practical therapeutics, whether justly or unjustly, we as a profession stand condemned before the great bar of public opinion."

While I am not willing to fully endorse this statement, yet every physician knows, that with a very large part of the public there is much lack of confidence in much of the applied theapeutics of the regular profession.

This fact is apparent from the flourishing condition of the various ics, ites, isms and pathies, which succeed in evading or gaining the sanction of the law.

Now it is some of the causes which have been instrumental in bringing about this state of affairs that I wish you to consider for a few minutes.

For a number of years it has been common for a considerable number of men in our profession, after years of administering medicine, to publicly express themselves as lacking confidence in the potency of drugs in general, and at the same time to continue administering drugs for the very purposes for which they expressed themselves as believing they were practically useless.

We all know that there has been a growing tendency among men high in the profession along this line and statements of this character appearing in our journals have been copied by the public press.

The result of these expressions, especially those coming from men of known ability, and national reputation, have had much to do with the attitude of the public in this matter.

Most of the results of these nihilistic expressions, so far as my observation goes, we can see along two lines.

First:—They form one more basis for the play of the morbid imagination of the anti-vivisectionists, who say why all this sufiering and destruction of life among the lower animals for determining the effects of and the standardiging of medicines when they are of so little value.

Second:—These nihilistic expressions lead the public away from the regular profession into the hands of any ic, ite, ism or pathy, that will promise them relief without the administration of *"strong medicine."* This is an age of marvelous advancement in many lines especially so in the field of medicine, and probably we are on the eve of much greater and more wonderful therapeutic achievements, not however along the lines of the faddists of to-day who take some one truth brought to light as the result of ages of work and thought by the medical profession, or one which in the past has not received as prominent a place in our therapeutics as its power for good would warrant. Not by forcing one such truth or method to cover the greater part of the realm of healing but by recognizing their limitations as well as their possibilities and by giving to each of them its rational place in our therapeutics.

Would Eddyism, Dowieism, or any of the various other faith cure and mind cure fads of to-day be so much in evidence had the medical profession in the past given to suggestion the consideration to which it is entitled?

The Royal Society of Medicine condemned the work of Mesmer in the following language: "Animal magnetism is nothing but the art of making sensitive people fall into convulsions and from a curative point of view is useless and dangerous."

This fiat of the powers has largely dominated the profession for more than two hundred years and few were so bold as to openly make use of suggestion to any great extent after it was officially termed charlatanism.

Again four or five hundred years before Christ, Herodicus reduced bodily exercises and manipulation to a system and made it a branch of medical

* Read before the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

science; later we find Diocles, Herophilus, Galen and others giving rules for their use. We can follow them down through medical literature, and in 1813 we find them given fresh impetus and put on a firmer foundation by Ling under whose directions was organized the Royal Gymnastic Institute in Stockholm, Sweden, under the supervision and at the expense of the Swedish government. In this institution was taught along with anatomy, physiology, hygiene and so forth, the principles and practice of movement treatment, including active and passive movements, resistive and duplex movements, striking, kneading,, percussion, vibration, slapping and so forth and so forth.

Had this line of therapeutics been given by the rank and file of the profession, the place to which its therapeutic possibilities entitled it, would a special school have been organized for the purpose of supplying it to the public?

Many fads have come and gone, many are still flourishing, and all have wrought cures which should have been brought about by the regular profession, also each one of them, because of its limitations, has left in its wake a story of useless suffering and untimely death that might have been prevented by the rational use of well known therapeutic measures.

Now I would not have us believe, with Mrs. Eddy, that San Francisco in her great calamity simply suffered from the vapid fury of mortal mind, nor with other healers that the various manipulations of the human body cover the sum total of therapeutic measures, but is there not in every therapeutic fad before the public to-day some element of truth, probably given to the world by the regular profession, in whose hands it should have been a blessing to mankind, but which has been denied its legitimate place in our therapeutics, been turned over into the hands of charlatans, been forced in the hotbed of ignorance and superstition, being loaded with a mass of error, and become more of a curse than a blessing?

The variations of the human body from the normal are as varied as the imagination of man and require a system of therapeutics as broad as the platform with which we started.

Now the use of drugs is only one of the many means essential to the proper management of a diseased organism, and in many instances has no doubt been used to the exclusion of better methods of accomplishing the desired result, but this is no excuse for the sweeping declaration of lack of confidence in drug therapy in general.

Destructive criticism may be essential to advancement and the careful, thoughtful and painstaking investigation essential to placing and holding each therapeutic measure in its proper place will probably never be completed.

But should not the public know that an adequate dose of apomorphin will still produce emesis just as it has in the past? That it will produce emesis in spite of the manipulations of the osteopath, in spite of the prayers of the faith healer, in spite of the suggestion of the psycho-therapist, even the laying on of hands will not keep it down. That in the administration of drugs there is a dynamic force, a power capable of producing well known and specific effects upon the human body, and in a large number of conditions is still our most potent means of modifying vital processes, relieving suffering and aiding the restoration of normal conditions.

SANITARY SUPERVISION OF COMMUNICABLE DISEASES BY THE DEPARTMENT OF PUBLIC HEALTH.

By R. G. BRODRICK, M. D., San Francisco.

The control of infectious diseases by sanitary regulations is one of the notable achievements of modern times. It is stated that the death rate during the seventeenth and eighteenth centuries ranged between 50 and 80 per 1000. To-day in such cities as New York, London and Berlin the average is 17 to 19 per 1000; in San Francisco it has been reduced to 13 per 1000. This decrease in mortality is due to the protection from infectious diseases now given to children in the first five years of their lives.

The average duration of life has coincidentally increased. According to Dr. M. Biggs, of the New York City Health Department, the expectation of life in that city in 1806 was a little more than 25 years, while in 1903 it had almost doubled, being about 42 years.

The Department of Public Health exercises sanitary supervision over cholera, yellow fever, smallpox, varicella, pulmonary tuberculosis, diphtheria, membranous croup, scarlet fever, typhus fever, measles, pneumonia, and every other disease publicly declared to be dangerous to health, by virtue of Ordinance 1034. Typhoid fever, bubonic plague, cerebro-spinal meningitis, glanders, anthrax, leprosy, beri beri, erysipelas, trachoma, pertussis and mumps have been publicly declared to be reportable diseases. Communicable diseases are reportd by physicians to the Health Office through one of the following channels:

1. By mail—printed postal cards giving lists of reportable diseases are furnished upon application.
2. By telephone—an operator is maintained day and night at the Health Office.
3. By certificate of death—this is not accepted as complying with the law regulating the reporting of communicable diseases unless death ensued within 24 hours after the physician first saw the case.

Other sources of information are:

1. Hospitals.
2. Institutions having charge of children, such as schools and orphan asylums.
3. Charitable organizations, for example, the Associated Charities and more especially the Association for the Study and Prevention of Tuberculosis.
4. By notification from the medical school inspectors. Cases occasionally first come to our attention when application is made to the Health Office that permission be granted a child to return to school, as is required by Section 17, of Ordinance 1034.

An alphabetical "name" index is kept of all physicians who fail to report their contagious diseases. Upon the first offense a letter is sent to the physician giving the patient's name and address and the nature of the disease informing him that it is a reportable disease and requesting his co-operation in the future. A second offense calls forth a letter citing the physician to appear at the Health Office and show cause why action should not be taken against him. This is usually sufficient. The department has been loath to prosecute physicians who fail to report contagious diseases believing that such failure is due to thoughtlessness; but that more good may be accomplished by first impressing upon them the importance of strictly observing the law. In a few instances where neglect to report contagious diseases has led to serious consequences, the offending physicians have been arrested.

Upon receiving information of the existence of a contagious disease from whatever source, search is first made in the Index and if it has not been previously reported a "record" card is made on which all essential facts, name, age, address, date and source of report are entered and to which are later added every recommendation and official action of the department, such as reports of sanitary inspectors, names of contacts, findings of bacteriologist, report of fumigator, etc.

The "record" cards are differently colored in each disease, e. g., yellow for variola; red for scarlet fever; blue for diphtheria, and are filed for four years, when they are destroyed.

A duplicate of the "record" card is furnished the Sanitary Inspector, who is a physician, and he thereupon visits the premises where he verifies the information furnished him, obtains list of contacts, location of school attended by children in family, address of depot supplying milk. Information is given regarding the nature of the disease and precautions to be taken to prevent its spread, a printed form covering these points being left on the premises if considered necessary. The Sanitary Inspector does not see the patient unless specially requested to do so. In case of scarlet fever, diphtheria and smallpox, a placard with the name of the disease is placed on the premises which notifies the public to keep out. The principal is furnished with the names of contacts by the Sanitary Inspector and notified to exclude them from attendance in public, private or parochial schools until a permit to return is obtained from the Health Office. Notice is further sent to the milk dealer informing him of the existence of a contagious disease and ordering him to pour milk into a container furnished by the family, or should bottles be left, not to remove same until after fumigation.

The Sanitary Inspector later calls to ascertain if any contacts have sickened, and unless previously notified, the Sanitary Clerk telephones to the attending physician one or two days before fumigation, to be sure that the patient has recovered. If so, the Sanitary Inspector visits the premises, determines the number of infected rooms with cubic air space. This information is sent to the disinfector, who on the morning following proceeds with gummed strips, formalin lamps or sulphur pots to fumigate the rooms, the amount of material used being included in his report. To test the efficacy of the work a Petri dish containing a non-pathogenic organism is uncovered in the infected space and the doors are sealed on the outside. In six or eight hours a Sanitary Inspector calls, breaks the door-seal, takes charge of the Petri dish, which is sent to the bacteriologist for examination. In case of positive findings fumigation is repeated.

Time will not permit considering more than a few of the important communicable diseases, and I will therefore commence with

Diphtheria.—During the two years following the disaster there were 859 cases reported and 123 deaths, a mortality of 14.32%. For the year ending April 30, 1909, 599 cases were reported, of which 54 died, a mortality of only 9%. This decrease of over 37% in death rate is due in part to the greater number of cases reported, in part to the distribution of free antitoxin. A prompt report of this disease must be made as soon as discovered. This may be done on the printed slip accompanying the sterile swabs to be obtained at various drug stores throughout the city, and after inoculation sent to the Health Office at any hour. Examinations of the cultures are made at 9 a. m. and at 6 p. m., and the results are immediately telephoned to the attending physicians, written reports following.

Free antitoxin is furnished upon certification from the attending physician that the family is unable to pay for it.

When diphtheria bacilli are found in the culture a sanitary inspector visits the premises and sees that the patient is properly isolated. No work of any kind, such as tailoring, laundering, or manufacture of food stuffs is permitted in the rooms occupied by the family, and a case occurring in the rear of a store must be removed to a hospital or the store will be closed and placarded. Isolation is maintained until a culture has shown that the diphtheria bacilli are no longer present, but under no circumstances is isolation discontinued until ten days after the beginning of the illness.

Cultures should be sent to the Health Office at least once each week, even oftener at the later period of the disease, so that the hardship of isolation and of school exclusion might be reduced to the minimum.

Should the diphtheria bacillus persist in a patient's throat for three weeks, the organism is isolated and two guinea-pigs are inoculated with a forty-eight-hour bullion culture. If the pigs live one week, isolation is discontinued. If they die, the test is repeated in two weeks.

Typhoid Fever.—An epidemic of typhoid fever at the present time is inexcusable and is the nemesis visited upon a community because of carelessness in the conservation of the purity of its water, milk or food supply. Flies are probably the carriers of the disease in isolated cases, whereas water or milk are the more probable vehicles in epidemics.

During the eight months following the disaster

of April, 1906, there occurred, chiefly among the refugees living in camps, 1215 cases of typhoid fever with 184 deaths. During 1907 there were 429 cases reported and 120 deaths. That the infection was fly-borne in the majority of these cases was verified by a series of experiments made with agar plates exposed on the windward side of infected localities. After allowing several flies to touch the plate, the dish was sealed and returned to the laboratory. After 24 hours of incubation many of the plates showed bacilli resembling coli communis. Further segregation showed the culture to ferment a large amount of gas and to grow on Parietti and Ellsner's media.

The adoption of an ordinance requiring all markets, fruit and vegetable stores, restaurants and bakeries to be screened with fine wire mesh, the passage of the law requiring that manure be kept in metal-lined, covered bins built within the confines of stables, and the enforcement of anti-plague measures have been important factors in producing the comparatively low typhoid rate in this city, but 16 deaths having so far occurred during the present year.

It is earnestly hoped that thickly populated districts, such as Telegraph Hill, Glen Park and Oceanside will be sewered within the near future so that an ordinance prohibiting the insanitary and overflowing vault closet may be enacted.

Samples are collected twice a month from the distributing reservoirs of the Spring Valley Water Company, and have invariably been free from contamination. The spring and well waters of certain dairies on the peninsula have been found to contain the bacillus coli communis; and the owners were notified, under penalty of forfeiture of the permit to sell milk, to discontinue their use. The Chief Dairy Inspector in all cases endeavors to locate the source of contamination and gives the necessary orders to remove it.

Outfits, consisting of one-half dram Shell vial and lancet, are now distributed to various drug stores where they may be obtained by physicians. A 1 to 50 dilution of the serum is used in making the test, and if paralysis and clumping do not occur in one hour, a negative result is reported.

Upon notification of a typhoid case, a sanitary inspector visits the premises, ascertains duration of illness, source of water and of milk supply, if there were a history of infection after eating shell-fish, uncooked vegetables or fresh fruit. He investigates if an open sewer, vault toilet, open manure bin or undrained stable exists in the neighborhood. He inquires from the attending physician if the diagnosis has been verified by a Widal examination and if the urine shows Diazo reaction.

No placard is placed on the premises, but the sanitary inspector sees that the patient is isolated in a room properly screened and that the excreta, bed clothing and other articles coming in contact with the patient are immediately and thoroughly disinfected. The danger of infection from typhoid carriers, especially when engaged in the preparation of food or in dairy work, should be borne in mind. This occurs in about 4% of cases, the bacillus typhosus apparently being harbored in the bile and intermittently excreted with the feces.

Public safety requires that persons recovering from typhoid fever be kept under bacteriologic control until they are no longer a menace to health.

Variola.—During the past year occurred 171 cases of smallpox with one death, whereas the year previous there were 249 cases with four deaths. This decrease, due to the strict enforcement of the compulsory vaccination law among school children, proves the same to be not only justifiable but a beneficent exercise of police power over the public health.

During the month of April, 1908, following an outbreak of smallpox in the Mission, Dr. A. A. O'Neill, Chief Surgeon of the Isolation Hospital, was detailed to examine the children attending schools in that district and found 66% had no vaccination, although every child had presented a vaccination certificate duly signed by a physician.

Last October, Dr. Bricca, Medical Inspector of Schools, found 11 cases of variola in a class-room of the Garfield Primary School, which is situated in the Latin quarter, eight of whom had presented certificates of vaccination. Before we were able to stamp out this endemic, 29 cases had occurred among the school children, although the disease did not attack the Italian parents, all of whom, thanks to the vigilance of the immigration authorities, showed good vaccination scars.

At the request of the Health Department, the Board of Education has adopted a new form of vaccination certificate, which requires the physician to certify that he examined the child 14 days after vaccination and that the same is successful.

When a case of variola or of varicella is reported to the Health Office, its diagnostician, the Chief Surgeon of the Isolation Hospital, is at once notified by telephone, and he investigates the case. Upon establishing the diagnosis as smallpox, the patient is removed to the Smallpox Department, which is now the equal of any place of its kind and where the patient is given the same attendance as might be obtained in any first-class institution. Removal to the Smallpox Hospital is made without regard to the stage of the disease. Every effort is made by the diagnostician to locate the source of infection. He visits each room in the house and obtains the names, places of residence and business addresses of all contacts and forwards the same to the sanitary inspector, who thereupon vaccinates them and subsequently visits them every five days for fifteen days. The householders in the same block are advised of the necessity of vaccination. When cases of doubtful diagnosis occur especially in rooming houses or hotels, large stores or factories, the public interest demands that the "suspect" be removed to the Smallpox Hospital, where under the present arrangement he is completely isolated from those having the disease until such time as a positive diagnosis is made.

It is advised that physicians when in doubt report the case as "suspicious," for among the diseases

which have been reported as smallpox are measles, scarletina, varicella, syphilitic erythema, multiforma-bullosa, drug eruptions, urticaria, and the various forms of acne.

The smallpox dead are buried direct from the morgue in sealed zinc-lined coffins.

Tuberculosis.—So far the fight against tuberculosis has been largely conducted by private charity, the municipality being loath to assume the responsibility. The misery, poverty and crime caused by nearly 2000 deaths from tuberculosis in this city since the fire cannot be over-estimated. Strong efforts are being made in other cities to control this disease; a reduction of 70% in the death rate in the Boroughs of Manhattan and Bronx having been made in 20 years, and it is time that San Francisco, whose annual average death rate from tuberculosis is the greatest of the ten largest American cities, act in defense of the lives of its citizens.

All cases of pulmonary tuberculosis are required to be registered at the Health Office, which may be done by postal card or by forwarding a specimen of sputum for examination when such shows tubercle bacilli.

Wooden asphalt-lined boxes with blank forms pasted on covers may be obtained without charge at any of the drug stores now used as stations. A report of the examination is telephoned to the attending physician.

The information obtained is for record only, and in no instance are visits made by sanitary inspectors unless requested by the visiting physician. Hospitals, sanatoria and other institutions are required, when reporting, to give the previous address of the patient.

A certain number of deaths are reported to the Mortuary Bureau which were not registered during life, but on the whole the results have been satisfactory, 1299 cases having been reported for the year ending April 30th, 1909, as compared with 739 during the previous year.

After removal or death the rooms are fumigated. If renovation is necessary, the owner is notified, and in case of non-compliance, the premises are declared a nuisance by the Board of Health and vacated until placed in sanitary condition.

An ordinance following the lines of the proposed statute recently vetoed by the Governor clearly defining the powers of the Board of Health is now being framed. Indigents requiring hospital care are sent to the Tubercular Wards of the City and County Hospital, there being accommodations for 118 males and for 13 females. Every effort is made as far as possible to give these patients the benefits of fresh air and abundance of food, and a special interne is to be assigned as soon as one can be obtained who will supervise the handling of tubercular cases. While most of the cases are incurable, many have been benefited and upon leaving the hospital are referred to the Anti-Tuberculosis Society.

To perform the work properly a staff of medical inspectors and visiting nurses is essential. During the past few months the Society for the Study and Prevention of Tuberculosis appointed three nurses, whose efforts have been of the greatest value in relieving the sick poor as well as preventing spread of the disease. This work should properly be done by the Health Department, whose nurses should visit all indigent cases, report those having no physician to a medical inspector, who should follow up these cases as well as those discharged from public institutions. A law should be enacted permitting forcible removal of a tubercular person, when necessary, such as exists in New York and Massachusetts.

Before closing I must briefly allude to the results obtained through the medical inspection of 19 schools.

During the past eight months 805 cases of infectious diseases have been found in the class-rooms or at home. These included 398 cases of measles, 130 cases of mumps, 56 cases of chicken-pox, 46 cases of whooping-cough, 32 cases of scarlet-fever, 24 cases of diphtheria, 31 cases of smallpox, and 20 cases of trachoma. The parents were required to have these children treated by the family physician or charitable organizations. Medical inspection has prevented epidemics occurring among school children.

Discussion:

Doctor Wm. Ophuls: There is really very little to add to Doctor Broderick's paper. The object of the paper of course on the face of it is to obtain the co-operation of the medical fraternity in the efforts of the Board of Health in stamping out infectious diseases in this city. It is known to all of you that the best laws in this regard can avail for nothing if they do not receive hearty and constant support from the medical profession. I have not myself been connected with the efforts in relation to public health long enough to have forgotten why it is that the average practitioner does not take quite the interest he might in questions of public health. It is only natural that in the press of other business and in the necessity of attending the sick immediately and promptly official communications are forgotten and it is only when one becomes interested in work of this kind that one realizes the enormous importance of such notifications. This is what I wish to bring to your attention. It is possible to achieve what is best in this way only with the co-operation of the profession, and this co-operation must be friendly and it must be given with the realization of the importance of the object aimed at. So far as other matters are concerned I wish to call attention to the fact that through the interest taken by the Board of Supervisors we have now a smallpox hospital, of which this city may be proud. If any of you have ever visited the shacks and hovels which were on the so-called pest-house ground before, you will notice an agreeable improvement when you visit the new institution. It is not palatial or beautiful, but it is well adapted to its purpose. I may say again that it is due to the interest of some of the lay members of the Board of Supervisors that this improvement, which was so sadly needed and has been so long desired by successive Boards of Health, could be obtained.

Doctor R. L. Porter: I want to say that I feel personally, and I think that every man in this room ought to feel proud to belong to a profession that can produce a Board of Health which can bring about such excellent results. It is no exaggeration to say that we have as efficient a Board of Health as any city in the world. It is no under-statement to say that the Board of Health does not get all the support from all of the members of the pro-

fession that it should. I believe that the time has come when the physician should look upon his position in relation to the Board of Health as does an attorney to the court. Every physician should be an aid to the Board of Health and help to uphold the sanitary law, and further, we should recognize the enormous power which the physician has as an educator, and we should make it a part of our duties to see that patients with whom we have personal influence should come to recognize and respect the inevitable demands the Board of Health must make upon individuals and upon the community.

Doctor A. J. Lartigau: Without, wishing to enter into any formal discussion of Doctor Brodrick's paper I would like to ask in which drug stores are the swabs to be found. It has never been my fortune to find one which had them. For the convenience of practitioners I would, therefore, suggest that a list of the various drug stores having the swabs be sent to each physician and also that the office of the Board of Health be kept open after 5 p. m. for receiving the swabs from suspected cases. When speaking of typhoid fever did I understand the reader to say that physicians were expected to submit specimens of feces in all cases of enteric fever and that the findings would be used for quarantine purposes in this class of cases? If so, will Doctor Brodrick please outline his scheme of practical application. In speaking of vaccination in relation to smallpox the statement was made that a certificate was not to be issued until after the subject of vaccination had been under observation for 14 days. In instances, however, where repeated vaccinations have been negative what attitude should the physician take?

OBSTRUCTION OF THE COMMON DUCT IN CHRONIC CHOLECYSTITIS WITHOUT STONE. *

By ANDREW STEWART LOBINGIER, A. B., M. D., Los Angeles.

Attention is called briefly to a pathologic condition on which, as yet, no extended reports have been made, wherein the outflow of bile from the liver is materially retarded in its course through the common duct, and without the presence of stone, the constrictions of adhesions or inflammatory deposits, or of malignant change within or about the choledochus.

The etiology of this type of obstruction is not yet fully worked out, but it is probably infective at the start and later becomes complicated with morbid anatomic changes at the junction of the cystic and common duct, (*vide* Keith, Enteroptosis, *London Clinical Journal*), and possibly at the Vaterian ampulla. The liver is always turgid and somewhat enlarged, frequently extending for more than an inch below the costal border.

The anamnesis in this class of cases will at times show the infection to have been as remote as a decade previous to the symptomatic expression of its sequels and is as likely to have been a general cholangitis as a cholecystitis. After the subsidence of these inflammations, an interval of several years may pass before the least evidence of biliary stasis becomes manifest. There may have been an initial crisis of acute gallstone colic, associated with jaundice, to usher in the train of clinical symptoms which follow somewhat tardily and interruptedly later. But more commonly no record of colic or jaundice is adduced. A typical symptomatology when the patient presents himself is as follows: He complains of fullness after eating, however light and digestible the meal. With these "dyspepsia cholica" signs there is more or less constant nausea. "Creeps" and chilliness may come over him, even while sitting in a warm room. A dull ache is constant in the gallbladder region. He is tender on pressure over Robson's point, and the Murphy test will cause him to flinch and cry out with pain. There is a distinctive cachexia, but no cholemic injection of either the conjunctiva, buccal mucosa or skin. Bile is rarely found in the urine, but bile pigments are greatly diminished in the stools.

A critical examination of the stomach and colon will reveal the fact that the condition is extragastric and extra-colic. In several cases I have had, chronic colitis was present, in two of them it was a prominent feature. In two cases there was an adherent appendix, in one the mesenteric and retroperitoneal glands had undergone caseous and calcareous change, probably in childhood. In no case was gastric or duodenal ulcer present nor were there scars of old ulcers. The greatest care was taken in the examination of the stomach in every case. So marked are the "dyspepsia" symptoms in these patients that treatment has hitherto been directed to the stomach. The disappointments which invariably followed this somewhat empiric practice have been the prime factor in inducing us to look farther for the trouble.

When the abdomen is opened the gall bladder is seen to project sometimes two centimeters below the liver. The gallbladder is distended, dark and shining and highly veined. The pylorus and gastrohepatic omentum also may have high veining and even varicosities, with velamentous adhesions to the base of the gallbladder. On pressure the bladder will not empty until the liver with attached gallbladder is lifted high and rotated outward. Even this procedure will fail in certain cases to facilitate the discharge of the contained bile, pointing to a constriction in the common duct as it passes through the pancreas or at the ampulla of Vater.

When the bile is withdrawn from the gall bladder it will be found to be very dark, thick and ropy with mucus, and will vary in quantity from 25 cc to 35 cc.

Cultures have usually shown coli present. The cystic mucosa is injected and swollen and in the follicles may be found a fine cholesterin sand of golden yellow color. This I have observed in three cases. In two of these there was a previous history of gallstone colic with associated jaundice. In no case of all those observed has there been a single gallstone found at the time of operation. And in not any of them have I met with appreciable resistance in passing the Moynihan probe through the common duct and ampulla. A distinguishing feature of the bile which drains away is that the flow is usually abundant from the start and continues dark for several days. This would point to a

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

free course through the cysticus and a definite engorgement of the hepatic ducts, due no doubt to mechanical backward pressure. After forty-eight hours the bile becomes steadily clearer until by the tenth day it has become of normal color. The specimens herewith exhibited are typical, and graphically point to indication for drainage.

Private communications from surgeons of large experience in gallbladder surgery, here and abroad, would indicate a singularly varied experience with drainage. A few have removed the gallbladder in the belief that the cystic duct was chiefly at fault, but the majority have established drainage. Some relapses are noted after six or eight months following drainage, but drainage has offered the results most hoped for and has seemed logical.

When we know certainly whether the obstruction is in the cystic duct just before its emergence, or whether, as seems more probable, it is due to a kinking of the choledochus at the emergence of the cystic duct, or to an obstruction near or at the ampulla of Vater, we shall be better able to judge between draining the gall bladder and removing it. Apart from a well founded diffidence toward cholecystectomy, except where the gallbladder is hopelessly destroyed, it has seemed to me especially contraindicated where, for apparent reasons, we may eventually find it necessary to establish permanent drainage into the duodenum. I have found some cases where a cholecystenterostomy was the only measure which offered permanent relief. And I have no hesitancy in suggesting it as being quite as justifiable in these unhappy cases of partially arrested bile excretion, with their melancholy train of symptoms, as in true organic obstruction with a well defined cholemia.

In the larger number of these cases, however, a cholecystosomy with high anchorage of the gallbladder, and carefully managed drainage for two and a half to three weeks, will be followed by a relief of the morbid symptoms so definite and marked as to amply justify the undertaking.

Discussion.

Doctor W. I. Terry: I have had two cases similar to those which Dr. Lobingier reported in which dark bile was found and which cleared up entirely after drainage of the gallbladder. The diagnosis made was that stone was present but I could find no stone nor obstruction of the ducts. I think that Dr. Lobingier's surmise that these cases are due to infection, seems most probable. Another class of obstruction with which I have met accompanied by this dark bile was due to a pseudo-membrane forming apparently in the gallbladder and becoming detached, slipping down into the common duct and producing a complete obstruction. In that case the diagnosis was made of obstruction by stone but the pseudo-membrane was found and removed by twisting and came out in its entirety preceded by the dark bile.

Dr. C. M. Cooper, San Francisco: Dr. Lobingier has drawn attention to a condition of things which I believe is not at all rare. I believe that this condition depends upon displacement of the liver which may or may not be associated with general visceroptosis. When this occurs the gall bladder prolapses with the liver, the common bile duct remains more or less in position. As a result instead of the gallbladder forming an angle of 45° with a vertical as it normally should it becomes vertical in position with the fundus downwards. Dutton Steele has shown that when this occurs the resistance to fluid passing from the gallbladder to the duodenum is equal to 40 cc. of water instead of the normal 15. There is produced, in fact, a kinking where the cystic duct joins the common bile duct and sometimes a hindrance to the passage of bile through the common duct into the duodenum owing to the prolapse of this latter structure which sometimes occurs. The cause of this partial obstruction is not recognized at operation since the patient is operated on in the supine position and the surgeon in examining the gallbladder undoes the displacement of the liver which has caused the trouble. Why do some of these cases relapse after treatment? In some, adhesions which are formed around the gallbladder are sufficient to keep it in position. In other cases these adhesions give and the kinking recurs causing a redevelopment of the symptoms. One question I would like to ask Dr. Lobingier; to what extent can the normal gallbladder be emptied and be kept empty in a normal individual?

Doctor C. G. Levison, San Francisco: There is one point in reference to the diagnosis of gallstone disease in its bearing upon obstruction of the gall ducts that I desire to emphasize. Murphy has laid down a law in which he claims that persistent jaundice unassociated with pain is always due to malignant disease, and he tells me that he has yet to see a case which is a refutation of his law. The following case, it seems to me, is in direct opposition to this statement. A woman aged seventy entered the hospital with persistent jaundice that had existed for a month and that had been unassociated with pain. An operation was performed and the gallbladder was found dilated. There were no signs of stone or chronic pancreatitis and nothing could be diagnosed excepting a dilated gallbladder which was drained. The icterus, however, did not clear up despite the profuse drainage of bile. Doctor Philip King Brown who saw the patient with me in consultation advised further exploration of the abdomen but I was opposed to operation because of the patient's condition, and also for the reason that I believed a malignant growth to be present. A second operation was performed and nothing further could be discovered. The attempt to probe the common duct was unsatisfactory and as the patient's condition precluded an extensive exploration nothing was revealed by the operation. She died in consequence of her condition and at the autopsy an obliteration caused by a small cicatrix at the point of union of the hepatic and cystic ducts was discovered. As the amount of bile had rapidly diminished during the last few days of life, the woman was markedly cholemic at the time of operation. There was no sign of malignancy; had I been able to discover the condition at the time of the operation, an anastomosis of the hepatic duct with the duodenum as has been performed by William J. Mayo and Terrier might have been done with benefit.

Doctor Lobingier: I have very little to add except to thank the gentlemen for their kind interest in my paper. There is a great deal of work going on in this subject among surgeons both here and abroad, but many men have not had their attention called to it as practically nothing has been written about it. I have found these patients constitute, in my practice, the most puzzling class of gallbladder cases. They call for critical analysis and judgment because of an uncertain pathology which keeps one in doubt. We have hesitated here because we have felt that the dictum of drainage or cholecystenterostomy which has always guided us when the condition was one of stone or inflammatory or non-inflammatory organic obstruction, in these cases

could not apply, and we were not justified in doing a cholecystenterostomy or could we consider that the condition justified drainage unless we found stones or chronic pancreatitis. I am sorry that I had not read the studies of Keith on enteroptosis because what he has written would have aided me in this paper. What I have presented was entirely my own view and I can justly claim some originality I think as to the possible kinking of the choledochus. I do not believe that the cystic or hepatic ducts in these cases are obstructed. I think you will be able to probe them easily as I have been able to do in every instance and for that reason I must come to the conclusion that there is some obstruction due to the position. Doctor Cooper's views are most interesting and valuable. I will not hedge on the question he has asked but answer frankly that unless the common or cystic ducts are obstructed the gallbladder can be emptied by pressure on it and by lifting the liver to straighten the choledochus. I believe that that will be found to be the observation of other men who have done a considerable amount of this work. The point which I wanted to make is that we have a static condition of the bile in the hepatic ducts and in the gallbladder which nothing but drainage and a change in the course of the choledochus will relieve. In this class of cases we are justified in doing a cholecystostomy and if that does not relieve then I believe we are justified in doing a cholecystenterostomy. Greatest care should be taken never to bring tension between the gallbladder and the intestine. The point in this technic of cholecystostomy is to leave the liver in such condition and raise its attachment so that you get a direct course through the choledochus into the duodenum.

GALACTOXISMUS.*

By W. W. ROBLEE, M. D., Riverside.

During the year just passed, more consideration has been given to the subject of pure milk supply than ever before. Practically all the studies, however, have been made with reference to sanitary methods of handling and the various forms of adulteration practised by the dealers. It seemed to me that we might, with benefit, consider one or two phases of the subject which have not been given so much study.

By galactoxismus, or milk poisoning, we refer to poisons which are excreted in the milk or are developed therein and which, when this milk is used as a food, may cause more or less serious symptoms to develop in the animal that uses it. I will not in this paper refer to chemicals used to preserve or adulterate milk.

The milk poisons may be divided into the following classes:

1st. Toxins resulting from bacterial growth.
2nd. Mineral poisons which may occur in the milk from the use of certain utensils as milk containers.
3rd. The poisons developing in the milk of diseased animals.
4th. Vegetable or mineral poisons which may be taken into the stomach of an animal producing milk, by way of the food or drink, which poisons may then be excreted in the milk and poison the individual using it.

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

In order that I may bring this paper within the time limit set, it will be necessary for me to pass over hurriedly all except the first and last subdivisions, which are the ones I want to call special attention to:

1st—Toxins resulting from bacterial growth. Vaughan called attention to this phase of the subject in 1884, when he and his students investigated an epidemic of cheese poisoning occurring in Michigan. They succeeded in isolating a crystalline substance of toxic character, which they named "tyrotoxicon." This same substance has been found in milk, ice cream, frozen custard, cream puffs and other articles of food consisting largely of milk. Since Vaughan's original investigation, many instances of epidemic milk poisoning have been reported which have proven to be due to this substance. The germ which produces this toxin bears a close resemblance to the colon bacillus, differing from it, however, in several important particulars. The symptoms are not unlike those from belladonna poisoning and a number of deaths have been reported from this cause. It can readily be seen that milk that has not been carefully handled can become contaminated with the various forms of the colon bacillus and on account of the toxin contained within the cells, render this and the food productions, of which milk is a constituent, more or less poisonous.

Tyro-toxicon should be borne in mind when we are called upon to treat cases of epidemic poisoning, and the ready general diagnosis of "ptomaine poisoning" should not be made until the milk supply has been investigated. Vaughan, Novy and Fluegge have each made numerous investigations proving that large numbers of bacteria, which produce their peculiar toxins, are found in milk. This is especially the case with the enteriditis group. According to Vaughan, Sonnenberger and others, the summer diarrheas of children are very frequently not due to a specific micro organism but to the poisons elaborated in milk by many different bacteria. Fluegge found and investigated twelve species of toxicogenic bacteria and found them to be toxic to mice, dogs, guinea pigs, etc., producing diarrhea, exhaustion and death. Leubbert found, in addition to the toxins, that these organisms act upon the proteids of the milk, the fat and milk sugar remaining unaffected. These results were confirmed by Vaughan. According to this author, the organisms responsible for cholera infantum are truly pathogenic in that they produce a definite chemical poison, the absorption of which is followed by the symptoms of the disease, and in order to explain the great susceptibility of infants to milk poisoning and the comparative immunity of the adult, he has advanced the view that the great susceptibility of children to such intoxications is due to the ease and readiness with which casein is absorbed by the mucous membrane of the intestine of children, and the casein carries along with it the bacterial cells containing this poison. In the adult, on the other hand, the digestive powers of the stomach are increased and intestinal absorption modified to a corresponding degree. At present practically nothing is known re-

garding the precise chemical nature of these bacterial poisons and, as already pointed out by Novy, investigations pertaining to a more exact study of the toxicogenic micro-organisms of milk and their poisonous products belong to the future of medical and chemical research.

The practical points to be gained from these observations are (a) that every effort should be directed toward the securing of a clean and wholesome milk supply. The certified milk plan should be encouraged and if possible adopted in each community under the direction and oversight of the County Medical Society and public health officials. In San Francisco, milk bought in open market was found to contain more bacteria per cc than were to be found in a like quantity of the city sewage. Such a condition of affairs can be duplicated in every community. Very often the dairies are less at fault than are the owners of private cows who supply one or two neighbors. The dairymen are fast becoming educated to produce wholesome milk whereas the private cow owners go on in the old filthy manner. (b) When an infant is taken ill with a summer diarrhea, the very first and most important treatment is thorough elimination of the contents of the stomach and bowels. Gastric and intestinal lavage and the free administration of castor oil should always be the first measures used in the treatment of these cases. They should be treated as cases of poisoning—1st, by the elimination of the unabsorbed poisons—2nd, by neutralizing the toxic effects of the poisons already absorbed through the use of stimulants and chemical antidotes. This is doubtless the manner in which some of our so-called intestinal antiseptics act.

2nd. Poisoning from milk by contamination from metal containers. Copper, zinc and lead have been noted in this connection and should be borne in mind. Sonnenberger has called special attention to this subject.

3rd. Poisons developing in the milk of diseased mothers. Michilozzi found a tuberculous poison which resists heating to 100° c, in milk from a tubercular mother, which caused a slow poisoning of the child. Le Blanc found that cows in heat gave milk which alters rapidly and causes gastro intestinal disturbances in young animals. This is true in febrile conditions of all varieties nearly and the milk is very prone to cause trouble in infants using the same.

4th. Vegetable or mineral poisons eaten by the mother and excreted in the milk. These may be from (a) medicines administered for therapeutic purposes, or (b) vegetable substances eaten by cattle, especially certain weeds which may form a portion of the diet of milk cows in some localities.

I have made a careful study of the literature bearing upon the elimination of drugs by way of the mother's milk. The American authors consulted were "The U. S. Dispensatory," Butler, Potter, Stevens, Bartholow, Wood and Cushney. The German authors were Sonnenberger and Constantine J. Bucura; the latter author has made a very exhaustive study of this subject and summarizes the findings of a large number of European investigators. The drugs I have investigated are as follows: the vegetable acids, iron, quinin, mercury, arsenic, iodin, carbolic acid, salicylic acid, salol, iodoform, opium and its alkaloids, cannabis, indica, the bromides, pilocarpin, tartar emetic, ipecac, alum, castor oil, cascara segrada, senna, bromin, lead, potassium, chloral, antipyrin, zinc, the salines, urotropin, aspirin, ether, asafoedita, colchicum, euphorbia, veratria and hemlock. This list comprises the principal drugs that might be used in prescribing for an illness of the mother. I investigated the fruit acids, alcohol and the laxatives especially for the reason that there has been a common impression that the eating of acid fruits by the mother would cause colic in the baby using her milk; our good but sometimes over-zealous temperance workers often speak of a baby acquiring a taste for alcohol through its mother's milk, and about the only medicines given a woman, convalescing from a confinement, are the various cathartics. I find a variety of opinions in regard to the various drugs mentioned, which, when closely investigated, very often do not rest upon reliable foundations. Of the American authors, Cushney has apparently done very careful work and is most guarded in his final conclusions. Sonnenberger and Bucura's articles are painstaking and I believe that the data upon which their conclusions are based are abundant enough to be most valuable. Taking the totals of all these authors, we find that the following drugs are spoken of as being excreted in the milk in greater or less quantities, usually the latter:—acetic acid, iron, salol, quinin, mercury, arsenic, iodin, carbolic acid, salicylic acid, iodoform, opium and its alkaloids, the bromides, pilocarpin, tartar emetic, ipecac, alum, castor oil, senna, lead, potassium, iodin, chloroform, ether, urotropin, aspirin, asafoedita, colchicum, euphorbia, veratria and hemlock. After careful study of these reports, I find that those drugs which are excreted by way of the milk in quantities that might affect the infant, appear to be very few in number. Most drugs excreted by the milk escape in such small quantities that they could not possibly affect the infant. Bucura reports aspirin, iodin, calomel, arsenic from the use of arsenous acid; bromin from potassium bromid and urotropin. All American authors lay stress upon senna as a milk laxative and probably calomel. One author only, Stevens, credits such an effect to castor oil. The salicylates probably are excreted in such amounts as to affect the infant when the mother has taken large doses.

Relative to acid fruits, I quote from Dr. Joseph H. Kastle, U. S. P. H. & M. H. S., in a personal letter to me, as follows: "So far as the excretion of fruit acids in the milk and their effect on the milk-secretion are concerned, but little is known. Bechamp claims to have found small amounts of acetic acid in freshly drawn cow's milk; this is now believed to be a decomposition product of citric acid, which has been found in human milk and in the milk of a number of animals. Bucura failed to find tartaric acid in milk following the administra-

tion of cream of tartar. The prevailing view in physiology is that the greater number of organic acids of the fatty series, which would include the acids ordinarily found in fruit, are completely oxidized in the animal body to carbon dioxid and water. Hence the only effect resulting from the administration of moderate amounts of such substances would possibly be to increase somewhat the alkalinity of the urine. My own opinion is that unless they tend to stop the flow of milk (and upon this point I am not informed) the eating of a reasonable amount of fruit by nursing women would be rather more beneficial than otherwise, for the reason that fruit juices tend to supply the organism with the alkali required for the neutralization of the acids resulting from proteid metabolism." This rather effectually disposes of the fruit acid idea. As to the excretion of alcohol, Cushney says, "There is no foundation for the legends that children may be intoxicated or acquire the taste for strong drink from the alcohol absorbed in the milk of a drunken mother or wet nurse. The amount and quality of the milk are unaffected by the administration of alcohol."

(b) Milk poisoning from plants and foods eaten by cattle. This is a subject about which there has been considerable uncertainty. Moore makes the following statement: "The flavor of milk is very readily affected by the character of the feed, as, for instance, by turnips, garlic, wild onions, moldy hay and grain, damaged ensilage and distillery grain. The latter is said to cause hyperacidity of the urine and consequent eczema. With proper precautions, however, these substances can be fed to dairy cattle without producing ill effects in the milk. The deleterious substances excreted with the milk are usually volatile oils contained in the food. They are found in the milk as well as in the body, generally in the largest quantity during the digestion of the food containing them, being eliminated rapidly through the various excretory channels. Thus, if these substances are fed eight or ten hours before milking, or if the cattle in the spring are moved from the pastures containing the garlic, this length of time before milking, there will be little or no danger of contaminating the milk. Over-kept, fermented and sour foods tend to produce acidity and other change in the milk. Swill, spoiled gluten meal and ensilage put up too green are all more or less injurious to milk. Distillery swill, in addition to the bad flavor it gives the milk, may cause the secretion of small quantities of alcohol in the fluid. That such alcoholic milk is deleterious to children as well as to the calves and lambs fed on it, is a well known and accepted fact."

Sonnenberger states that in Hesse, from thirty to forty varieties of weeds, poisonous to milk, may be found. He mentions especially: lolium, temulentum, colchicum autumnale, digitalis purpurea, hyscamus niger, papaver somniferum, euphorbia, conium, maculatum, helleborus, sinapis, etc. He found in harmony with this idea that the season for infantile diarrheas around Worms corresponds, not with the hot season, but with the season most favorable to the growth of weeds, viz: a cold, wet summer. Walsh makes the same statement from observations he has made in Michigan. He is convinced that nine-tenths of the diarrheas of the cow's milk fed babies are due to a laxative property contained in the grasses, grains and weeds on which the cows feed in the pasture during the summer season and which is excreted in their milk. He calls attention to the fact that these diseases are most prevalent from June to September, during the weed season. He has observed that cows turned into a pasture eat greedily of the rich, juicy grasses and clover and that very soon they are scouring, the stools running from them like water. This occurs in animals a few weeks old; they eat no grass and depend entirely on the nurse for their maintenance. Sucking calves and colts are subject to diarrhea while the mothers are on pasture, frequently feces of a grass green color running away from them like water. These facts go to show that there are some cathartic properties in the grasses which are lost when the grass is dried in the form of hay. These apparent properties of the grasses are conveyed through the milk to the infants and are in such quantities that there is either an accumulation or an over-dose for its years, and it is not long in showing the toxin symptoms. In our own country, the disease known as "milk sickness" has generally been considered to be caused by the eating of poisonous plants. It is defined as an acute non-febrile disease, probably of a specific nature, due to the ingestion of milk, milk products, or the flesh of animals suffering from a disease known as "trembles." The disease in man is characterized by great depression, persistent vomiting, obstinate constipation and high mortality. It has been endemic in all states south of New York and as far west as Missouri and Arkansas. Some recent investigations by Jordan and Harris seem to indicate that the disease is probably of parasitic origin and not due to vegetable poisoning.

Of the American plants which might cause poisoning, nicotinum, colchicum, cystisus, loco weed and zygadenus venenosus or death camas are probably the only ones that need to be borne in mind, although turnips, garlic, wild onions, etc., may affect the taste and odor of the milk. A red color may be produced by the effects of bacteria, but is usually the result of a mixture of blood with the milk, it may also be caused by the eating of material containing large amounts of silica, as sedges, rushes, etc., or to plants containing red pigment, as madder root; other colors are produced by the eating of alkaret, field horse tail, meadow saffron and knot grass. In California, certain specimens of nicotiana and cystasus, while not native, have been introduced and flourish to some extent. The loco weed, probably, has given no trouble. The Bureau of Animal Industry in its bulletin, "Barium, a cause of loco weed disease," refers to an animal being locoed from feeding from a locoed mother and refers to the possibility of the disease being so transferred, but I find no case records in this or any other publication. Prof. H. W. Hall, of the Department of Botany, University of California, writes me as follows, in regard to the death camas: "So far as I am aware,

the stock-poisoning plants of California, with one exception, do not poison the milk when eaten by cows. This one exception is the death camas (zygadenus venenosus), and I am not aware that even this has caused human poisoning. Chestnut and Wilcox, after extensive investigations in Montana, report that lambs are frequently killed by sucking milk from their mothers after these have eaten death camas. There is no evidence to show that cow's milk is poisoned in the same way, although this is probable. The death camas (family liliaceas) is plentiful in the low, moist but not marshy meadows of Northern California. It ranges as far southward as Palomar but south of Sacramento it occurs only in narrow belts along a few creeks and is not sufficiently abundant to cause trouble. Farther north, where it is variously known as sego, sego lily, lobelia (erroneously), etc., it is responsible for the death of a great many sheep by direct poisoning." This variety of poisoning certainly should be borne in mind by those physicians practising in the region referred to.

Schneidemuhl calls attention to the fact that all herbivorous animals are less susceptible to plant poison than the carnivorous and they may therefore have large quantities of plant alkaloids in the system which may be excreted by the milk and yet not show any symptoms of toxemia themselves. The ordinary methods of sterilization will destroy the germ life but will not destroy these chemical poisons. In Europe, Sonnenberger, Bediut, Minert, Gartin, Alt, Schneidemuhl, Escherich, Schulrath Dusch, Nessler and many others insist upon the importance of the plant alkaloids in relation to summer diarrhea. Their observations should be given due weight and I personally feel that this subject is one that will be worth very careful study. It is quite possible that close observation may lead us in this country to the same conclusion.

Summary. Probably the most dangerous poisons occurring in milk are those resulting from bacterial growth. This should spur us on to renewed efforts, looking toward an uncontaminated milk supply. The bacterial growth should be reduced to a minimum and especially is that true of the colon group.

Mineral poisons may occur in the milk from the use of metal containers but this is not a common source of poisoning.

Of the medicines excreted by way of the milk, senna and calomel should be especially borne in mind. Probably no other drugs, when given to the mother in ordinary medicinal doses, would appear in the milk in sufficient quantities to poison an infant.

Fruit acids and alcohol are not thus excreted.

In California, aside from the plants which affect the taste, odor and color of the milk but are not otherwise of moment, probably the death camas is the only one that needs to be watched for and this only in the northern valleys. This question, however, should be more carefully studied, and it is quite possible that more plants will be found to poison the milk. The dairy cattle should be fed upon well cured alfalfa or wheat hay and not be allowed to wander at random in a pasture. Even harmless weeds often change the odor and taste of the milk and, doubtless, to some extent, tend to upset an infant's digestion.

Discussion.

Doctor R. Langley Porter, San Francisco: I have two comments to make. The first is that the so-called poisonings by mother's milk are almost always due to overfeeding by the mother. The two hour feeding interval is the common period given for infant feeding and a child fed every two hours will have colic and everything will be called upon to answer for the distress except the fact that the child is overfed. The second point which I wish to make is that certain plants cause diarrhea in cattle, being one of the things that gives rise to contamination of milk. Whenever a cow is attacked with diarrhea, and fecal matter accumulates and dries upon the skin, it very materially enhances the chances of the bacteria from the intestines entering the pail with the milk and that is the reason diarrhea in cattle is almost always followed by diarrhea in children.

PROFESSIONAL WORK AS IT CONNECTS WITH THE MEDICAL SOCIETY AND THE GENERAL PUBLIC.*

By WILLIAM T. BARRY, M. D., Santa Barbara.

I ask you to step aside for a few moments from the purely scientific path and consider with me professional work as it connects with our duties toward the Medical Society and the general public. By the medical society I mean more especially the county association (though in principle I include also the state and national bodies) and by the general public I mean the people locally, amongst whom we may be practicing our profession (though here again we will naturally broaden out into the state and nation).

Formerly the medical society had little place in the physician's field of responsibilities; he was slow in learning that he was failing in the full performance of his duties in not properly bringing before his compeers some of his more important failures, successes and discoveries; and that in a definite collective way before an assemblage of men united for the purpose of medical advancement and improvement. And moreover, that it was his duty in turn to listen to them, be admonished by and learn also from their valuable experiences; and so by mutual edification to advance medically and surgically, and to make both himself and his fellow-physician more useful to the public.

Time was when men neglecting or avoiding the medical society were not noticed much one way or the other, but each year makes such a course more and more conspicuous for the man following it. Too frequently they are the Ishmaelites of our profession with a hand turned continually, each against his fellow. I contend that it is the duty of physicians practicing medicine in the same community to know one another, and the only way possible this can be obtained is through the medical society with its regular meetings; there the common platform is purely scientific,—a man is not even

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

required to be the friend of those he meets,—is not forced to recognize or associate socially or even professionally, if he does not wish to. Friendship is a strange and rare quality we well know, and need not be considered; but though we may disapprove of or dislike a man, is no reason why we should not profit by his experience, and advice in things medical, nor why we should withhold from him precious knowledge whereby he can better save the health and lives of his patients. No, gentlemen, we have no right to be selfish in this important matter, we cannot be faithful to ourselves, to our patients and to the public if we neglect the medical society. Therefore, to sum up briefly, professional work seems to connect practically with the medical society as follows:

First. The medical society very plainly lies in the field of the physician's responsibilities.

Second. He is professionally obligated to report there his more important and instructive cases.

Third. It is his duty to lay aside mere personal likes and dislikes and cultivate at least a professional or scientific acquaintance with his fellow practitioners. In other words, he should be obedient to Chapter II, Article I, Section 3 of the Principles of Medical Ethics.

In the second section of my paper professional work as it connects with the general public, I must deal with a subject which has engendered much warmth, dispute and bitterness. The cool, unvarnished question is, To what extent has a physician the right to advertise his professional acquirements and work? Publicity, Publicity, Publicity is the motto of one of America's most famous journalists. Chapter Second, Article I, Section 7, Principles of Ethics, says: "It is incompatible with honorable standing in the profession to resort to public advertisements or private cards inviting the attention of persons afflicted with particular diseases; to promise radical cures,—to publish cases or operations in the daily prints, or to suffer such publications to be made; to invite laymen (other than relatives who may desire to be at hand) to be present at operations; to boast of cures and remedies; to adduce certificates of skill or success, or to employ any of the methods of charlatans."

Let us not be too much afraid of the word "advertise," for it has various shades of meaning. "Advertise": to give notice—to inform—to make known. "Advertise": to give public notice, or to announce publicity. Synonyms: inform, make known; announce; publish. Therefore, to the gentler and quieter interpretations of the meaning of the term "advertise" there can be no objections. In fact, when a man puts M. D. to his card or signature, he informs the world that he is in the healing art; and when he hangs his diploma or state certificate upon the wall, he announces publicly that he is prepared to do anything that may be rightly required of a physician and surgeon. Now, if all the town visited his office and examined his credentials, further advertising would not be necessitated, but all who have tried it know full well that a very thin stream of the public passes through the reception room of the ordinary physician the first few years of practice. And yet the doctor must become known or he will starve to death! To accomplish this reasonable publicity, while at the same time improving himself, he is permitted to write scientific articles and read them occasionally before his professional brethren; or, he may write a book (sometimes a dangerous experiment) or publish contributions to a good medical magazine. All of which is most commendable and helps to establish his reputation with his fellow physicians. At this point I would emphasize my conviction that of all people in the world the most important to stand well with are the members of a man's own profession. I would rather be thought well of by one doctor than a hundred laymen. And so this work of the doctor as it connects with members of his own calling is most useful, and physicians should meet those sincere workers and show their appreciation by recognizing and encouraging true worth in all practical ways. But there still lies untouched the great outside public, which must always remain the true field of the physician's energy, for from thence come his patients and his support. And here, fortunately, there remains a scientific and still ethical manner of giving notice that he is actively engaged in medical work. The code of ethics states, Chapter 3: "It is the duty of physicians to be vigilant for the welfare of the community—they should be active on all subjects in relation to questions of sanitary policy, public hygiene and legal medicine; they should enlighten the public in regard to quarantine regulations, even at the risk of their own lives. They should enlighten on the great wrongs committed by charlatans."

Now here is a fine field for activity, in which I grant the primary moving spirit should be unselfish love for humanity, but secondarily it makes the diligent physician honorably known as one engaged in the practice of medicine. And if the code of ethics insists that a physician should be ready to risk his life for others, surely it cannot criticise him for bringing himself forward to the extent of becoming known and securing a livelihood. Humanity and science may require him to risk or sacrifice his life, but it does not say he must sit tamely and genteely in some cheap back office and starve to death. Yes, gentlemen, let us admire and applaud men ready to lay down their lives for humanity, but do not let us help to kill men struggling to make themselves known to the people by honest, scientific effort; nor be hypercritical of their methods of giving notice of their qualifications. I also believe it to be proper for the physician, particularly the younger men, and those starting practice in a new locality, to inform the people of their presence by an occasional well-timed, unobtrusive, well-constructed, scientific paper given to the press on some living, practical topic, which may happen to be interesting the public and where further enlightenment is needed. I do not believe a physician should force a topic upon the people just for the sake of bringing himself into notice; that might be classed as not strictly ethical. But, suppose, we

will say, that the town is interested in the disposal of garbage, or sewage. Now should our doctor be informed on the crematory method, we will say of New York City, for the burning of garbage; or the septic tank method for handling the sewage of the city of Glasgow—then surely his giving notice that a practicing physician amongst them understood these things would not be amiss. Nor would it be improper should a public meeting be called at the opera house for him, if invited, to speak on such subjects.

Alas! it sometimes happens that when a physician really commences to follow the principles of medical ethics as outlined in Chapter 3, Sections 1, 2, 3, 4, and 5 regarding his duties to the public, that he will be accused of trying to advertise himself.

Indeed, I sadly fear that if a physician really lived up to and carried into daily practice the principles of medical ethics as adopted, recommended and promulgated by the A. M. A. in its three Chapters, six Articles and fifty-three Sections, it might raise from some quarters such a storm of protest and indignation as to endanger his very license.

THE TOXEMIC FACTOR IN RHEUMATOID ARTHRITIS.*

By CARL C. WARDEN, M. D., Los Angeles.

Briefly summarized, the factors etiologically associated with the variety of arthritic conditions grouped under the name of rheumatoid arthritis, are the nervous, the bacterial and the toxic. The classification of the arthritic troubles themselves is not so easy or so brief. One of the most satisfactory is that of Goldthwaite, of Boston, who mentions:

1. Chronic villous arthritis (dry joint).
2. Atrophic arthritis (rheumatoid).
3. Hypertrophic arthritis (osteo).
4. Infective arthritis.
5. Metabolic arthritis (gout).

Of these Garrod disregards the first and last and adds *spondylitis deformans*.

The term rheumatoid should be disregarded altogether since it is at best a vague and misleading term, and a classification made based on a more comprehensive clinical description. I prefer to adopt that system which disregards gout altogether and groups all the systemic joint troubles under the heads of *hypertrophic* and *atrophic* arthritis and Still's disease of children, which alone seems to fall under neither division.

The hypertrophic varieties are observed in two clinical forms:

(a) The monoarticular type of old age (osteoarthritic hip).

(b) The polyarticular type, seen past midlife, oftenest in women, with Herberden's nodes common.

The atrophic varieties are subdivided into:

(a) Acute polyarticular type affecting children and young adults.

(b) Chronic polyarticular type of midlife.

If now we relegate Still's disease, which really does not belong to this class at all since its pathology is wholly different, we can exclude it from our discussion, along with gout and the infectious forms, such as gonorrheal and septic (though we are obliged to admit that the infectious forms are occasionally precursors of the atrophic type). We now have to consider merely the hypertrophic and atrophic forms, and when we regard the pathology of these states and the numerous cases which merge one into the other, it becomes a temptation to call all these states various modifications of one pathological condition, a systemic arthritis.

Postmortem examinations, histological and macroscopics show that at various stages of the morbid process the same changes occur in the tissues in both hypertrophic and atrophic forms. The alterations in the soft parts around the joints are practically the same in each form. The alterations in joint cartilage and the articular surfaces of the bones shade from one into the other in both varieties. In one there may be preponderance of atrophy, in another hypertrophy, but in the latter case the overgrowth almost always follows on primary atrophy. The distinction marked by *wet* and *dry* joints does not always hold good, since not infrequently effusions will form in joints in the one case hypertrophic, in the other atrophic. By our term rheumatoid arthritis then I mean to include these two forms of chronic arthritis trouble and I venture to suggest the term chronic toxemic arthritis as one more appropriate than rheumatoid.

The nervous theory of causation advanced by Remak and defended by Senator, Ord, Spender, Ross, MacMahon and others,—and advanced chiefly because of the resemblance of toxemic joints to the trophic joints of Charcot,—flies widest of the mark inasmuch as it does not explain either the majority of the lesions or exclude other possible causes. The bacterial theory of causation has many advocates and comes nearer filling the requirements. Braumler of Freiburg observed the frequency of toxemic joints following the acute joint infections. Schuller in 1893 isolated a bacillus from the joint of effusions. Bannantyne, Wohlmann and Blaxall also found a bacillus. Painter was unable to find it. Poynton and Payne observed a minute diplococcus in several cases. Many investigators have seen this latter organism. I have myself observed it in two cases, but all agree that the organism is not to be found in every case, even when joint effusions exist.

A toxemic theory is most satisfactory for many reasons. In the first place, it does not exclude a primary microbic infection, in fact, it may assume it, the lasting and crippling lesions appearing only when the infection, however slight, has long since subsided; and in the second place, it does not necessarily postulate an infective cause inasmuch as evidences of bacterial damage may be wholly lacking and yet a toxemic cause remain. Llewellyn Jones sees many factors in the disease comparable to the processes at work in Raynaud's disease, tetany,

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

migraine, etc. He describes pathological changes in the liver, spleen, kidneys, pancreas, ovaries and arteries, but makes no mention of the digestive apparatus beyond a macroscopic intestinal thickening. Clark of Edinburgh, on the other hand, makes the intestinal canal largely responsible for the production of toxins. Chalmers Watson agrees. Luff assigns the difficulty to an infection from some mucous membrane. Cave mentions many sources of toxin, rectal ulcers among them, but lays greatest stress on pyorrhea alveolaris. Tubby and Payne support this view, the former stating that almost invariably these cases had carious teeth, the latter that joint trouble was frequently observed by him in patients having pyorrhea alveolaris. Tubby cites largely from a valuable report of Andrews and Hoke on the "Relation of Albuminous Putrefaction of the Intestines to Arthritis Deformans and Its Influence on Treatment." In this paper the authors quote Herter's classification of three types of intestinal putrefaction

(a) The Indolic type, occurring in the entire intestinal canal, in which quantities of indol are made and in which the bacillus coli appears.

(b) The Saccharo-Butyric type, occurring in the lower ileum and large bowel, caused by anaerobic organisms for the most part, in which the stools may be acid, and indol is not excessive.

(c) The combined type.

Herter is also credited with the statement that the intestinal flora both as to numbers and character is influenced especially by the quantity of albuminous food taken, the anerobes diminishing with decrease of nitrogenous food and the concomitant decrease in nitrogenous putrefaction. Combe of Lausanne in his recent book on the Diseases of Children lays stress on the train of evils resulting from proteid putrefaction in the intestinal canal. He indexes the degree of putrefaction by quantitative estimations of urinary indican and the higher ethereal sulphates and by the alkalimetric observations of the feces. The theories of Metschnikoff on longevity have gone so far as to reach lay readers and his work on intestinal bacterial putrefaction has stimulated many observations on the question. Metschnikoff contends that albuminous putrefaction is frequently due to the pathological abundance in the intestinal canal of anaerobic, alkali producing organisms, which condition alters the normal acidity of bowel contents, banishes acrobic flora from the intestine and causes an abnormal splitting of nitrogenous molecules into toxic radicals which, once absorbed, lead to systemic toxemia. It is this toxemia which we seize upon as an etiologic factor in rheumatoid arthritis. Metschnikoff and his followers commended as a therapeutic measure the reduction of nitrogenous food in the dietary together with the correction of alkalinity and anaerobic invasion by administering lactic acid producing organisms which in suitable media will generate nascent lactic acid in the intestinal canal and assist in rendering the digestive tract uninhabitable by these noxious bacteria. With this end in view he gives milk soured by various organisms, chiefly the bacillus or streptococcus lacticus and the bacillus of Massol. In the laboratory the sterile milk is prepared by inoculation with cultures, in the homes by the liquid milk starters and compressed tablets now supplied by the commercial pharmaceutical houses.

Tubby reports several cases of toxemic arthritis treated by this method with very encouraging results. We, personally, have under observation at present three cases of toxemic polyarthritis. Two are of the hypertrophic type, in women under thirty, one of the atrophic form in a man of thirty, the bony and periarticular changes showing well in radiograms. These patients at the outset of treatment had indican in the urine in great excess. In all there was a history of digestive disturbances of long standing with constipation and occasional attacks of diarrhea. The feces of each was markedly alkaline in reaction and contained many anaerobic bacteria, the bacillus enteritides sporogenes important among them. The treatment has consisted of daily bowel evacuations by agents best suited to the individual case, the administration of intestinal antiseptics like salol and guaiacol carbonate, and artificially soured milk in quantities of at least one pint daily. All meat in the diet has been interdicted. The custom has been to prepare the milk in our laboratory by inoculating sterilized milk, preferably skimmed, with pure cultures of the streptococcus lacticus and the Bulgarian bacillus of Massol and incubating over night at 37°. The product is smooth with well marked odor and taste of lactic acid. From this supply starters of one ounce quantity are given the nurses with instructions for the preparation of the milk at the patients' homes. A portion of the supply made in this manner may be used as starter for the next day's ration and this process carried on for a week when usually contamination will have begun and fresh pure cultures are required. The preparations sold by the pharmaceutical houses answer fairly well, but they almost invariably contain yeasts which while harmless are apt to make the soured milk unpalatable.

Under this simple treatment the patients have improved, two of them remarkably, the third to some extent only owing to the brief time he has been under care. The chief improvement is shown by the lowering of temperature, the reduction in periarticular swellings and effusions, the greatly increased range of motion, the diminution of pain and a general amelioration of subjective feeling. One case is complicated by a chronic parenchymatous nephritis, but the kidneys have improved *pari passu* with the arthritic troubles as shown by considerable reductions in the number of casts and the quantity of albumen. There has been a steady reduction of the quantity of indican in the urine. In one case it has entirely disappeared. The history of illness in one woman dates back nine years, in the other, two. The improvement in the former case, despite the nephritic handicap is most encouraging. The second woman has in six months' time come from absolute helplessness in bed to her wheel-chair, her fancy work and piano exercises, with entire sub-

sidence of inflammatory trouble about the joints. I believe the most valuable adjunct to the treatment of these cases to be the passive hyperemia of Bier. It has appeared to exert a marked influence on the pain in the joints and to have assisted in the absorption of joint exudates.

THE RELATION OF RAT LEPROSY TO HUMAN LEPROSY.*

(With an Exhibit of Gross and Microscopic Specimens.)

By WM. B. WHERRY, M. D., San Francisco.

It seemed worth while, in connection with Doctor Clark's exhibit of cases of human leprosy, to show you some specimens from a very closely related, if not identical, disease which occurs in the rat. Leprosy in rats has been known for a number of years and has been recorded in England, Southern Russia, Roumania, India, and the region about San Francisco Bay.

The disease has usually been found in connection with the examination of large numbers of rats for plague and no doubt further investigation will show that it is quite prevalent among rats all over the world. It is characterized by a granulomatous proliferation of the subcutaneous tissues, leading to a marked thickening of the skin, alopecia, and ulceration. In some cases the peripheral nerves are involved, resulting in the loss of fingers and toes or the tail. Acid-proof bacilli resembling those found in human leprosy occur in enormous numbers in the affected tissues. Upon histological examination the changes in the skin closely resemble those found in human leprosy. The disease may be transmitted by inoculation from rat to rat but not to guinea pigs, rabbits nor monkeys. Such inoculated rats develop the disease very slowly and it is only after several months have elapsed that definite signs of the disease are found.

This disease is of particular interest because it furnishes material for experiments of a comparative nature, whereby we may gain some idea as to how human leprosy is transmitted. It widens the field for research on such problems as the early diagnosis of leprosy—the production of immunity to leprosy—and the treatment of leprosy.

It is generally believed that the bacillus of rat leprosy has become specialized in the rat and differs from the human leprosy bacillus to about the same degree that bovine tubercle bacilli differ from human tubercle bacilli. The recent work of Mezincescu (*Comp. Rend. Soc. Biol.*, 1909, 66, 56), would seem to support this idea. This investigator, working in Roumania, tested the ability of rat lepra bacilli to fix complement according to the Bordet-Gengou reaction. Of the sera from twenty-four cases of human leprosy (tubercular, mixed, and anesthetic cases) twenty gave complete fixation; two slow fixation; and with two fixation was negative. He controlled a certain number of these cases by tests with extracts of the tubercle bacillus and paratubercle bacilli (Timothy-Mist) with entirely negative results. He believes that his observations point to a very close relation between rat leprosy and human leprosy. (A leper rat caught last Saturday at 21st and Broadway, Oakland, is on exhibition. Also a section of skin from a leper rat showing the enormous numbers of acid-proof bacilli present in this disease.)

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

REPORT OF A CASE OF TRANSIENT CYCLOPLEGIA DUE TO GLYCOSURIA.*

By W. HUMES ROBERTS, M. D., Pasadena.

Paralysis of accommodation, due to diabetes, is sufficiently rare to warrant the report of the following case:

Mr. W., aged 51, first consulted me March 30, 1908, concerning a tickling in his throat, which had troubled him for about two weeks. He was coughing a great deal, he felt and looked sick, and he had recently lost flesh.

Examination showed his uvula was thickened and elongated, fauces congested; right cord somewhat immovable, irregular in outline, and reddened near the arytenoid cartilage.

Fearing that a tubercular process might be commencing in his lungs, I advised him to consult a general physician for a physical examination. He placed himself under the care of Dr. Joseph D. Condit. Dr. Condit reported to me that there was no evidence of tuberculosis, but that his urine contained 7% of sugar.

Under appropriate diet, the sugar began to lessen, so that by the 7th of April it was down to 5 5-8%, and his weight, which was 133 pounds, began to increase. By the 29th of April all sugar had disappeared from his urine, and, when last observed by Dr. Condit on the 22nd of July, his weight had increased to 142 pounds.

On the 15th of April, when he had been under Dr. Condit's care for two weeks, his urine showed only ⅜% of sugar. At that time, he came to me again, saying that for a few days past he had been unable to read with his glasses, which had theretofore been perfectly satisfactory, and that he now needed them to see with in the distance. Until he noticed this failure of his glasses for reading, his vision for distance had been perfect; but now he could not see in the distance without the use of his old reading glasses.

I found that he had been using for reading a pair of + sph. 1.75

At that time O. D. V.=6/22.5
O. S. V.=6/15

Manifest examination showed
O. D. + sph. 1.75=6/5
O. S. + sph. 1.75=6/5 1½° esophoria.

For reading at thirteen inches, he required to be added to the above + sph. 2.25.

External examination of the eyes showed everything normal; pupils were of normal size, and they reacted to light and accommodation. Ophthalmoscopic examination showed the media clear and the fundi normal. A test on the following day confirmed this examination, so I ordered the foregoing lenses for him.

On the 18th of May he came in again very much improved in his general health. He said that until within a few days, these last glasses had been perfectly satisfactory; but that now he could not see so clearly in the distance with them, and he found that he had to hold newspapers and books too close to his eyes to read with comfort. His vision with his distance glasses now was only 6/12.

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

Manifest examination showed

O. D. V. 6/15 + sph. 1 =6/5

O. S. V. 6/9 + sph. 0.75=6/5

with + sph. 2.25 added for near,

and these I ordered.

Shortly after this Mr. W. returned to his home in the East. In a letter, dated Feb. 8th of this year, he wrote me that his eyesight was very much better than when he was in Pasadena last year. His accommodation continued to return so that it was necessary for him to go back to the original reading glasses which he was using when he first came to me. A few days before writing to me he had broken his old lenses, and, for a short time, he had made use of the ones I had last given him, which brought his near point within eight or ten inches of his eyes. His general health has been excellent, though he is still very careful in his diet.

Dr. Geo. M. Gould, in an article on "The Refraction Changes Dependent Upon Glycosuria,"[1] has collected twenty-two cases in which changes have occurred. These he has arranged in three groups: the first consists of six cases, and shows an increase of myopia; the second is made up of eight cases in which hyperopia is diminished, which is a change similar in character to those in the first; the third is composed of eight cases in which an increase of hyperopia is noted.

We are not concerned with the first and second groups; but in the third group we are interested, for the case just reported seems to belong to this class. In all eight cases, an increase of hyperopia is noted; and, in seven of these eight cases, it disappears, returning to the original amount with the subsidence of the sugar.

As an increase of myopia is the most common refraction change occurring in diabetes, and as fourteen of the twenty-two cases reported in Dr. Gould's article had such changes, Dr. Gould is inclined to belittle the findings of the men who report the eight cases of increased hyperopia, claiming that the observations are unreliable, inasmuch as a mydriatic was used in but one case, that of a boy of seventeen. The ages of five of the remaining patients are 40, 55, 68, 51 and 53, in each of whom there could have been but slight latent hyperopia. Undoubtedly, in each of these eight cases, there was a paralysis of accommodation; although such an explanation for the increased hyperopia does not seem to have occurred to Dr. Gould, who says: "When eight reporters find such an illogical, if not impossible, reversal of the natural consequences as testified to by fourteen, it behooves us to doubt the accuracy of the oculists' tests and reports, rather than to indulge a belief in the inherently improbable and impossible."

Delord and Revel[2] report a case, very similar to mine, in a woman 48 years of age. She had a sudden bilateral paralysis of accommodation, without involvement of the sphincter pupillæ. With the disappearance of the sugar from her urine, she regained her accommodation. With Schmidt-Rimpler, these authors agree that cycloplegia from diabetes is rare, which is contrary to the opinion held by Wecker and Landolt.

Of particular interest to me in the history of my patient, was the fact that his cycloplegia did not appear until after his health had begun to improve, when the sugar had decreased from 7% to about 1/2%, showing that possibly a similar toxin to that causing a post-diphtheritic paralysis, caused the lesion.

The prognosis in diabetic cycloplegia seems very favorable, as, in the majority of cases, under proper dieting, the sugar can be eliminated from the urine, and the ciliary muscle regains its function.

REFERENCES:

1. Gould. The Refraction—Changes Dependent upon Glycosuria. Medical Record, April 20, 1907.
2. Delord & Revel. Paralysis of the accommodation in diabetes. Archives d'opthalmologie, XXVII, p. 761.

Discussion.

Doctor F. H. Rogers, Long Beach: The paper presented is one of a little more than usual interest to me and it seems that the rarity of cycloplegia and its importance merits more than passing notice. I cannot recite any considerable number of cases of this kind and I regret, having met with one case which perhaps had some points in common with the one just reported, that I did not take the trouble to replenish my memory as it occurred some years ago. About twelve years ago a case came under my notice. The patient was a woman of perhaps thirty-six years of age, a school teacher, who was riding with a friend in a carriage behind a horse which became frightened by a passing train and ran away. The ladies were thrown out and the teacher was dragged some little distance. She suffered no bodily injury and I was not called to the case until she had largely recovered from the shock. My attention was called to the case as a result of the failure on the part of her glasses, which she had worn for ten years previously, to relieve the symptoms of headache and general refraction, as they had before satisfactorily done. Test made of her refraction showed that she required for perfect vision about twice the amount of correction that she had had before. The new glasses she wore for about three or four months when she returned saying she was obliged to hold the paper too close to her eyes and that her distant vision, which had been good, was becoming worse. Without re-examining I gave her a reduction of about one-half diopter which she wore for three or four months. She then returned again and as a matter of experiment I gave her her old lenses which proved to be entirely satisfactory. I watched the case for two or three years, during which time she wore her original glasses. With our present knowledge of diabetic conditions we know this is a nervous condition not very well understood and we believe that this case while free from diabetic symptoms was one of nervous disturbance of some cause. I thought of hysteria though she was not a subject of hysterical manifestations. The case reported by Doctor Roberts was one of diabetic cycloplegia which of course is very rare, while the one which I mention was a nervous disturbance.

SOCIETY REPORTS

ALAMEDA COUNTY.

At the July meeting of the Alameda County Society a most interesting symposium on tuberculosis was the order of the evening. Dr. von Adelung discussed tuberculins and Dr. Clark the subject of genito-urinary tuberculosis. Dr. Rixford of San Francisco spoke on bone tuberculosis, and Dr. Cooper of San Francisco on the use of X-ray and the interpretation of plates. The papers are to appear in an early issue of the Journal. The following preamble and resolution were adopted:

Whereas, Dr. Philip Mills Jones, Secretary of the State Society, in voluntarily reducing his own salary

$500 in order to assist to that extent the financial condition of the Society, performed an altruistic act worthy of the highest commendation;

Resolved, That the Alameda County Medical Society begs to express to Dr. Jones its appreciation of his disinterested action, and congratulates the Society on having a Secretary with so high an ideal of his relations to his fellow-members.

M. L. EMERSON, Secretary.

PACIFIC ASSOCIATION OF RAILWAY SURGEONS.

The regular annual meeting of the Pacific Association of Railway Surgeons will take place on August 27th and 28th at the St. Francis Hotel, San Francisco.

On the 27th there will be a morning session from 10 a. m. to 12 m., followed by a luncheon, also an afternoon session.

On the 28th, the morning will be spent at various hospitals, where clinical cases will be demonstrated; also an afternoon session, followed by a banquet in the evening. The new Southern Pacific railroad hospital will be fully completed by this time.

The luncheon and banquet will be served by the Association without cost to the members.

The Association has made rapid strides during the last year, about thirty applications for membership having been received. We expect to have a very interesting scientific program; the social feature will, however, not be overlooked. All proceedings will be published in the California State Journal as heretofore.

I write you this letter particularly requesting that, if you have anything that would be of interest to the society as a demonstration of a case or reading of a paper, you will kindly inform me not later than July 1st, so that we may arrange our preliminary program.

PROGRAM TO DATE, JULY 14, 1909.

1. "Gun Shot Wound of the Heart with Recovery," C. J. Teass, Kennet, Cal.
2. "Fractures of the Humerus Through the Musculo-spiral Groove, Treatment," Rexwald Brown, Santa Barbara, Cal.
3. "The Essentials of Surgical Diagnosis with Special Reference to Traumatic Conditions," T. W. Huntington, San Francisco.
4. "Cavity Formation in the Spinal Cord Due to Trauma," E. T. Dillon, Los Angeles.
5. "The Problem Presented by the Tuberculosis Railway Employe," R. A. Peers, Colfax, Cal.
6. "Abdominal Injuries, with Reference to Early Diagnosis and Treatment," R. T. Legge, McCloud, Cal.
7. "Importance of Enucleation of Tonsil in its Bearing on General Infections," Redmond Payne, San Francisco.
8. Presentation of cases, Wallace I. Terry, San Francisco.
9. "X-Ray," Charles M. Cooper, San Francisco.
10. "Surgical Shock" (possibly), David Powell, Marysville, Cal.
11. Several interesting cases (possibly), A. M. Henderson, Sacramento, Cal.

Very truly yours,

GEO. R. CARSON,

Secretary.

ALASKA-YUKON-PACIFIC EXPOSITION.

California State Journal of Medicine,

Gentlemen:

The A. Y. P. Exposition will open June 1st, closing Oct. 16th. No doubt many of your subscribers will pay the exposition and the Pacific Northwest a visit.

We have a modern equipped Emergency Hospital, and have set aside a room for visiting physicians, where they may receive their mail, write letters, etc. Will you kindly announce to your subscribers that any physician visiting the exposition may have his mail sent in care of the Emergency Hospital at the A. Y. P.?

We would appreciate it very much, if you would send us a copy, or two, of your magazine, to have on the center-table for the use of visiting physicians.

Respectfully,

E. M. RININGER.

MEDICAL FAKIRS.

There is a disposition among the medical men of the State of Illinois to make it more difficult for young men to enter the profession. They contend that the tone has suffered because of lax graduation laws and because of indifference on the part of physicians to the need of restrictive provisions by which only properly trained men may become practitioners. Half educated, half witted, in some cases "illiterate clowns," put out their shingles by the side of men who spent years in preparation and who are really qualified in the highest sense for practice. Thus the profession is crowded, reduced in standing, and in some communities disgraced, all because of the ease with which these "duffers" work their way into the ranks of good men.

A little while ago, at a banquet of medical men in California, the writer heard a speaker discuss the uses of the microscope. He had none himself, he said, and it was well he hadn't, "for if I had I would simply play h—— using it." He added that many who did have them used them for "show," and knew little more about them than he did. There was probably a lot of truth in the statement of this country physician, who might have said too that if the physicians who could not write an intelligent prescription were weeded out there would be little complaint of overcrowding in California. For here, as in Illinois, the "correspondence" graduate is about as numerous and pretentious a creature as we have in the State. He puts a gilt frame about an elaborate credential, hangs it upon his office wall, looks into the faces of his victims with an air of wisdom which Plato might envy, feels the pulse, dashes off a stereotyped prescription, and with a smile of assurance tells the patient, whose trouble is probably in his head, that he will be well in the morning.

The medical profession, "the first estate," should have in it men of culture and training, of good manners and address. Their very appearance in public places should command respect, not derision, as is too often the case. The interloper should be driven out or kept out by qualifying examinations which he cannot pass. In some countries he is obliged to obtain his Arts Degree before he is considered capable of grasping the problems of therapeutics. And when he has passed his last examination he is put through another and more difficult test by a Board known as a Medical Council, which finally determines his fitness for active practice. A profession as honorable and as useful should not be permitted to degenerate into "fakery" simply because of the laxity of the very men whose interest it is to see that unscrupulous ill-trained men are kept out.—San Jose Mercury.

A FEW KIND WORDS.

June 3, 1909.

California State Journal of Medicine:

Gentlemen:

I am writing this to offer you my congratulations on your good work to rid the medical profession of incompetency and commercialism.

The Journal of the American Medical Association and the Cal. State Journal of Medicine are doing more for the cause of honesty and to dislodge the grasp of the nostrum vendors from the profession

than all the other medical journals combined.

My office is invaded every day by the distributers of all kinds of manufactured trash for the doctor who does not think and I turn them all down, saying to them that I am prescribing only official preparations.

There are hundreds of other physicians who are doing the same and it is a pleasure to have a few good journals that will not sell themselves for a few dirty dollars.

I am writing this simply to tell you that I am one of the many who appreciate your good work.

Very sincerely yours,

M. M. C.

BOOKS REVIEWED

Surgical Memoirs and Other Essays. By James G. Mumford, M. D., Instructor in Surgery, Harvard Medical School; Visiting Surgeon to the Massachusetts General Hospital; Fellow of the American Surgical Association, etc., etc. Illustrated. Moffat, Yard & Company, New York, 1908.

For more than half a century the avocation of letters has among medical men been submerged in a flood of scientific enthusiasm. Advantageous as this may have been for science, so exclusive a devotion has unfortunately very materially narrowed the mental horizon of the physician to many interests not immediately connected with professional activities. Imprisoned within the confines of his medical experience, deprived of stimulating and broadening influences such as are imparted by literature, especially history, he has, to a notable extent, lost that sense of large proportion in things, that all-embracing prospect of life as a whole, which so eminently characterizes the man of culture and philosophic insight.

Unfavorable, however, as are the conditions of our calling and individual circumstances for the cultivation of esthetic and philosophic appreciations of life, a small but increasing number of us, inspired by a few illustrious examples, have turned to various avocations for wider and more sympathetic outlooks than those afforded by medicine alone. While some have not hesitated to venture into the broad field of *belles lettres* the majority have been content to travel the narrower but none the less interesting byways of ancient medicine, possibly with the view that "a man who does not know what has been thought by those who have gone before him is sure to set an undue value upon his own ideas."

With the wealth of possibilities in the treatment of new and unessayed materials or in the recasting of much of the old according to accredited methods of present historical investigation, the loftiest aspirations of the student may be realized. The older accounts of the history of medicine conceived from what now must appear as very narrow viewpoints gave us no insight into the varied and manifold conditions which have swayed the thought of medical men in different periods. That medicine has been profoundly affected by political, religious, philosophical and other social and intellectual influences has been usually overlooked, although over forty years ago, in an address entitled "Currents and Counter-Currents in Medical Science," Oliver Wendell Holmes with his usual perception drew attention to them.

"Observe the coincidences between certain great political and intellectual periods and the appearance of illustrious medical reformers and teachers. It was in the age of Pericles, of Socrates, of Plato, of Phidias, that Hippocrates gave to medical knowledge the form which it retained for twenty centuries. With the world-conquering Alexander, the world-embracing Aristotle, approximating anatomy and physiology, among his manifold spoils of study, marched abreast of his royal pupil to wider conquests. Under the same Ptolomies who founded the Alexandrian Library and Museum, and ordered the Septuagint version of the Hebrew Scriptures, the infallible Herophilus made those six hundred dissections of which Tertullian accused him, and the sagacious Erasistratus introduced the mild antiphlogistic treatment in opposition to the polypharmacy and the antidotal practice of his time. It is significant that the large-minded Galen should have been the physician and friend of the imperial philosopher, Marcus Aurelius. Harvey himself was but the posthumous child of the great Elizabethan period. And is it to be looked at as a mere accidental coincidence, that while Napoleon was modernizing the political world, Bichat was revolutionizing the science and art that is based upon it; that while the young general was scaling the Alps, the young surgeon was climbing the steeper summits of unexplored nature; that the same year read the announcement of those admirable 'Researches on Life and Death,' and the bulletins of the battle of Marengo?"

Desirable as a critical estimate of the history of medicine would be from this standpoint, it is probable that with the facts at hand, this would be impossible at least for the present. But, if as has sometimes been asserted, history is the essence of innumerable biographies we may look in the near future to this class of literature for interesting revelations. The vast majority of them of course tell the same monotonous tale. "But in the lives of great men the spirit of the age in which they worked is, in some sort incarnate and so may be most fruitfully studied. Cicero, in a well known passage, speaks of them as luminaries in the world's career. So they are. And they radiate light on their times. They see by the illumination of genius which is in them; and in their light we may see light."

It is in this sense that the volume,* the subject of this review, will especially appeal to the discriminating reader. Written by one well versed in the story of ancient medicine, this collection of essays dealing with characters taken from widely different ages, constitutes in a way a narrative of surgery. Here we have a gallery of condensed portraits of masters of surgery, each less than half-length, but large enough to show the head and the hand: the "life

* Surgical Memoirs and Other Essays. By James G. Mumford, M. D., Instructor in Surgery, Harvard Medical School; Visiting Surgeon to the Massachusetts General Hospital; Fellow of the American Surgical Association, etc., etc. Illustrated. Moffat, Yard & Company, New York, 1908.

illustrated by the work, the work relieved by the life."

In the first essay looms Hippocrates, towering in an earlier but refined civilization—a prophet giving articulate expression to the formless learning of first experience. As the Father of Medicine many have regarded him no less than its creator, forgetting that with the world of intellectual production as with that of organic generation, nature makes no sudden starts. The name of Hippocrates is daily on our lips, but the names of those who prepared the world for him "have remained as unnoticed upon the horizon of time as the stars by day, not even to be descried when the great central figure which eclipsed them was in its nadir." As Osler says, "such renown as they had time has blotted out, and on them the iniquity of oblivion has blindly scattered her poppy."

Although the surgery and medicine of Egypt meant something to the world for more than a thousand years, it remained for Hippocrates to preserve for posterity what was essential in its teachings. Two characteristics stand out prominently in his writings: In the first place it is evident as Billings very properly states "that one of his special aims was to be entirely honest and truthful in his statements. He reports no marvelous cures, no specimens of extraordinary success in diagnosis where others had failed; fatal cases are given as well as recoveries, and there are no hints that the former were not seen in time or that they had been improperly treated by others. He seems to have written mainly for the purpose of telling what he himself knew. "A second characteristic is the special attention given to those symptoms which indicate the effect which the disease is producing upon the body as a whole, including such phenomena as fever, debility, delirium, restlessness, and so-called critical discharges of various kinds."

The subject of the second essay is separated from the preceding figure by almost five hundred years—half a millennium from Hippocrates to Galen. During that time great and far-reaching had been the changes of empire and society. The civilized world overrun by militant peoples became disorganized. Greece, so long proud of her intellectual ascendency but now bowed in cowed subjection before barbarian aggression, sank to still lower intellectual levels by the sudden ease and wealth opened up to it through the conquests of Alexander and his successors. "In the air of imperialism, stirred by no other, original thought could not rise; and the mass of the Greek-speaking populations, rich and poor, gravitated to the level of the intellectual and emotional life of more or less well-fed slaves." The Romans, at a later period masters of the world, received the germs of higher culture from their neighbors, but in early republican days the conditions of militarism, aristocratic emulation, and relative poverty prevented development to any conspicuous degree. Roman life was made systematically agricultural and militarist by initial circumstances. Subsequently, when Rome, advancing in the career of conquest, had developed a large class with leisure for intellectual interests, it is noteworthy that it was not in the direction of scientific achievements that its genius manifested itself.

The explanation of this is doubtless correctly given by Dr. Munford who says: "Among the Greeks medicine held a high place, for the Greek genius was most conspicuous in the affairs of civil life and the realm of the intellect. Among the Romans, military affairs were regarded as most worthy of the attention, and this worship of physical force stunted eventually the intellectual growth and pursuits. After the republic, the rise of the military aristocracy accentuated still more this tendency, and made permanent the inferior position of the learned professions, especially medicine. During nearly two thousand years this Roman influence maintained, for even after the rise to power of the Church of Rome the soldier continued to be regarded as the superior of the priest. First, the soldier; second, the priest; third, the lawyer; fourth, the merchant; fifth, the physician; and then after a long interval the surgeon, ranking with the humblest of craftsmen."

Unpropitious as were the political and social conditions from the decadence of Greece to the fall of the Roman empire for the prosecution of intellectual researches in the greater part of the western civilized world, a remarkable revival of learning was originated in Alexandria under the Ptolomies beginning in the fourth century B. C., and extending to the rise of the Mohometan power in the seventh century, A. D. It was an attempt to continue and develop under new conditions the old Hellenic culture. In this renascence medicine participated to a notable extent as shown by the work of Herophilus, the anatomist, Erasistratus, his contemporary and rival, and Galen, the most striking medical personality of the Roman period.

Perhaps the worst to be said of Galen "is that he assisted in preserving the health of Commodus, and the best, that he maintained much the same position in medicine as that occupied by Marcus Aurelius in philosophy. Fanciful as is such a comparison, it is certain that both men impressed themselves upon human thought for centuries: Galen growing dim in recent times—an authority no longer; Marcus Aurelius, the emperor philosopher, looming larger through the years." Although dominated by the teachings of Hippocrates, Galen's achievements are none the less remarkable. Through his animal experimentation he contributed to physiological knowledge; it has been said that he was our first great physiologist. Probably best known to most of us for his discovery of the function of arteries, it is curious that he asserted a fact which Harvey fifteen centuries later did not observe—that there is a terminal connection between the veins and arteries.

The third and fourth essays deal with Vesalius and Ambroise Paré, both born at the beginning of the 16th century, over 1300 years after the death of Galen. Galen's works were text-books still. While the sciences generally flourished to some extent among the Arabians, in the greater part of Europe medicine had fallen into the most deplorable state. This deterioration is by no means surprising when we consider the conditions which prevailed after the overthrow of the Roman empire. During the four

or five centuries succeeding this important event a period of greatest unrest existed. The five great nations of Europe evolving themselves out of chaotic materials into those social and political institutions, which constitute the machinery of the Middle Ages afforded little that was congenial for intellectual development. Once, however, languages formed, boundaries fixed, and methods of government tried, the "divine discontent" of the thinker for higher, nobler, and more rational possibilities manifested itself, first in the twelfth century which "saw a remarkable revival of interest in learning, almost worthy of the name of Rennaissance in itself had it been more fruitful of results. In the bold speculations of Abelard it almost seemed as if Reason were about to re-assert its claims in opposition to Authority."

Backward as the progress of medicine had been it in some measure shared in this intellectual movement.

But at last the awakening came. "Very early in the fourteenth century Dante sang the swan song of the Middle Ages, and even as he sang it the world was turning restlessly in its sleep; the long slumber was disturbed by broken fragments of dream, gleams of light, echoes of long silent voices calling to it to rise in all the vigor of adolescence, to shake off, like Samson, the shackles that had bound it, to adventure forth in the glorious May morning of time, when all creation lay radiant and mysterious before the eyes of the newly awakened. It was a time of infinite possibilities, to which we may look back not without wistfulness—a time when new discoveries of man's latent powers and the beauty and wonder of the world around him were every day to be made, when new interests and new adventures beckoned to him on every side. We cannot put any date to this awakening; no abruptness marks the initiative of movements so great. We only know that the world slept, and that the world was awake. The first stirrings were shown in the growing discontent which would not be repressed in the brave words of Wiclif and Huss, and in the paintings of Giotto."

This was Europe's grand age, and the most significant epoch of human growth. To this day, as Taine says, we live from its sap, we only carry on its pressures and efforts.

Vesalius and Paré, both children of the Renaissance, casting tradition aside, marched on, resolved to see with their own eyes. Freed from the tyranny of mere theories and speculation, they turned to experience, to the world of concrete impressions, to things as they may be seen, heard and felt. Vesalius, concerned with anatomic researches made possible that development of surgery which in the hands of Hunter, Jean Louis Petit, Sir Ashley Cooper, Desault and others yielded such practical results. Paré although no great scientist, was a master clinician who brought to bear upon his task great common sense. He was the father of the art of surgery which remained essentially unchanged until two hundred and fifty-six years after his death or until the introduction of anesthetics.

Among the essays dealing with post Renaissance medicine the two on Albrecht von Haller and John Hunter recall much that is significant and interesting. Of the influence of Haller on surgery too little has been said. It was he who first grasped its wide significance and showed that it is, as Mumford says, far more than a craft. "He brought to bear upon it a profound knowledge of anatomy, a keen-eyed devotion to physiology, an enthusiasm for pathologic anatomy. He showed the absurdity of the medieval custom which had divorced surgery from medicine and a liberal education, depriving it of the services of distinguished men and cultivated minds. By his example he did even more than by his preaching; he became a great experimental physiologist; through such endeavors he made possible the practical investigation of natural processes and through such investigations it has come about that numberless procedures of to-day are feasible and life-saving."

In forming an estimate of Hunter's work and of the influence which his labors have had on the improvement of surgery we are at once struck by the boldness and independence which he displayed in the pursuit of truth. To enumerate the various practical amendments of which he was the immediate author would scarcely do him justice. His claims, as Drewry Ottley says, are of a far higher nature. He, like Haller, taught us to bring the light of physiology "to bear upon the practice of our art, and by his writings, his teachings and his example, stimulated the numerous able followers to pursue the way he pointed out."

With the trail blazed by these epoch-makers of medicine the march of surgery may be partly traced in these essays through those less immediate products of the Renaissance—Sir Ashley Cooper, Sir Benjamin Brodie, and others to Sir Joseph Lister and modern surgery. If it should be suggested that much has been left unsaid in these delightful biographies and that the essays are far from exhausting the qualities of their subjects, we shall put the author under the protection of the genial Lafontaine, who says in the epilogue to the Contes:

"Bornons ici cette carriere;
Les longs contes me font peur;
Loin d'epuiser une matiere,
On n'en doit prendre que la fleur."

A. J. L.

Confessio Medici. By the Writer of "The Young People." The Macmillan Company, New York.

That the latent literary faculty amongst medical men will leap into active existence under proper conditions, is evidenced by the appearance of this book by an anonymous author. The writer is evidently a man who, in the leisure of retirement, after a long and active medical career, has turned his attention to literature. The book consists of a number of essays variously designated "Vocation," "Hospital Life," "The Discipline of Practice," "The Spirit of Practice," "Retirement," etc. For felicity of phrase and leisurely meanderings about in the by-ways of literature ancient and modern, for its store of reminiscences culled from a full and rich medical experience, its flashes of quaint and unexpected humor and deep insight into human nature, its sympathy with and comprehension of the trials which beset the

pathway especially of the young practitioner, its sound advice and earnest plea for the preservation of the medical ideal, it is stamped as one of unusual literary value and human interest. Throughout, so strongly is it imbued with the personality of the author and so happily expressed are the thoughts and emotions which practice calls into being in all of us, that after perusing it, one puts it down feeling as though one had met an old and valued friend.

Though the book is meant mainly for the young man, every physician young and old should read it. They will be well repaid for their trouble, for it will be found a source of instruction, inspiration and delight.

K. I. L.

Essentials of Laboratory Diagnosis. Designed for Students and Practitioners. By Francis Ashley Faught, M. D., Director of the Laboratory of the Department of Clinical Medicine, and Assistant to the Professor of Clinical Medicine, Medico-Chirurgical College, etc., etc. Philadelphia, Pa. F. A. Davis Company. Publishers. 1909.

This manual contains a concise, practical account of the various laboratory methods commonly employed by the general practitioner. Each method is clearly described so that no difficulty ought to be experienced in carrying out the tests. There is a complete absence of all superfluous data, unnecessary detail, and of cumbersome methods many of which are too involved to be within the reach of the majority of practicing physicians. In every respect the work is a credit to the author and invaluable to those who from want of time or training cannot go into the matter more fully.

A. J. L.

Text Book of Hygiene. By George H. Rohe, M. D., Late Professor of Therapeutics, Hygiene, and Mental Diseases in the College of Physicians and Surgeons, Baltimore, etc,, and Albert Robin, M. D., Professor of Pathology, Bacteriology and Hygiene, Medical Department Temple University, and Philadelphia Dental College, etc. Fourth Revised and Enlarged Edition. F. A. Davis Company, Philadelphia, 1908.

Since the appearance of the third edition of this deservedly popular work important advances have been made in hygiene and sanitary science which have made it imperative to revise parts in accord with modern scientific conceptions of the subject. The original aim of the senior editor to present a clear account of the principles and practice of preventive medicine has in this edition been maintained. The most important changes have been made in that portion of the text relating to the causation and prevention of infectious diseases—lines along which notable advances have been made in recent years. The authors have been fortunate in securing the co-operation of several contributors eminent in their lines of special study. Among these are Surgeon-General Walter Wyman of the U. S. Public Health and Marine Hospital Service who has revised the chapter on Quarantine; Dr. Francis W. Upshur of the University College of Medicine, Richmond, Va., who prepared the articles on School Hygiene, Clothing and Personal Hygiene; Surgeon-Major Walter D. McCaw of the Army Service who entirely rewrote the section on Military and Camp Hygiene; and Surgeon-Major Henry G. Beyer of the U. S. Army and Navy Medical School who is responsible for the part entitled Naval Hygiene.

A. J. L.

Hand-Book of Obstetrics. By R. Cadwallader, A. M., M. D., Assistant in Obstetrics, University of California, Medical Department. F. A. Davis Company, Philadelphia. 1908.

While some may question the wisdom of writing a book such as this, none will withhold praise for the excellent manner in which the author has accomplished his task. Here we have a concise statement of obstetrical science and art well suited to the needs of students and those general practitioners who may desire a short account of the subject from a modern standpoint. Well arranged, written in an unusually clear and direct style, profusely illustrated, the volume leaves little to be desired although many will dissent from statements made or methods advocated by the author. Thus in the list of articles composing the physician's kit we would suggest replacing the oil-cloth by a Kelly pad; under the section entitled triplets a misstatement (probably a proofreader's error) is made concerning their frequency. Triplets do not occur about once in 89 times but according to the statistics of G. Veit about once in 7910 pregnancies.

In the section on Resuscitation of the Child, twelve different methods are enumerated including Laborde's which is misspelled Labarde's, but no mention is made of the recent work of Professor Schafer of the University of Edinburgh, in connection with this matter of artificial respiration. The subject of lacerations of the perineum is admirably handled but we cannot agree with the statement that tears involving the rectum should never be immediately repaired; most of us engaged in obstetrical work have seen brilliant results follow immediate repair if the tissues are not very edematous or bruised.

That manual extraction of the placenta is to be avoided if possible is unquestioned but that this "is one of the most dangerous of all obstetrical manoeuvres" has not been the experience of clean obstetricians. Other exceptions might be mentioned but after all they in no wise affect our judgment of the merits of this hand-book in which "clean hands and a pure heart" meet on common ground.

A. J. L.

Conservative Gynecology and Electro-Therapeutics. A Practical Treatise on the Diseases of Women and Their Treatment by Electricity. By G. Betton Massey, M. D., Attending Surgeon to the American Oncologic Hospital, Philadelphia; Fellow and Ex-President of the American Electro-Therapeutic Association; etc. Sixth Revised Edition, 462 pages. F. A. Davis Company, Philadelphia. 1909.

When the early publications of Tripier appeared in the middle of the last century the possibilities of electro-therapeutics in gynecological practice were scarcely realized; it remained for others, notably Apostoli, to show its applications in this connection. Nevertheless, while we are indebted to those who have investigated the subject for much suggestive and valuable information it is hardly probable that the matter has assumed proportions which warrant the publication of a work the size of this volume. It is incredible that anyone should have the temerity to tax the patience of the reader with so much language on a subject which has scarcely evolved beyond the stage of early impressions. Indeed, we suspect that here we have another glaring example of the modern, highly developed practice of "padding," systematically and consistently employed to the very end, even to the series of grotesque illustrations.

In this respect alone the usefulness of the book has been very seriously impaired but after all that is merely a matter of personal inconvenience which time and enterprise may overcome. Stripped of much verbiage and irrelevant material golden truths may be gleaned by the expert whose trained scent will enable him to disregard a mass of assumptions not justified by experience. To be enthusiastic about something is one thing; to judge it in terms of demonstrated facts is quite another. In enthusiasm for his pet therapeutic formula and panacea for the pelvic ills of woman the author is surely not lack-

ing, but of critical scientific discernment we find but few traces. In short the presentation is marred by the advocate's attitude and parti pris spirit.

On page 167 the author in discussing the relative merits of electricity and operative procedures in the treatment of uterine fibroids says: "With a mortality of one in four (by surgical removal) in the most skilled hands," etc. "Successful removal of the tumor necessitates removal of the ovaries also, thus destroying the distinctively feminine characteristics of the individual; produces a weak spot in the abdominal wall leading to hernia," etc. The statement with reference to the mortality of operations for fibroids clearly shows an ignorance which to say the least is appalling. We urge the author to look over the statistics of Olshausen whose mortality in 806 cases was 5.6% in 1897; those of Kelly with a mortality of 2% and those of countless others who have had equally excellent results. So far as the necessity for the extirpation of the ovaries is concerned the author's statement is equally inexact, and as to the occurrence of hernia this complication is nowadays a rare occurrence in the hands of clean and experienced operators.

Disappointing as is the general presentation of the subject we elect for strongest condemnation chapter XV, in which the author advises the cataphoric method for the treatment of mammary cancer. Statements such as this, "The major application of the zinc-mercury cataphoresis offers a most effective method for the destructive sterilization of mammary cancer in its early stages, enabling the operator to destroy all infected portions of the gland at once, without risk of the infective cells gaining access to the lymphatic spaces, as may happen in a cutting operation" are astounding. Any advice short of a radical operation by the knife in operable cases is certainly the result of the crassest ignorance if not indeed criminal. How any medical man in this day can take any other position with reference to this question is incomprehensible.

Of the absurdity and danger of the views of the author with reference to ectopic pregnancy we shall say nothing, fearful of insulting the intelligence of our readers, nor shall we comment on the views expressed on the subject of rectal cancer or many other conditions. Much that we have in mind is best left unsaid, for your sake, gentle reader, not the author's. A. J. L.

Appendicitis and Other Diseases of the Vermiform Appendix. By Howard Kelly, M. D. J. B. Lippincott Company. 1909.

At the time of the appearance, about four years ago, of the first edition of this volume it was extensively reviewed, the reviews on the whole being very favorable although certain features were freely and justly criticized. These related mainly to the practical side of the subject especially the surgical handling of cases, particularly suppurative cases. In the present edition, however, the author has considerably revised the sections dealing with this phase of the question to meet the needs of most men who would care to undertake the reading of so comprehensive a work. With the reviews of the first edition still in mind it seems scarcely necessary to go again into a detailed analysis of the book.

As in the earlier reprint considerable space is devoted to the consideration of the anatomy and pathology of appendiceal affections; likewise the clinical manifestations of the various types of appendicitis are extensively dealt with, and the surgical treatment advocated represents in a general way the position of most operators. While probably of not very great importance in practice on account of their rarity the various primary neoplasms of the appendix are well considered although as yet our knowledge of these growths is not very considerable. Altogether, the book is an excellent résumé of our knowledge of appendiceal lesions, their clinical manifestations and operative treatment. Although not indispensable to the surgeon a careful study of it will amply repay any medical man who takes the trouble and time to do this. In the matter of illustrations we here have another example of the high standard of graphic art made possible by the skill and intelligence of Broedel and his co-workers.

A. J. L.

Legal Medicine and Texicology. By R. L. Emerson, A. B., M. D., member of the Massachusetts Medico-Legal Society; formerly Instructor in Physiological Chemistry, Harvard University Medical School, and Assistant in Clinical Pathology, Boston City Hospital. D. Appleton and Company. 1909. New York and London.

This, the latest work on legal medicine, contains an admirable account of the subject, especially from the standpoint of practice in this country. Adapted as much as possible to the practical needs of the practitioner who may now and again suddenly find himself confronted with a medico-legal case, the author has at the same time given a most succinct description of the principles and practice of forensic medicine from the modern standpoint. In fact, we know of no single volume in the English language which gives so scientific and clear a résumé of this altogether too much neglected subject. Not only is the work reliable in statement of facts, but the literary style is deserving of highest commendation. In short, here we have a volume which we recommend to all medical men whether interested in the subject by choice, or by power of the law.

A. J. L.

A Manual of Practical X-Ray Work. By David Arthur, M. D., D. P. H. and Jno. Muir, B. Sc., M. B., Ch. B. & B. Sc. Rebman Co., Publishers, New York.

This small book has a great deal of practical information. The sections which explain the various means used to obtain the X-ray are particularly plain. The table giving the times for exposure is a useful one though the time given for the hip in comparison to a chest plate seems rather short. This is also true in the kidney and ureteral work.

The use of the iris diaphragm is strongly recommended but we consider the tube diaphragm far superior and in some instances indispensable. The fact that this device is not used is perhaps accountable for the statement (so opposite to our experience), "Radiography of the ureters presents great difficulty and results in search for calculi in them are still very uncertain."

Much of the work in England seems to be done with the tube below the patient, a method of procedure in which we fail to see any advantage. The paragraphs devoted to the interpretation of plates are short, so short that they are of little service to any one not already familiar with plates and the points mentioned. The therapeutic portion is conservative and reliable. G. L. Painter.

Confessions of a Neurasthenic. By Wm. Taylor Marrs, M. D. By F. A. Davis, Publishers, Philadelphia.

Atlas and Text-Book of Human Anatomy. Volume I. By Professor J. Sobotta, of Wurzburg. Edited, with additions, by J. Playfair McMurrich, A. M., Ph. D., Professor of Anatomy at the University of Michigan, Ann Arbor. Quarto volume of 258 pages, containing 320 illustrations, mostly all in colors. Philadelphia and London. W. B. Saunders Company. 1906. Cloth, $6.00 net; Half Morocco, $7.00 net.

This is a handsome book and is of unquestionable value in the study of anatomy. It is beautifully il-

lustrated while the text is clear and concise. The volume before us treats of bones, ligaments, joints and muscles and is so arranged and adapted to the requirements of the student as to make this otherwise dry part of anatomy interesting, in fact attractive.

Treves' Operative Surgery. New (3d) Edition. A Manual of Operative Surgery. By Sir Frederick Treves, Bart., G. C. V. O., C. B., LL. D., F. R. C. S., Sergeant-Surgeon to H. M. the King, Surgeon-in Ordinary to H. R. H. the Prince of Wales, Consulting Surgeon to the London Hospital; and Jonathan Hutchinson, F. R. C. S., Surgeon to the London Hospital. New (3d) Edition, revised and rewritten. In two octavo volumes. Volume I, 775 pages, with 193 engravings and 17 full-page plates. Half-morocco, $6.50 net. Lea & Febiger, Publishers, Philadelphia and New York. 1909.

Diet in Health and Disease. By Julius Friedenwald, M. D., Clinical Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and John Ruhrah, M. D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Second Revised Edition. Octavo of 728 pages. Philadelphia and London: W. B. Saunders Company. 1906. Cloth, $4.00 net; Half Morocco, $5.00 net. W. B. Saunders Company, Philadelphia and London.

This is a practical, comprehensive work on Diet, prepared to meet the needs of the general practitioner, the medical student, and the trained nurse. It contains a complete account of food stuffs, their uses and chemical composition. The dietetic management of every disease in which diet plays a part in treatment is carefully considered, the article on diet in diseases of the digestive organs containing numerous diet lists and explicit instructions for administration. The feeding of infants and children, of patients before and after anesthesia and surgical operations, and the latest methods of feeding after gastro-intestinal operations, are all taken up in detail. The subject of nutritive enemata is given completely, with recipes and full instructions as to technic.

A Text-Book on the Practice of Gynecology. For Practitioners and Students. By W. Easterly Ashton, M. D., LL. D., Professor of Gynecology in the Medico-Chirurgical College of Philadelphia. Third Edition, Thoroughly Revised. Octavo of 1096 pages, with 1057 original line drawings. Philadelphia and London. W. B. Saunders Company. 1906. Cloth, $6.50 net; Half Morocco, $7.50 net. W. B. Saunders Company. Philadelphia and London.

In this, the third edition of this text-book, the subject-matter has undergone a thorough revision and represents the author's present views on the advances made in gynecology and abdominal surgery. The entire book reflects the author's own opinions on both the medical and surgical aspects of gynecology.

A Text-Book of Obstetrics. By Barton Cooke Hirst, M. D., Professor of Obstetrics in the University of Pennsylvania. Fifth Revised Edition. Octavo of 915 pages, with 753 illustrations, 39 of them in colors. Philadelphia and London. W. B. Saunders Company. 1906. Cloth, $5.00 net; Half Morocco, $6.00 net. W. B. Saunders Company, Philadelphia and London.

Obstetrics for Nurses. By Joseph B. DeLee, M. D., Professor of Obstetrics in the Northwestern University Medical School, Chicago. Third Revised Edition. 12 mo. of 512 pages, fully illustrated. Philadelphia and London. W. B. Saunders Company. 1908. Cloth, $2.50 net. W. B. Saunders Company, Philadelphia and London.

While this work was written particularly for nurses, the medical student also will find in it much that is useful and instructive.

The Elements of the Science of Nutrition. By Graham Lusk, Ph. D., M. A., F. R. S. (Edin.), Professor of Physiology at the University and Bellevue Hospital Medical College, New York City. Octavo of 326 pages, illustrated. Philadelphia and London. W. B. Saunders Company. 1906. Cloth, $2.50 net. W. B. Saunders Company, Philadelphia and London.

Prevalent Diseases of the Eye. By Samuel Theobald, M. D., Clinical Professor of Ophthalmology and Otology, Johns Hopkins University. Octavo of 551 pages, with 219 text-illustrations, and 10 colored plates. Philadelphia and London. W. B. Saunders Company. 1906. Cloth, $4.50 net; Half Morocco, $5.50 net. W. B. Saunders Company, Philadalphia and London.

Politzer on the Ear. New (5th) Edition. A Textbook of the Diseases of the Ear, for Students and Practitioners. By Professor Dr. Adam Politzer, Imperial-Royal Professor of Aural Therapeutics in the University of Vienna; Chief of the Imperial-Royal University Clinic for Diseases of the Ear in the General Hospital, Vienna, etc. Translated at the personal request of the Author and edited by Milton J. Ballin, Ph. B., M. D., Assistant Surgeon, New York Ophthalmic and Aural Institute; Assistant Surgeon, Mount Sinai Dispensary, Ear, Nose and Throat Department, etc., and Clarence L. Heller, M. D. Fifth Edition, enlarged and thoroughly revised. Octavo, 892 pages, with 337 original illustrations. Cloth, $8.00, net. Lea & Febiger, Publishers, Philadelphia and New York. 1909.

Dorland's American Illustrated Medical Dictionary. A new and complete dictionary of the terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, and kindred branches; with over 100 new and elaborate tables and many handsome illustrations. Fourth Revised Edition. By W. A. Newman Dorland, M. D., Large octavo, over 850 pages, with 2000 new terms. Philadelphia and London. W. B. Saunders Company. 1906. Flexible leather, $4.50 net; indexed, $5.00 net. W. B. Saunders Company. Philadelphia and London.

It is practically unabridged, yet, by the use of thin bible paper and flexible morocco binding, it is only 1¾ inches thick. The result is a truly luxurious specimen of book-making. This edition contains over 2000 new words.

Thornton's Pocket Medical Formulary. New (9th) edition. Containing about 2,000 prescriptions, with indications for their use. In one leather-bound volume. Price, $1.50 net. Lea & Febriger, publishers, Philadelphia and New York. 1909.

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Owned and Published Monthly by the

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VOL. VII SEPTEMBER, 1909. No. 9

EDITORIAL NOTES.

DRY HEAT IN GYNECOLOGY.

The value of various physical agencies in the treatment of disease has been recognized for many years, but for the development of physical therapeutics in the modern sense we are indebted to the investigations of the past decade. To Bier particularly we owe much for placing certain phases of the subject on a rational and scientific basis. He has clearly shown and emphasized the role of active and passive hyperæmia in the recovery of diseased tissue, and he amongst others has demonstrated that of the different physical agencies heat is the best for the production of active hyperæmia. Its use as a household remedy is as old as the history of disease itself, but its employment in the form of hot air is comparatively recent.

Bier has employed heat in the form of hot air in many surgical conditions with marked success, and ever increasing reports attest its therapeutic value in both surgical and medical diseases. More recently its application has been extended to the domain of gynecological affections with encouraging results, as shown by the excellent paper recently published by Gellhorn (American Journal of Obstetrics, July, 1909). The hot air is applied in two ways: 1, by means of hot-air boxes or chambers; 2, by the hot-air vaginal douche. In the experience of Stein, Gellhorn and others, the latter has not given good results, but of the excellent effects of the former all speak in the highest terms.

The hot-air chambers are so constructed as to fit over the patient's abdomen and hips, and by means of alcohol, gas or electric lamps, the temperature of the enclosed atmosphere is raised to 200 degrees or more. The time of exposure varies from ten to thirty minutes or even longer in some cases. The amount of heat which patients can stand under these circumstances is remarkable. Physiological researches, however, have shown that when individuals are placed in a heated atmosphere, the rise in body temperature is proportionate to the heat-conducting properties of that atmosphere. It has also been shown that water is a good conductor of heat, while water-free air is a poor one, which explains why patients are able to stand the temperatures to which they are submitted in this treatment. Naturally, the dryer the hot air, the better are they able to stand high temperatures. Many years ago Tillet demonstrated that individuals could stand with impunity a hot-air atmosphere of 269.6 degrees for twenty minutes. In these experiments the body temperature rose only to about 102 degrees.

Since under the stimulating influence of heat the sweat glands become active and sooner or later the enclosed previously dry atmosphere becomes more or less saturated with moisture, and consequently a better conductor of heat, it has been found advisable to ensure the constant dryness of the atmosphere, to place in the chamber, as suggested by Wilson and Reither, calcium chloride which, by virtue of its hygroscopic qualities, absorbs the evaporated perspiration. In this way the temperature has been raised as high as 300 degrees as recommended by certain German authors.

The sensations of the patient during the treatment consist at first of a feeling of comfort, which later, when the temperature reaches 180 degrees, is followed by a feeling of great discomfort. With each subsequent treatment, however, this discomfort diminishes, so that after a few applications the patients will bear the baking process for a half hour without any complaint. As the temperature is raised the pulse rate is accelerated. The patients perspire profusely over the entire body, particularly on the abdomen. The skin of the exposed parts becomes intensely red, either diffusely or in more circumscribed areas. In some cases, dark brown zones remain which are due to the pigment of destroyed corpuscles; these pigmentations disappear in time. Heinsius and Gellhorn have both observed large quantities of secretion pouring from the cervix. There are on the whole very few untoward symptoms associated with this treatment. Burns of a mild degree may occur, but should be avoided with proper precaution. Bürger occasionally noted in weak and anæmic patients excessive fatigue, palpitation of the heart, vertigo and even nausea, but these symptoms Gellhorn ascribes to the excessive degrees of heat—up to 280—used in these cases.

The usefulness of hot-air therapy in gynecological diseases has been particularly shown in the relief and

cure obtained in cases of chronic para- and perimetric exudates which are not amenable to ordinary surgical treatment. All authors emphasize in their reports a rapid diminution of pain and a complete cessation of discomfort after four or five treatments. It is claimed by those who have given the method a fair trial that the exudative mass disappears by absorption. Among those who have had excellent results in this class of cases may be mentioned Polano, Büger, Keilmann, Peham and Keitler, Fett, Dresden, Stöckel, Gellhorn and others.

Kehrer has also suggested dry heat in infantalism of the female genitalia, in order to overcome the arrest of development by an improvement of the blood supply. To what extent the suggestion has been acted upon, and if so with what success, does not appear, although Gellhorn relates two cases in which he noted a regular and gradually increasing menstruation. Gelinsky has also recommended its use in post-operative paralysis and related good results, and others speak of its utility in post-operative adhesions.

THERAPY OF MENINGITIS.

Encouraging results continue to be published regarding the use of the antimeningitic serum of Flexner and Jobling. In a recent paper (*N. Y. State Journal of Medicine,* June, 1909), Holt has reviewed the subject, analyzing the results obtained in a series of 523 cases of cerebro-spinal meningitis, the figures being furnished by Flexner. So far as the initial dose is concerned, it is clear that for any case no less than 30 cc. should be given; on the other hand, in older patients and in severe cases, as much as 45 or 50 cc. may be advantageously injected. Experience has further shown that instead of waiting to see whether or not improvement follows the initial injection, it is best to give a full daily dose for three or four days, to make the destruction of the bacteria certain. In fulminating types of the disease it is advisable to give the injections even at shorter intervals. The length of time that the treatment should be continued will necessarily vary with each individual case, but at all events all observers agree that the use of the serum should be continued until the cerebro-spinal fluid becomes absolutely clear.

This series of 523 cases consists of material from widely different sources, but in all instances the diagnosis was based on a bacteriological examination. Of this number 368 recovered and 155 died, giving a mortality of 29.6 per cent. The patients under two years of age show a mortality of 42.4 per cent, as contrasted with one of 90 per cent in another series of 61 cases not treated with the serum. The figures for the first fifteen years of life give a mortality of 12.7 per cent for 110 cases injected during the first three days; of 23.3 per cent for 120 cases injected from the fourth to the seventh day; and 44 per cent for 91 cases injected after the seventh day. Complications and sequelæ were very infrequent, especially when the treatment was begun early. Moreover, experience has shown that no improvement is to be expected in late cases in which all acute symptoms have subsided and in which chronic hydrocephalus is present.

CARDIAC MASSAGE.

Within the past few months two extensive articles have appeared on resuscitation of the heart by means of cardiac massage, one by von Cackovic in Germany, the other by Mocquot in France. While both these writers review most carefully the extensive literature, their clinical and experimental experiences have been quite limited and they add but little to existing konwledge. Up the the present time cardiac massage has been employed in some fifty human cases, and it is claimed that it has been of value in eighteen. It has been more frequently used in apparent death from chloroform anesthesia than in any other condition. It must be confessed that the arguments of these authors are far from convincing, and the surgeon who seeks to obtain indications for the employment of this method will hardly be repaid for the expenditure of time which the perusal of these articles entails. He who reads critically must certainly have reason to question at times the necessity for such a drastic measure, although desperate conditions require desperate remedies.

To the surgeon, however, who delights in seeing the direct application to his art of physiological principles, these theses will strongly appeal. Kuliabio, Ringer, and more recently Sollman, have shown that the excised heart can be made to beat again even after several hours. But the central nervous system is not so tenacious of life and soon dies. Some admirable work on this subject has lately been done by Stewart, Guthrie, Burns, Pike and Dolley, and it has been demonstrated that death, without any return of reflexes, follows an occlusion of the cerebral arteries lasting seven and one-half minutes, although respiration has returned after an occlusion of one hour.

It is of interest to note that direct injections into the myocardium of atropia sulphate and other drugs have been tried. Spina has obtained excellent results by throwing a physiological salt solution, at 35° to 40° C, directly into the left carotid or brachial artery in the direction of the heart. He states that, in a dog of medium weight, as much as 200 cc. can thus be easily injected. Crile has recently amplified this method by adding adrenalin to the physiological salt solution.

From the foregoing two facts are evident: First, that death of central nervous tissue decidedly limits the time during which resuscitation can be accomplished; secondly, that the surgeon must have a quick and efficacious method of resuscitation in these conditions of apparent death, for time will not allow him to use a variety of procedures, or can he waste precious moments on those of doubtful utility. In view of the great importance of the subject, it is hoped that the best method of reanimation will soon be determined.

ORIGINAL ARTICLES

REQUISITES FOR THE TREATMENT OF THE PSYCHO-NEUROSES: PSYCHO-PATHOLOGICAL IGNORANCE, AND THE MISUSE OF PSYCHOTHERAPY BY THE NOVICE.*

By TOM. A. WILLIAMS, MB. CM., Edin., Washington, D. C.

We hear much about the neuroticism of modern days, the popular belief being that neurasthenia,[1] as it is loosely called, hardly existed until the latter end of the 19th century. It is supposed that this state of matters is due to the fatigue to the nerves of the modern strenuous life.

As a matter of fact, confessions, memoirs,[2] and pictures of the time show that neurotic states occurred in the Middle Ages even more widely than they do to-day. Again, the "vapours" so often alluded to in the literature of Queen Anne's time, would now-a-days be called nervous prostration, and a "rest-cure" would be prescribed; but in that less enlightened age, they were appraised, empirically it is true, at their real value—mental vacuity, discontent or failure of adjustment to environment.

The last factor is shown by a close analysis to be the real cause of most cases of so-called nervous prostration;[3] and the indiscriminate administration of the rest cure without a clear psycho-diagnosis will in the future be relegated to the limbo of such other medical superstitions as blood-letting and antipyretics.

Of course, adjustment fails when the nerve cells are poisoned, injured, receive insufficient oxygen or irregular supply of blood; but these are not psychic difficulties, and can be provided against by the physician and the pathological chemist. He succeeds in virtue of the precision with which he estimates the derangements in a body whose normal functions he has spent years in studying.

Similarly, the psychiatrist can succeed only by an understanding of normal mental reactions, and by a profound study of the data of morbid psychology. It must be recollected that the patients referred to him are those in whom empirical methods have failed. For example, they are "suggestioned" *ad nauseam*: one patient told me how thankful she was that I did not tell her she was better or minimize her mental suffering for she hated the sight of a doctor; as each in turn made light of her state, and said she would soon be better, whereas she became worse and the confidence she had reposed in her first physician had become profound distrust at the end of three years, at which time I was called in.

Another gross empirical error is the injudicious appeal to the patient's will-power.[4] The doctor who commits this solecism does not realize that the patient has already exhausted his volitional power of response, previously highly stimulated by the complexities of social and professional environment. It is as if a lost traveler in a jungle which he does not know were directed to find his way back to the camp from which he had strayed. The real guide will show the way. Such symposia as this are a sign that in psychotherapy blundering empiricism has had its day.

We should laugh at the surgeon who tried to tie the lingual artery while ignorant of the anatomy of the sub-lingual triangle, or even to set a dislocation without understanding the structure of the joints; but the arrest of a morbid train of thought and the setting a mind at rest are much more delicate operations than those of the surgeon; and yet, although the art requires finesse for its acquirement and years before the *tactus eruditus* is acquired, very few men hesitate to rush in where angels fear to tread, into the sacred precincts of the soul. A bull in a china shop would be less out of place.

Such assumptions of confidence where skill has not been acquired have in the field of gynecology called down just reproach from the masters of that art.[5] In morbid pathology, the result has been, if not less disastrous to our patients, certainly much more so to ourselves, both in wealth and prestige. The Christian Science Church is a growing canker of contempt for science and its medical exponents, and its doctrine is inculcated to the plastic mind of childhood, to be there ineradicably fixed, even though enlightenment may come. The Emanuel movement will become another source of malign influence; for it has now been publicly repudiated,[6] even by the few neurologists who were weak enough to countenance its apparently ethical commencement.

We can overcome these influences only by acting together, as is done in all successful organizations. The public requires and demands psychic treatment. They receive from the medical man, burdened with the complexities of his art, only indifference or an affectation of knowledge which they are quick to penetrate. I even know of a case where a medical man sent a patient to a mental-healer who advertises in the newspaper.

Now the remedy should be obvious enough. It is to provide facilities for instruction of medical men, first in psychology and psycho-pathology, and then in psycho-therapeutics. To do this, wards and out-patient clinics must be provided in the hospitals, to which competent teachers must be appointed. In the meanwhile, the doctor who endeavors to bungle through the treatment of a psycho-neurotic case, without understanding psycho-physiology and pathology, and with only a rough empirical experience, is guilty of a crime to his profession. Such cases should be treated at least under the advice of a specialist, until the physician has learnt to do so himself by observation and study under expert direction.

It is impossible in ten minutes to even indicate the kind of problems which psychotherapy studies,[7] all of them depending upon analytic diagnosis of mental make-up, as well as of the physical factors which contribute to psychic insufficiency.

* Read by invitation at the Symposium on Psychotherapy before the Washington Therapeutic Association, April 10, 1909.

I may mention, firstly, the mythomanic[8] tendency, that is, the impulse to take what appears the easier way of complete indifference with regard to truth. It is fundamentally a lack of foresight due to a deficiency of intelligence; but it has been acquired in early childhood, and has become an affective habit, which the intelligence is not powerful enough to overcome. Its prevention, and later the cure, depends upon the principle of "conditioning the reflexes," as shown in its most simple terms by Pawlow[9] in dogs, when he changed at will the stimulus needed to provoke gastric or salivary secretions. The whole art of education is based upon this principle of associating pleasant feelings with useful activities, of which truth telling is certainly one of the greatest. The re-education of a bad habit is similar in principle, but more difficult of accomplishment, and is best illustrated in the arts of playing a musical instrument or of speaking and singing.

Time forbids to trace the stages between such simple measures and the full complexity of the intellectual readjustments which psychotherapy attempts.

The problem is comparatively easy compared with that where the emotions and feelings are concerned, as for instance in such cases of sexual perversion as the classic one of Kraft-Ebbing,[10] where the sexual act could be performed only when the patient's wife was dressed in a white apron, owing to the circumstance that it was with a maid so dressed that he had first had connection. Still more striking in this connection is the case recently reported by Stcherbak,[11] in which the only means of producing orgasm was the placing upon the knees the elegantly booted lower extremities of a fashionably dressed woman. The sexual factor in the production of neuroses is most important, and it is time the reticence we display towards it cease and be replaced by thorough discussion.

But emotion may be conditioned, too. Indeed, it is the affective accompaniments which give intellectual attitudes their dynamic power.

This is an important element in cases of traumatic neuroses. Here the replacement of the morbid feeling tone by another cannot be direct, but must be accomplished through the replacement of the causative idea by another one. *Ex cathredra* affirmation or cold appeal to the intellect cannot change an attitude of mood of any standing. The method of doing this may be illustrated by the gastric neuroses,[12] where a false fixed idea creates a feeling of disgust while food is being eaten, which in turn inhibits the digestive secretions. As I have pointed out elsewhere, this morbid conditioned reflex has usually its source in the unskillful suggestions of doctors[13] who have not understood the role of the psyche in pathology, and who have gone on treating the symptoms by referring them to the stomach itself, thereby only fortifying the patient's error; so that by the time he reaches the psychotherapist, he is inexcessible to conviction that the trouble is really in his head, as Déjérine[14] puts it. Accordingly he cannot be convinced by assertion or argument, as he has lost confidence in these; but is convinced by the stern logic of events, shown by his rapid gain in weight while isolated. It is then that the physician's dialectic finds its opportunity,[15] and the patient's false idea is dispelled.

I have shown elsewhere[16] that both of these conditions are forms of hysteria, in that they are susceptible of "production by suggestion and of removal by suggestion-persuasion."[17]

Some patients of the more intellectual grade are put on the road to recovery by the first interview, although the recovery from emaciation and the starvation habit which the stomach has acquired requires some time.

In traumatic neurosis my experience has been more favorable,[18] one interview often sufficing. I attribute this, however, to the fact that these patients are in a better position than the gastric ones to realize the truth; for until my psycho-therapeutic interview, they have heard only *ex parte* opinions or indiscriminate sympathy for an attitude which at heart they would be glad to be rid of. Without confidence given by a thorough knowledge of organic disease of the nervous system, the neurologist's diagnosis and affirmation cannot be positive.[19] When to this is added the muddled conceptions so prevalent about the traumatic neurosis, one cannot wonder at the reproaches heaped upon our profession as medico-legal experts.

From these types of what might be termed untruthful reaction to environment, I trust that my hearers will gain at least a slight conception of the problems with which psychotherapy deals; and that from a comprehension of these clearer cut conditions, they may be in a better position to estimate the much commoner cases where one may be called upon to guide into productive and happy channels perversions of disposition, such as despondence, suspiciousness, facile emotionalism, religious sentimentalism, social ashamedness, weakness of character, and morbid fears, pains, besetments or any form of inadequacy to personal and social requirements.[20]

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CHRONIC COLITIS.

By DUDLEY FULTON, M. D., Los Angeles.

This paper is a résumé of 158 cases of chronic colitis. Only those cases are included in this series in which the disease was limited to the large bowel. Excluded are gastro-enteritis, acute entero-colitis and those cases of chronic entero-colitis associated with disturbances of the upper intestinal tract, as evidenced by the presence of undigested food in the stool. In the cases which furnish the basis of this paper, the stools were macroscopically studied in all, microscopically and chemically in a considerable number, and bacteriologically in six: the limited number of the last two groups do not permit conclusions to be drawn. We consider the subject of colitis therefore purely as it is observed at the bedside. Of the 158 cases, 67 were males and 91 females. The youngest individual was a boy of six, and the oldest, a woman of 65. Seventy-five per cent of the cases were from 20 to 50 years of age. The duration of the disease varied from two months to twenty years.

One hundred and forty-two, or 85%, were poorly nourished; the loss in weight varied from a few pounds to 40 pounds below normal weight in health.

Ptosis of the stomach (by which is meant the greater curvature of the stomach lying below three finger breaths above the umbilicus) was present in 118 cases.

The right kidney was palpable in 53, both in 15, and the left alone in two cases.

Ninety-two had the "habitus enteropticus," i. e., the long narrow thorax with sharp costal angle. Since this predisposes to general enterostosis—there being in such a thorax and abdomen greater longitudinal than transverse room for the abdominal viscera—it is a question in my mind if this anatomical condition is not a factor in the development of constipation and therefore of colitis.

One hundred and fifty-four of the 158 cases had chronic constipation at the time of application for treatment. Of these, in 131 the constipation was of the spastic variety. Atonic constipation had existed from a few months to 15 years before the spastic stage had developed. With the onset of the latter, most of the patients upon careful anamnesis could date the beginning of colitis symptoms. In other words, so far as my experience has taught me, spastic constipation is soon followed by colitis.

Instead of colitis being a neurosis secondary to general neurasthenia and nervous irritability, as is usually taught, we believe the interpretation of the relationship between the two should be that in a neurotic individual with high reflexibility of his nervous system, atonic constipation will develop into spastic constipation sooner than in a person with a more stable nervous organization. In the latter, atonic constipation may exist for years or decades without further trouble than simple constipation, while in a neurotic person atonic constipation may develop into the spastic stage within a few weeks or months, with its associated chronic flatulence, abdominal distress and evacuation of mucus, which are never chronically present in atonic constipation.

Four of the 158 cases had diarrhea, and seven, alternating constipation and diarrhea. Three stated that their bowel functions were normal. To test this a teaspoonful of powdered charcoal was administered and it was found that from three to seven days were required for the charcoal to disappear from the stool.

Since it is well known that most cases of alternating constipation and diarrhea are fundamentally constipation, and since in the seven cases in this series this proved to be true, we may state, therefore, that the most striking observation in this series of cases was that 154 of the 158 cases had chronic constipation.

The symptomatology consisted of constipation, mucus, flatulence and abdominal distress, besides a large number of reflex, nervous, dyspeptic and circulatory disturbances too numerous to mention.

The mucus was evacuated in glairy, amorphous masses, or in membranous-like form. The form in which it was evacuated was without especial clinical significance. The amorphus represented the more freshly secreted mucus, while the membranous form represented older mucus which had been molded and pressed into casts of the bowel, membranous shreds, etc., by the absorption of moisture and the pressure of the stagnating column of feces in the colon. The expulsion of membranous mucus was accompanied by greater discomfort than of amorphous mucus and in some instances amounted to the most excruciating pain and colic, simulating in severity the agonizing pain of gallstone colic, kidney-colic or ileus, which in some cases caused early diagnostic confusion.

The abdominal distress complained of seemed to be dependent upon and proportionate to the amount of mucus and gas in the large bowel. Mucus-colic and the so-called "wind-colic" represented the extremes of pain in these cases. Graduating up to these were all degres of sensory discomforts; flatulence, distension, uneasiness, distress and actual pain.

Typically, the distress in colitis is said to be left-sided in the region of the sigmoid. In my experience the transverse colon was as often the seat of

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April 1909.

pain, and frequently patients complained of general abdominal distress. When abdominal pain and discomfort were most marked in the transverse portion or in the right flexure of the colon, considerable difficulty was experienced in differentiation from indefinite and atypical abdominal distress of gall-bladder disease, chronic appendicitis and other right-sided surgical affections. This point may be emphasized by the fact that 12 of this group had in addition to typical colitis, chronic gall-bladder disease; nine without and three with gall-stones, all of which were surgically treated. Eleven had chronic appendicitis and were operated upon. Two had what was clinically diagnosed as duodenal ulcer and seven as acute gastric ulcer. Chronic ulcer of the pylorus was present in three cases, which were treated surgically.

It may not be amiss to mention six others of this series that had received surgical treatment before coming under our observation. Of these, two were for appendicitis, one for cholecystitis, and three for "dilatation of the stomach." None of the stomach cases had ever vomited food, nor could any symptons of food stasis be elicited in the history of any of them. None of them received benefit from the operation. These cases have been fully relieved by colitis treatment, which leads us to assume that the chronic colitis which they had long suffered was mistaken for some surgical affection of the stomach. It is only fair to state that two of these three patients had been operated upon several years ago, at a time when the indications for gastric surgery were more poorly defined than now.

In none of the cases operated upon for gall-bladder or stomach disease have I noticed any lasting influence upon the colitis. In three of the eleven who were operated upon for chronic appendicitis, the colitis was permanently benefited. In the remaining eight cases, operation seemed to have but little influence upon the colitis.

Treatment. The treatment of the cases which furnish the material in this paper was based upon the principle that in the large majority of cases chronic colitis is a superficial catarrh of the large bowel which accompanies chronic constipation. Treatment was directed, therefore, to the cure of the latter.

In our opinion the great difficulties encountered in the cure of chronic constipation and the lack of knowledge of its pathogenesis are responsible for the causation of and the difficulties in the cure of colitis.

Contrary to usual customs no treatment was directed primarily to the nervous system. The so-called neurasthenia, etc., with which most of these patients had previously been told they were afflicted disappeared with the colitis and constipation.

Endeavor was made to restore, when indicated, the abdominal pelvic organs to their normal anatomical relations. Properly fitting abdominal supporters or corsets were therefore invariably prescribed when marked ptosis of the stomach or colon was present, and for displacements of the uterus, operations for their correction were advised.

In two cases, one of which is too recent to include in this series, colonic adhesions were no doubt the cause of the constipation and its resulting colitis. One of these cases was permanently cured by surgical treatment. The other, the more recent of the two, presents evidence of reformation of adhesions since the operation, two months ago.

Results. Twenty-eight of the 158 cases have been lost sight of and are therefore not included in the tabulated results.

Of the 130 cases whose after history is known, eighteen, or 14%, received no benefit at all, or soon relapsed after the cessation of active treatment.

Thirty-six, or 28%, were greatly benefited, by which is meant, freedom from symptoms, except following occasional temporary return of constipation.

Seventy-six, or 58%, have remained well.

THE TREATMENT OF MUCOMENBRANOUS COLITIS FROM THE STANDPOINT OF ITS BACTERIAL ORIGIN.*

By RAY LYMAN WILBUR, M. D., Palo Alto.

Mucomenbranous colitis occupies a peculiar position among the more chronic ailments with which the physician has to deal, in that, while often a prompt curative result follows treatment, just as frequently an apparently similar case handled along the same lines or by other careful measures remains practically unchanged. The individual equation is no doubt of great importance and the wide variability in symptoms and results of treatment have emphasized the neurotic element involved.

It is not my intention to discuss the various hypotheses offered in explanation of the phenomenon of the intermittent and more or less painful passage of shreds or membranes of mucus from the bowel or to favor the gastric, the hepatic, the nervous, the psychic, the mechanical or the infection theory of its production, but to present some points of treatment that experience has shown me wise to consider in the management of any given patient. In the first cases dealt with, I had no definite ideas as to their control but attempted by various forms of diet to relieve the accompanying constipation and by symptomatic treatment to handle the troublesome features of the condition. Later, with the opportunity to see some of Van Noorden's work and to follow his monograph on Membranous Catarrh of the Intestine, the adoption of his plan of using a full, coarse diet gave some striking results, but in other individuals failed completely. In two of the latter a modified rest cure with the food consisting largely of milk and gruels was at least temporarily effective. It seemed to me, particularly in several children, with periodical discharge of membranous mucus from the bowel, that the occasionally accompanying fever and general gastrointestinal condition indicated a distinct infection of the gut and that treatment directed to control this gave the best results, so that when A.

*Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

Combe's "Traitment de L'Enteterite muco-membraneuse" came under my observation I decided to test his ideas upon the few cases accessible to me. Basing his conclusions upon a series of experiments indicating infection and putrefaction within the bowel as the primary cause of mucomembranous colitis, except in the purely nervous type, Combe outlines the indications for the treatment of the chronic cases as follows:

(1) Modify the culture medium of the intestine.

(2) Combat the putrefaction due to bacteria in the colon.

(3) Evacuate the products of putrefaction from the large intestine.

(4) Combat the prominent symptoms which accompany the enteritis.

To do this, he advises frequent meals particularly of the farinaceous foods and milk and cheese. He favors these because if given regularly their decomposition supplies little by little succinic and lactic acids to the intestine and these inhibit abnormal bacterial growth within the bowel and favor the development of a normal flora.

Partly because of the presence in the stool of various crystalline bodies derived from the nucleins and of the so-called arthritic tendencies of certain cases, as well as the ease with which the nitrogenous foods lend themselves to putrefactive changes in the intestines, he eliminates such food to the lowest level consistent with good nourishment. Fats, except sweet butter, plain fresh milk and partially decomposed meats, are especially undesirable, as they favor the growth of the proteolytic bacteria and thus encourage the conditions productive of mucomembranous colitis. His points in this connection are of interest and a great field is open for bacteriological study. The day has gone by when we can reasonably believe the exaggerated claims of some autointoxicationists or those made for the various chemical agents supposed to act as direct disinfectants of the alimentary canal, but such work as that of Metchnikoff and the recent studies by Herter on the bacteria of the bowel in cases of infantilism show that we have the oportunity to better understand many of the obscure systemic and intestinal conditions and perhaps some of the anemias as well.

With these general points in mind permit me to recount briefly four typical case records in which the treatment was based largely on the above lines. It might be well to state that I do not consider the thesis of Combe as proven, and that I realize the many factors that may go to make up the clinical picture presented by any individual case of mucomembranous colitis.

Case I. Nervous, acutely sensitive girl of thirteen years had repeated, slightly febrile attacks of exquisitely painful abdominal colic often localized on the right side with marked muscular spasm and the occurrence of a sausage-shaped mass in the right hypochondrium which at times occupied the site of the gallbladder. In consultation with Dr. Stanley Stillman the possibility of a duodenal ulcer, an infected gallbladder and of intussusception of the cecum were considered but the passage of quantities of membranous mucus after the relief of the pain by morphin settled the diagnosis as an intussusception consequent upon abnormal spasm of the colon induced by the forcible expulsion of the mucus from the bowel wall. Several remarkably similar attacks followed each other within a few days, but by the adoption of a regimen of rest and careful diet, largely of milk, variously modified, eggs, and cereals, and the use of oil and saline enemas and milk of magnesia a complete and lasting recovery resulted. With improvement the appearance of the mucus was often unassociated with pain and it soon disappeared entirely and the foul smelling stools accompanying it were replaced by normal ones.

Case II. Nervous man of forty-two years, of great intellectual power and attainments with beginning arteriosclerosis and some albuminuria. After a long period of fermentative indigestion with headaches, general physical depression and loss of weight, and with a diet limited by attempts upon his part to control his distress he began to have slightly febrile attacks of severe abdominal colic, at one time accompanied by jaundice and followed by the passage from the bowel of masses and strings of mucus. His acute symptoms were relieved by opium suppositories, turpentine stupes and the use of an electric pad. A regimen of diet inaugurated at first of soft and then suddenly of coarse materials, bran biscuits, food rich in cellulose, figs, etc., as outlined by Van Noorden, was followed by striking relief. Then the use of buttermilk and the administration of lactic acid bacilli as prepared by Metchnikoff were begun and these with a bitter tonic and some iodipin resulted in a gain of some twenty pounds in weight and the restoration of a condition of health not enjoyed since early manhood. My idea in using the bacilli was based on the conclusions of Metchnikoff and was to facilitate the development of the conditions noted as desirable by Combe.

Case III. Child of five years of the so-called neuroarthritic type. Since early infancy has had restlessness or definite abdominal pain followed by the passage from the rectum of quantities of mucus. Occasionally there was some fever with the attacks but often a stool of mucus appeared without unusual symptoms. Up to the present year there was no marked effect upon the general development. One day after undue fatigue considerable fever, with foul smelling stools containing at times strings and masses of mucus was noted. In spite of rest in bed, purgation and careful food regulation there were the usual symptoms of a gastrointestinal infection and later on endocarditis developed. With a diet of whey, milk, cereals and the administration of small doses of quinin (which by the way, I have found in many cases the most effective medicinal agent to control the signs of intestinal fermentation) and the use of lactic acid bacilli tablets a gradual change in the stools took place and the mucus disappeared. After the subsidence of the fever and normal conditions were apparently resumed the mucus still occasionally appeared, and later on fatigue and excitement precipitated another attack of milder character. With similar treatment as at first and then the gradual introduction of vegetables and some meats into the diet satisfactory relief has been obtained with gain in weight, clean tongue and the freedom of the stool from mucus.

Case IV. Very nervous boy of eleven years with almost identical history of case III, except that the intestinal condition became prominent only during last two years and that occasionally, particularly after fatigue, painful colic preceded the dejection of mucus. After two attacks with fever similar to the ones above described a simple non-fermentative diet as outlined by Combe, with rest in bed and with the administration of the lactic acid bacilli and quinin resulted in the disappearance of the mucus and with this has come a marked gain in weight and general improvement.

In reviewing these histories as well as those of all of the other cases that have come to my attention a few points of treatment may be worth emphasizing.

(1) It is desirable adequately to control all other prominent symptoms complained of by the patient, especially those disturbing the nervous system, in carrying on a systematic treatment for the condition.

(2) The use of oil enemas and of saline enemas is almost invariably helpful.

(3) Lactic acid bacilli, whey, buttermilk, and curds, should form part of the ingesta of most patients.

(4) Emulsions of the various oils, or of petroleum are often of unexpected value.

(5) The persistent use of laxatives, particularly cascara, often leads to painful attacks sometimes accompanied by mucus, resembling the original colic for which relief is sought. Dietary regulation of the constipation is a prime factor in the care of any case.

The following conclusions are the result of personal experience and may prove helpful. In treating mucomembranous colitis, select for the patient a method of treatment based upon the age, sex, nervous condition, digestive power, degree of constipation and severity and frequency of attacks.

(1) Use the modified rest cure with farinaceous and modified milk diet in neurotic women after correcting, if possible, evident disease of the appendix, uterus and appendages, faulty position of the abdominal organs, gastroptosis, etc. With recovery increase the range of diet and insist upon some light occupation.

(2) Try first the Van Noorden method in most adult males, inaugurating it suddenly and completely changing the quantity and quality of the intestinal contents.

(3) In most children depend largely upon the effort to develop a normal flora in the bowel, begin treatment carefully, avoid the nitrogenous foods and particularly at first the coarse celluloses and by gradual stages place the child upon the secure foundation of a normal diet.

Discussion.

Doctor Emile Schmoll, San Francisco: Listening to the excellent papers one cannot help being impressed by the number of observations which have been made of this condition. It corresponds to the experience which physicians have had the world over with this disease. Colitis is observed in increasing frequency and is related to the change in our methods of feeding. I think, however, that the question of colitis is very much more complex than we thought formerly. We have to distinguish between a great number of varieties of colitis. First of all we have to consider the colitis which Doctor Fulton has spoken of, the colitis which goes with constipation, is dependent upon constipation and is cured by the cure of constipation. Secondly we have to consider that spoken of by Doctor Wilbur in which the excretion of mucus is dependent upon the abnormal intestinal fermentation. In other cases, however, colitis is decidedly dependent upon changes in the gastric digestion. I have observed a number of cases in which a rebellious colitis which did not yield to any treatment, was due to a complete absence of gastric digestion. These cases are very difficult to treat and yield the poorest results. In other cases the colitis leads to a great number of changes—ulcerations in the colon itself. I have seen cases and remember especially one in which colitis was present with excretion of mucus, pus and blood in the stools. The patient developed gangrene of the whole transverse colon and died having developed a peritonitis. At postmortem it was found that there was not one square inch which did not present at least four or five small ulcers. In another case I have seen a patient pass between half and one pint of pus every day. She was thought to have an abscess within the abdominal cavity and laparotomy was performed which showed that the peritoneal cavity was not involved but the pus was excreted from the colon. The patient died of exhaustion.

Doctor H. D'Arcy Power, San Francisco: It appears to me that the bacterial origin of mucus colitis is by no means evident, and that Dr. Wilbur's success in the treatment of the cases reported can be explained without any such assumption. Mucus colitis is usually associated with constipation, and in constipation the total bacterial output of the intestine is greatly reduced, and so far no specific bacillus has been indicated as standing in an etiological relation to the disease. Nor as a matter of fact do the specific mucus dejecta show an abnormal number of bacteria, unless accompanied by diarrhea. The relation of mucus colitis to that condition of perverted metabolism associated with gout and its allied conditions has been long recognized. Doctor Wilbur by limiting the input of proteids, has simply dealt with the so-called gouty diathesis in a way long recognized. It is an excellent treatment, we many of us have employed it, but it is not specifically an anti-bacterial treatment of mucus colitis, and its success is in no sense a proof of the parasitic nature of the disease.

Doctor James J. Hogan, Vallejo: It regard to the treatment of this class of cases of mixed colitis of amebic origin, I have had under my observation six cases treated surgically. These patients resisted internal medication, and finally the operation of appendocostomy was performed. Doctor O'Dell has operated on these cases at the Naval Hospital at Mare Island by bringing the appendix to the surface through a small slit and through the opening of the appendix periodically washing out the bowel. In all of these cases the ameba have entirely disappeared from the stools. We have always felt that a certain percentage of mixed colitis that did not clear up under medical treatment could be benefited by this procedure.

Doctor P. K. Brown, San Francisco: I am interested especially in those cases occuring with fever and amounting to more than those due to constipation. With regard to constipation, I believe that in "Christian Science" there is no such thing as constipation and that all you have to do is to make people eat properly and live properly and you will cure it. But the cases occuring with fever have interested me. I had one case diagnosed as appendicitis because of fever of 103°, the attacks recurring about once a month for four months. I saw this patient in the fifth attack and was convinced that there was nothing the matter with the appendix and was gratified to find that curing the constipation relieved the condition entirely. Correcting constipation ought to be very simple. Nothing is better than the Van Noorden diet except the various forms of lactic acid organisms. I never have had to use an opiate. I wash the bowel out with a high enema and sometimes continue this for three days and always use sweet oil, as much as the patient will stand.

Doctor E. von Adelung, Oakland: I wish to speak of this subject from a purely clinical stand-

point. From my observation of these cases it appears to me that it is multiple in origin. The one point in the etiology is that I have found the majority of cases to be very large eaters and usually eat a good many slices of bread at a meal. This has impressed me with the importance of limiting the bread eaten. The treatment which I use is the same that has been employed for many years. The giving of the purge, a mild chloride following saline, repeating this every other day for two or three weeks and then using cascara preparations.

Dr. C. M. Cooper, San Francisco: I desire to emphasize the frequency with which attacks of mucus colitis are diagnosed and perhaps operated upon as cases of chronic appendicitis, chronic cholecystitis and allied conditions. The clinical picture presented by these patients is very instructive, the skin and subcutaneous tissues are exceedingly sensitive during an exacerbation of the attack, the muscles of the abdominal wall present no rigidity, the edge of the intestine can be felt as a flesh rod in part or along its whole course and when rolled under the finger is extremely sensitive. If the sigmoidoscope be used the rectal mucous membrane is seen puffed up and markedly congested and not infrequently semi-gelatinous mucus runs into the barrel of the instrument. In these cases we should always ask ourselves certain questions: 1st, Does this colitis depend upon an abnormal gastric secretion? 2nd, Is it merely the expression of a tumor growth within the colon? 3rd, Is there associated with it some inflammation of the appendix or of the gallbladder? A great number of such cases occur in people with a ptosis of the large gut and I would draw attention to the beautiful X-ray plates exhibited by Dr. Painter, which show you that the colon can be mapped out in its entire course, and I would emphasize what these X-ray plates demonstrate, namely, that the transverse colon may hang down within the pelvic cavity, the hepatic and the splenic flexures may be considered prolapsed and yet the food may pass through the whole alimentary canal within the normal time. In other words an abnormal anatomical position of the gut is no proof whatsoever that it is not carrying out its physical function in a serviceable manner. Such an enteroptosis may be associated with gall bladder trouble as I attempted to draw attention in discussing Dr. Lobingier's paper, and thus it is that many patients with mucus colitis suffer from gallbladder infections and from apparently gallbladder colic.

Doctor Dudley Fulton, Los Angeles: At the beginning of my paper I excluded certain types of the disease, such as Dr. Schmoll has referred to, in which there is an implication of the upper alimentary tract. It would be impossible to discuss all of the conditions in which mucus is excreted from the bowel, in the time allowed for the reading of papers. My experience has taught me that if I can cure constipation I can cure nearly all of these cases of colitis. To some of the gentlemen it seems to be a very easy matter to cure constipation, but I think it is very difficult. By curing constipation I mean getting the bowels in such condition that they will move regularly without any other assistance than the diet. It is one of the most complicated conditions which I am called upon to treat. In one case you will find that there is an ulceration of the rectum, in another hemorrhoids, in another a prolapsed kidney and in another a displaced uterus. We have to eliminate all these conditions and they are multiple. Then there are conditions of metabolism which have to be worked out, as Dr. Wilbur has entered into them. With regard to the using of the lactic preparations, I have not found them satisfactory. I emphasize the fact that if you will tell me how to cure constipation I will tell you how to cure colitis.

A PHASE OF UNEQUAL INSPIRATORY MURMUR.*

By T. C. EDWARDS, M. D., Salinas.

I wish to call your attention to what I might term an accentuation of the inspiratory murmur which is synchronous with the action of the heart.

To be more definite, in making a physical examination of the chest we frequently note the following: As inspiration proceeds, we notice a rythmic rise in the pitch and intensity of the inspiratory murmur, and this accentuation of the inspiratory sound accompanies each cardiac systole.

The frequency with which it is heard in certain pathological conditions, viz: tuberculosis, leads me to suspect that it may be of use (at least when coupled with other symptoms), in determining early infiltration of the connective tissue near the alveoli. All sound is based upon physical conditions and with unvarying physical conditions we must have invariably the same sound. Auscultation is a means of determining the physical condition of the lung, and unless our examination is based upon a fairly accurate idea of the physics of a sound it is of questionable utility. The object of auscultation then is to get a definite idea, expressed in physical terms, of the anatomical condition of the organ examined.

I realize the difficulty in the way of doing this when dealing with a subject of such complex and varying composition as the human body in health and disease. Notwithstanding the difficulty of the problem, we must depend upon our knowledge of the physics of sound to give us the necessary data for making deductions which will be of any scientific value.

We are endeavoring to learn the texture of the lung tissue. Physicists tell us that we have sound wherever we have a fluid vein, and that a fluid vein is produced when a liquid passes from a smaller to a larger cavity.

Arnold in his articles on the "Physics of Physical Signs" says, that the respiratory sounds are produced in two places, viz: at the glottis and in the air cells. Some writers claim that there is no sound produced in the air cells, but that it is all produced at the upper end of the respiratory tract.

It seems to me that the sound under consideration is undoubtedly produced in the air cells. The fact that this sound is heard with each cardiac impulse would lead us to consider the heart as a causative factor in its production. It seems self-evident, that a sound which occurs in perfect rythm with each heartbeat, must, in some way, be influenced by its action. By keeping in mind the anatomy of the lung and its relation to the heart, we will remember that we have an air tree, trunk up and branches down, and the heart is situated between the principal branches.

With each cardiac contraction, the heart raises itself and comes with more or less force against this tree at, or near, its bifurcation. With this impact against the air tree there is a slight retarding of the air current above the point of contact and a hasten-

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

ing of the rate of the air current beyond the point of impact. This action of the heart could not then increase or accentuate any sound at the glottis, for it has a tendency to check the inflowing air at that point and consequently by just so much lessens the sound.

Beyond the point of impact, however, the reverse holds true. By increasing the rate of the air current it is thrown into greater vibration as it enters the air cells. Here then we must look for this sound, and our experience teaches us that we have traced it to its source for we never hear it over the trachea or upper air passages, but always over the lung proper.

The question then arises why this sound is heard sometimes and not at others; what physical change has taken place which renders this sound audible; why audible over one portion of the lung and not over another? There must be a physical explanation. The fact that it is heard over one portion of the lung and not over another is evidence that there must be a local condition in one portion differing from the conditions in another portion; and we further note that this is a local condition in the lung and does not depend on a forcible heart action as is claimed by some writers. This is made evident because we have cases of cardiac hypertrophy in which we note none of this sound even immediately over the heart. What conditions at, or near, the air cells could be causative factors?

Arnold says "the real aim of auscultation of the respiratory murmur is to learn the texture of the lung tissue." Again he says "let the lung tissue be slightly thickened as in early tuberculosis and there is a better conduction of vibrations through it."

Pathologists tell us that this early thickening of the lung tissue in tuberculosis occurs where the bronchiole enters the cell, the point where the vesicular murmur is produced. This thickening sometimes encroaches on the bronchiole adding another element in the production of a cell murmur. Here then we have a double reason why we might have this sound. As the heart forces the air in jets into the air cell through this bronchiole surrounded with a thickened connective tissue it increases the vibrations and at the same time presents a better conductor by the consolidation at this point. We can thus understand why we hear this sound on the surface of the chest. It seems to me that this is the only satisfactory explanation we can make which is based upon the physics of sound, and any explanation which does not satisfy the physicist cannot claim to be scientific.

It is a fact that this accentuation of the inspiratory sound is a common, I might say almost constant, accompaniment of advanced tuberculosis whether such invasion be near or remote from the heart. In this case it has pathologic significance.

The question I would ask is: May we not have in this sound an important, delicate means of determining a thickening of the lung tissue in early tuberculosis?

SOME CONSERVATIVE SURGICAL PROCEDURES FOR PROTECTING AND PRESERVING PELVIC ORGANS.*

By J. H. SAMPSON, M. D., San Jose.

I shall not attempt to go into the history and transitional evolution of pelvic surgery, as neither the time allotted by the section, nor the writer, permits of our considering but a few practical features in pelvic displacements and their management.

Even with our present advancement in pelvic surgery these conditions are, I believe, occasionally receiving too radical attention. To have gained wisdom by one's mistakes, is usually an expensive measure; still the realization of much of our knowledge of surgery has been acquired through this process of dear experience, hence an expression of gratitude, in championing the ingenious ideas of another, may prove of more good service than to attempt something original, of less importance.

My earnest endeavor, therefore, will be to emphasize a few rational conservative measures, which have given me very gratifying results and which, I am afraid, are at times overlooked, even with favorable indications. How many of us who have watched the modifications and changes of technic in this field of work, who have not regretted that they could not recall a few years or may be less; not that there had been any serious mistake in diagnoses, but had the situation only been attacked through a different route, or by some other method of procedure. It is, however, with such experience that we may hope to attain the judgment, which I consider far more important to the conscientious surgeon, than is his knowledge of applied anatomy.

The construction of the pelvic organs, their circulatory distribution, anatomical relations, and their dependence upon each other for protection and support, combined with the amount of surgical interference and I may reasonably add abuse to which this field so tacitly submits, renders it particularly inviting for the exploit of original ideas.

It is not within the province of this paper to discuss the value of many of these ideas, suffice it to say that appeals of warning have long since gone forth from some of our foremost gynecologists suggesting that the brakes be applied in indiscriminate surgical procedures and strongly advocating a more careful consideration of ultimate results.

Considering the propriety and indications of hysterectomy. In his effort to arrest pathological processes through his mechanical skill, above all things, should the surgeon judiciously strive to assist nature in resuming her physiological functions; wherein this question of ultimate results deserves more consideration than the mere fact that a hysterectomy or pan hysterectomy has been successfully performed, with the recovery of the patient. Whenever such radical procedure is to be considered we must, by all means, also consider the importance of some of the commoner sequelæ following in the wake of hysterectomy, and weigh

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

well such distressing results as constant irritable cystitis, chronic and obstinate constipation, and even ileus as result of volvulus, kink in sigmoid, or fecal impaction, due to stretching of the sigmoid and its mesentery, so that it may be found folded upon itself in the pelvis below the plain of the rectum; or there may be a general enteroptosis; all being due to the want of proper pelvic support.

Secondly, the risks and discomforts of inflammatory adhesions, so prone to occur, are also to be considered and a method of operation, avoiding this alone, should be worthy of consideration.

Last, but by no means the least of the acquired distressing sequelæ with which we may have to contend, are the reflex nervous disturbances, which need no comment from me.

Grant that we may so approximate our peritoneum and supporting ligaments and suspend the bladder, that to a great extent we may obviate many of the above sequelæ, the fact nevertheless remains, that in a very large majority of cases wherein the ligaments may be preserved, the uterus itself or that portion of it may also be saved which, as we shall find, serve to render very valuable aid in directly supporting the bladder and indirectly, almost the entire viscera; hence it is my opinion, that whenever hysterectomy is not imperatively indicated, it is not only unwarranted, but positively contraindicated in uterine prolapse, especially with cystocele and rectocele.

I think this an appropriate place to offer a few remarks with reference to ventral suspension. Personally I must say that under no circumstances have I ever been able to prevail upon my judgment, that ventral suspension was rational surgery. Even with its most reasonable modifications, the operation carries with it an element of danger, which to me, makes it prohibitive.

I take the privilege of quoting Dr. Charles H. Mayo's views as expressed upon this subject. "We have made no change in our often expressed opinion that direct suspension of the uterus by suture was an unfortunate method of operation, as it carries with it risks of its own, incident to the operation out of proportion to the severity of the symptoms produced by the displacement."

I herewith ask your attention to some of the methods which have served me so satisfactorily in this line of work.

First. The Watkins operation, as applied in uterine prolapse with extensive cystocele. This condition up to a few years ago was treated, either by colporrhophy, ventral suspension or hysterectomy. Colporrhophy we find absolutely inadequate to meet the situation as it cannot offer permanent results. The other two we have already discussed. The profession and especially the afflicted, should feel greatly indebted to Dr. Thomas J. Watkins for his ingenious method of disposing of the prolapsed organs, and while satisfactorily restoring their supporting functions, has avoided hysterectomy, suspension, any chance for hernia, and to a great extent, the danger of intra-peritoneal inflammation and adhesions.

I will not attempt a detailed description of the operation but offer an outline that we may appreciate its rational application. Patient prepared and if indicated curetted. Non-malignant ulcers, elongated cervix and other complications should be properly treated. Anterior lip of cervix grasped with vulsela and the anterior vaginal wall separated from cervix by semiluna incisions, then the anterior vaginal wall by a median incision from the cervical incision, to about one-half to one inch from meatus urinarius, being careful not to injure bladder wall.

The bladder is separated from uterus by blunt dissection, (gauzed finger preferred) till utero vesical peritoneum is reached, this is carefully perforated and stretched so as to admit the delivery of the uterus. The anterior vaginal wall is next separated from bladder by very careful dissection, dissecting only what is needed to cover the uterus, unless redundancy demand partial pearing. The uterus is here delivered into the vaginal canal and whatever modification necessary should be here considered.

A suture is passed through vaginal flap near urethra, then through the uterine body, little posterior to fundus and through opposite flap, at corresponding point. This is the most important suture, as with it you are to draw the uterus down sufficiently for the support of the entire bladder, being careful that it is not so firmly drawn as to compress the urethra. Two or three such sutures of chromic gut and the incisions are closed by continuous suture. The post-vaginal wall is usually the site of rectocele to be treated in the usual manner.

The principle of this procedure is, that the uterus being strongly antiverted, the author claims "changes its position about 180°" the broad ligaments are twisted upon themselves and are perceptibly shortened, elevating centrally; thus we have the chief factor in raising the uterus and correcting the prolapse. As the uterus is elevated and tipped forward so is an elevating tension produced upon peritoneum to rectum, cul-de-sac and utero-sacral ligaments, thereby improving the intra-pelvic support in general, showing a perceptible influence upon the rectocele; though perineorrophy and pearing of post-vaginal wall is almost invariably indicated. According to Dr. Watkins: "The relation of the bladder and uterus following the operation, makes the tendency to prolapse, of either organ, antagonistic."

As to its advantages. We find the uterus not only serves as a most satisfactory support for the bladder, but its changed position also affects the intra-pelvic plane of pressue and support.

The dangers of abdominal section, also of intra-peritoneal inflammations and adhesions are to a great extent avoided. This was forcibly manifested in the after treatment and convalescence of my cases, the patients suffered little or no pain, on the contrary, they experienced almost immediate relief, following supporting effect of the operation.

The after treatment consists in mild antiseptic bathing of the parts three or four times daily, especially after urinating. Patient should be allowed

to void the urine voluntarily, even though she has to sit up to do so. The catheter should be resorted to rather than risk overdistention of the bladder. This operation applies only to subjects who have passed the menopause, is modified when applied during the child bearing period, or when the twist doesn't sufficiently shorten the broad ligaments and in dealing with growths or enlarged uteri.

The second procedure to which I invite your attention is that which is known as the internal Alexander, as described by Dr. Charles H. Mayo, indicated in retro-displacements with adhesions and other complications. The patient is prepared for abdominal section; low median, or slightly lateral incision, three to four inches. Upon entering cavity, patient is placed in trendelenburg and thorough exploration made of gall bladder, appendix, uterus, tubes and ovaries. Upon feeling satisfied as to the adhesions, a gauze roll three inches wide by four yards long, should carefully separate the intestines from the pelvis, after which the adhesions binding down the uterus should be carefully separated and the uterus brought forward to about the position it is to remain in. The length and relaxed condition of the round ligaments and breadth of the pelvis should now be observed, as the grasp to form the loop in the ligament depends upon these conditions. About one and one-half to two and one-half inches from the uterus is the usual point, at which it is my custom to make three-fourths of an inch incision, and through this pass a ligature of catgut, subperitoneal, around the ligament, to be used for traction. A pair of narrow curved forceps are entered at the lower angle of the wound, about an inch above the pubic spine between the muscle and the aponeurosis and passed under the aponeurosis in the direction of the external ring, then along canal piercing the muscles, where it can now be observed from within, in close relation with the ligament just under the peritoneum, and by making tractions with our ligature we have no trouble in guiding its point, subperitoneal, to where the ligature has been passed. If the incision has not been made, the forceps should perforate the peritoneum at the decided point, where the round ligament or ligature is to be grasped, and traction is carefully made, thus pulling the loop of the ligament along the tract of the forceps and into the incision; this precaution, I believe, obviates a funnel form condition at exit of round ligament and guards against hernia. Where the loops from either side are long enough they are doubled upon each other and sewed together; they are also stitched to the aponeurosis and muscle, linen floss being used for suturing.

In considering the rationality of this procedure, the fact that the round ligaments receive their muscular and nutritive support from the uterus, which portion we almost invariably find normal in size, and always attenuated and stretched from its distal portion, that with this method only the distal or weakened portion is doubled upon itself and receives adhesive support through its entire subaponeurotic tract with a minimum interference in nutrition strongly appeals to me. The abdominal wound should always be reinforced with figure eight supporting sutures of silk-worm gut.

Third. A modified or external Alexander, I prefer in retro displacements without adhesions or other complications. It consists of about an inch and a half incision from pubic spine along external ring; upon reaching the ring a special Mayo's retractor is pressed down from the spine when the ligament bulges through the fenestra and with but little trouble is dissected up a short ways and pulled out taught. A traction ligature of No. 4 gut is placed at a point which will allow the loop to cross to a point in the opposite incision. It is then threaded to a spaying needle and passed under the aponeurosis to the opposite incision where this ligature is unthreaded and the ligature to the opposite ligament is threaded and pulled back, thus the loops of ligaments are made to cross between the aponeurosis and the muscle and are sutured to the loops in the opposite incision, and also to the aponeurosis and muscle of their respective sides.

THE HYGIENIC AND CLIMATIC TREATMENT OF ARTERIOSCLEROSIS.

By BOARDMAN REED, M. D.,

Consulting Gastroenterologist to the Pottenger Sanatorium, Monrovia, and Consulting Physician to the Alhambra Sanatorium and Hospital, Alhambra, Cal.

The limits of this paper preclude any attempt at an exhaustive study of a subject the literature of which has in the last decade grown to enormous proportions. To discuss as fully as its importance demands, merely the treatment in all its bearings prophylactic, hygienic, climatic, mechanical and medicinal, would require almost a volume. I shall, therefore, limit myself to a consideration of the diet and hygiene generally, as well as the climate most suitable for persons suffering from arteriosclerosis, with a brief mention of the mechanical and medicinal remedies.

Arteriosclerosis is one of the most prevalent of the pathological states that affect mankind, few persons over fifty being entirely free from it. Considering how it gradually enfeebles its victims, thus shortening their lives by lessening their ability to resist other maladies, it must be classed as, indirectly at least, one of the most fatal of them all.

To remove the cause is necessary to the permanent cure of any disease, and the possible causes of arteriosclerosis include the following: syphilis, malaria and alcohol, although a few authorities deny that alcohol belongs in this category; tobacco, lead and the acute infections, the gouty state, and other forms of autointoxication, nephritis, although this may be as a result as well; long-continued, excessive physical or mental strain, and oft-repeated emotional excitement. Persistent arterial hypertension tends to produce arteriosclerosis, even though the latter can be a cause of the former.

Thayer and Brush in a study of 4000 cases at Johns Hopkins Hospital and Osler's clinic (*Jour. Am. Med. Assoc.*, 9-10-04), concluded "that the main etiological factor in the thickening (of the intima) in arteriosclerosis is the overstrain of the

vascular walls from continued and intermittent high tension, whatever its cause." Yet there is also not wanting evidence that adrenalin and probably other toxic products can produce degeneration and thickening of the vessel walls without increasing the arterial tension. (See paper by Shaw, *Lancet*, 1906, p. 1460.)

We may assume, then, that hypertension is at least one very important cause of the process we know as hardening and thickening of the arteries. Therefore, whatever creates or aggravates hypertension, including all the various forms of dissipation, overstrain and excesses, whether at work or play, but especially overburdening the organism with a superabundance of either food or drink, or both, must be a factor in the etiology by helping to produce autointoxication. Constipation is often a most important link in the chain of causes. It is the leading factor in most cases of autointoxication, and hence is a prolific source of arteriosclerosis.

Federn of Vienna in 1891 and 1894 maintained strongly that atony of part of the colon (partielle Darmatonie) can produce markedly increased arterial tension, and reported numerous cases in which he removed both this and the accompanying constipation by faradizing such atonic regions which were found generally to be dull on light percussion. I have personally confirmed Federn's observation in several cases.

The prophylaxis of arteriosclerosis demands obviously the avoidance of the causal conditions above mentioned or the removal of them, in so far as is possible, when they are already in existence. To prevent a premature hardening of the arteries with its usual consequences, one needs to have, first, a reasonably good inheritance, and then to live hygienically in all ways—to be temperate in eating and drinking especially, but also in everything. And the more strenuous the life in regard to the mental and emotional activities, in particular, the greater the importance of not overtaxing the digestive system. Then, after middle age, if not before, one should be examined by a competent physician at least once a year, as to the blood pressure and condition of the kidneys especially, if not a more general examination, so as to combat any signs of the trouble in its incipiency.

The treatment will manifestly need to vary considerably with the nature of the cause. The cases due to poisons coming from outside the body demand especially medicinal antidotes and eliminants, and therefore do not come within the scope of this paper. Those dependent upon physical, mental or emotional overstrain may require more complete rest from the offending cause—from the particular form of over-activity—sometimes even a rest cure in bed, but otherwise much the same treatment as the more prevalent autotoxic cases, except that the diet may not need to be so much restricted. For the remaining cases due mainly to autotoxemia and comprising the great bulk of all the cases of arteriosclerosis, the treatment must depend upon the stage of the affection. Without going into its pathology in detail, it may be briefly mentioned that my experience agrees with that of Stengel and a few other authorities, who recognize an early stage of arteriosclerosis, possibly a presclerotic one, in which for a long time the heart may be weak and the blood pressure variable, though mostly abnormally low. This stage, however, is rarely diagnosed as such at the time, but is usually labeled "weak heart," "neurasthenia" or with some other name applicable to one of its numerous possible symptoms.

The stage in which the disease is usually first recognized is that of cardiac hypertrophy, when the blood pressure is persistently high as a rule, though often easily and rapidly lowered by fasting or low diet, the nitrates, cardiac depressants, hot baths, bleeding or fatigue.

Finally, we have the stage of broken compensation with generally low blood pressure, the heart having yielded to the prolonged overstrain, so that unaided it is no longer equal to the task of forcing a sufficient supply of blood through the obstructed vessels.

The general principles to be kept ever in mind and made the dominant features of the treatment are these two:

1. To spare in every way possible the vital organs involved, i. e., the circulatory, digestive and eliminating organs, especially the heart and kidneys.
2. To assist any of these organs found to be flagging in their indispensable work.

When they flag or begin to fail, the important principle of sparing them, in so far as practicable, rather than urging them harder, should never be overlooked. Before bringing to bear our stimulant remedies—our whips and spurs—we should try to lessen their work—relieve them of part of the burden. E. g., we can and should spare all the organs concerned by keeping the total amount of the ingesta of all kinds strictly within the needs of the system, and also by avoiding or restricting the quantity of those kinds of food and drink which either unduly tax the digestive and eliminating functions, or introduce poisons from without which the excretory organs must then cast out, in addition to excreting the toxic matters constantly formed within the body. When, notwithstanding the utmost care of the diet, the kidneys show signs of being unequal to their task, we should call upon the bowels to do more, and, above all, compel that great, but often neglected, emunctory, the skin, to do better work by prescribing some of the many procedures, or drugs, which will increase the perspiration.

When the heart begins to be embarrassed and all unnecessary demands upon it have been stopped by lessening the amount of the ingesta to within the quantities actually required to maintain nutrition, and by placing the patient at either complete or partial rest, much more can still be done in the way of relieving it. We can widen the blood paths by means of the various practicable mechanical measures for increasing the activity of the peripheral circulation, as well as by the administration of drugs which tend to dilate the vessels. Failing these remedies, or in urgent cases, simultaneously with them, drugs of the digitalis group may need to be also administered.

When indigestion is a feature of the case, a care-

ful diagnosis should be made of the exact fault and the proper remedy then be applied.

1. Should we be fortunate enough to recognize an incipient case of arteriosclerosis, of the prevalent autotoxic type, before the heart has hypertrophied, we can very hopefully apply the principle of economizing the vital forces. We have only as a rule to prevent overdoing, overeating and overdrinking—to regulate the patient's diet both as to quantity and quality—to correct any digestive or other etiological fault and see to it that the eliminating organs do their full duty in order to spare the heart and arteries further embarrassment and effect a cure. In this stage, constipation will very often be found, and, before matters have progressed too far, an earnest effort to cure it radically should always be made, by means of a laxative diet, massage (except in the spastic form), special exercises of the trunk muscles and other physical procedures, including generally vibration of the rectum and abdominal muscles, as well as of the controlling spinal centers, and some of the many useful forms of electricity. These, when persevered with for a long time, will often succeed, even in the more stubborn cases. But complete daily bowel movements must be secured even with laxative drugs, if not obtainable otherwise.

2. In the stage of cardiac hypertrophy the same things need to be done still more thoroughly and perseveringly, and, besides, whatever further is required to keep the blood pressure within the limits normal for the patient's age, say from 120 to 140 Hg. We must then secure for the patient as much physical and mental rest as are necessary and practicable, prescribe a diet appropriate to the gastrointestinal findings, with a minimum of flesh food and no meat extractives or stimulants, besides ordering massage and Swedish movements, or other passive exercises; or, in the milder cases, the gentler forms of active exercise. If need be, we may add general faradization and spongings with hot salt water, or even very short, hot tub baths, or salt rubs followed by prolonged brisk toweling; in short, whatever forms of baths or local treatment will best keep the skin active and lower the blood pressure, without weakening the heart. If these measures fail, as they sometimes will, especially when the kidneys are involved, we must push drug remedies, such as the nitrites and iodides, besides purging or even bleeding in serious cases in which the tension remains obstinately high, to any extent necessary, while at the same time keeping the heart up to its work by giving cardiac tonics cautiously, if required.

3. When the heart has dilated, the problem is more complicated. Besides the sparing, eliminating and tonic measures already described, the saline baths of Nauheim, Germany, and the resisted movements first introduced by the Schott brothers there, may be resorted to hopefully in cases not too far advanced. They are, of course, well known to most physicians. The baths in the natural, carbonated, saline water, together with the *Widerstand-gymnastik*, as carried out by the trained attendants there, are very effective in apropriate cases as I can personally testify, having spent a season there once with a patient; but the artificial, carbonated saline baths given at some of the sanatoria in this country as a substitute, serve the purpose almost as well in skillful hands, and it should not be very difficult for any person to learn in a short time how to assist a patient to make the resisted movements with the requisite care and skill. In the severer cases, however, it will often be necessary to push boldly some active cardiac tonic, in addition to the mechanical measures mentioned.

In prescribing the diet only a few general rules can be laid down, since so much depends upon the condition of the digestive organs. When there is dilatation or marked atony of the stomach or intestines, large amounts of liquid disagree and are therefore doubly contraindicated. In these cases the carbohydrates need to be as much restricted as practicable, since they are very prone to ferment and produce flatulence, which, as my experience shows, raises the blood pressure and generally impairs the sleep.

When there is hyperchlorhydria, whether it is dependent upon movable kidney, a latent ulcer in the stomach or duodenum, or is a reflex from cholecystitis, or other cause, the metabolism will be so seriously disordered thereby, that little progress toward an improvement of the circulation can be expected until this complication (or possibly the chief causal condition) has been removed by the appropriate diet and other treatment. When there is a displacement of any of the abdominal viscera, especially of the stomach and kidneys, which occurs with enormous frequency in women, and not rarely in men, though generally overlooked, little can usually be accomplished until the fault has been corrected. So with gall-stones, chronic pancreatitis, and all the other manifold disorders which affect the gastrointestinal tract and are believed to play a prominent part in the etiology of very many cases of arteriosclerosis.

The majority of writers hold that certain kinds of food and drink and so-called food accessories, as e. g. the flesh foods, the alcoholic beverages and other stimulants, particularly tea and coffee, because their alkaloids are practically identical with some of the toxic purin bases, and tobacco, which seems to be worst of all, have an especially injurious effect in arteriosclerosis. Nevertheless, I am convinced that an excessive quantity of food and drink taken regularly day after day, is more harmful in this respect than a moderate amount of some one or more of the incriminated articles above mentioned. That such an excess tends to produce hypertension is certain, and prolonged hypertension has been shown to be at least one cause of arteriosclerosis.

The following reports of cases point to the conclusion that cutting down the quantity of the ingesta in the aggregate will lower an unduly increased arterial tension, even when meat is the principal food allowed in the restricted diet, though

they do not disprove the generally accepted view that the prolonged eating of meat in large quantities may in some way set up or aggravate the changes found in the arteries in arteriosclerosis, probably by the direct action of its contained purin bases and that of the other toxic products of the metabolism on a flesh diet. Indeed, in Case I the symptoms which developed after a predominantly nitrogenous diet, chiefly meat, had been followed for some two months by an arteriosclerotic patient, should not encourage us to advise much meat in such cases.

Case I. A professional man nearly seventy years old, with a bad family history on both sides but a nearly normal gastric chemistry, was, upon his own request in January last, permitted to try a lean meat diet in the hope of benefiting a mild but rather persistent intestinal catarrh, which had troubled him at times for several years. J. M. Da Costa and others had treated him for irritable heart, and he was said to have been cured at Nauheim, over ten years ago, of a slight cardiac dilatation. He admitted that he had always been a very hearty eater and presented the usual symptoms and signs of a moderate arteriosclerosis. His blood pressure had been high much of the time, for four years at least, reaching often 170 Hg. The urine was free from albumin, but a few hyaline casts were occasionally present. For two weeks he ate chiefly and rather liberally of chopped lean meat three times a day, taking little else except the green vegetables. Within a few days after beginning this diet the blood pressure fell to 140 and sometimes even below 130, without any medication except the same saline laxative he had been obliged to take previously. At the same time there was much less flatulence, better sleep and improved nerve tone. Then while a generous amount of meat was still eaten twice a day, the starchy foods with occasionally sugar were taken in gradually increased quantities, with a resulting increase of flatulence and impairment of sleep and nerve tone. Finally, several weeks later, when the total quantity ingested had again become excessive, the blood pressure rose to about its former height with more flatulence, etc. Then he was again, for two weeks, placed upon a limited non-starchy diet, consisting chiefly of milk with a small amount of meat and a few green vegetables. Once more the blood pressure was markedly reduced without medication and all the symptoms were better. At the end of this period, after the diet had been mainly nitrogenous for somewhat over two months, the patient awoke one morning with marked vertigo and was only able to walk with some difficulty. There were weakness and inco-ordination in the muscles of the right leg, while the right heel tended to drag. The right arm and hand were also a little weakened and the patient could only write legibly by taking extra pains in guiding his pen. Sensation was not affected and the reflexes were normal. By the end of four days with the help of heart tonics, the weakness and inco-ordination disappeared. Since then by means of daily hot sponge baths, followed by vigorous toweling, carefully regulated exercises, a light, easily digestible mixed diet, with a little meat two or three times a week only, but with three pints of milk daily and a small dose of a combination of saline laxatives, to ensure better bowel movements, the blood pressure has been kept at about 140 to 145 most of the time, which is probably as low as it ought to be in his case. Only when he transgresses the rules as to eating or otherwise, does the blood pressure go high enough to require lowering by medicines. At the date of this writing, two and a half months after the attack above described, there has been no recurrence and the symptoms all remain much better so long as he does not overeat or overtax either body or brain, which it is difficult to keep him from doing. (July 15th, two months later, the patient was doing well.)

Case II. Merchant, age 42, who had been obese since the age of 16, came under treatment in March, 1908, referred to me by Dr. Geo. H. Welch. No test of the stomach contents could be made. He had had much diarrhea formerly, and his bowels were still loose at times, though inclined to be constipated when treatment was begun. His weight, which had been once 365 pounds, had fallen to 320 pounds when he was first seen by me. He had suffered for two years from a severe bronchitis of evidently gouty character, and the cough was at times violent. There was marked dyspnea on even walking across the room, and the cerebral circulation was so disturbed that he would fall asleep at meals and was much confused mentally for some time after awakening from sleep. He could not put on his clothes without help. Albumin and hyalin casts were found in the urine. Blood pressure was 210 Hg; the pulse 96; heart enlarged. Rupture of compensation seemed imminent, and I at first advised a complete fast for a short time to reduce the fat as well as to lessen the work of the heart and excretory organs, but instead allowed one orange at breakfast, half a dozen prunes at luncheon and either an orange or half a grape fruit at night. Sparteine sulphate in one-half grain doses was given to support the heart, and sodium nitrate in one to two grain doses to dilate the arterioles. On this treatment, with massage and frequent tonic baths, he rapidly improved in strength and his blood pressure steadily fell while his weight decreased at the rate of one to two pounds daily. After two weeks of this virtual fast and then three weeks longer with only two very light meals a day, including only fruit, vegetables and a small portion of meat, he weighed 267 pounds, had lost his cough entirely and was walking and rowing daily without fatigue or dyspnea. The albumin had disappeared from his urine and he expressed himself as having never felt better. He went to his home in Cincinnati in May, 1908, and then weighed 246 pounds. He kept up a similar diet and treatment during the summer. On returning to my care again in November last he weighed 224 pounds, a decrease of 96 pounds since beginning treatment. He was seen at long intervals during the past winter, but given no medicines except small doses of a heart tonic. It was found impracticable to reduce his weight to a lower point than 222 pounds without cutting his diet down too much. When he left for home again, May 15, 1909, there was neither albumin nor casts in his urine, and he was free from symptoms, except that his pulse inclined to be too rapid. His blood pressure remained at or near 140, and the slight evidences of swelling in the temporal vessels noticeable at first had disappeared.

The following case was one of obesity without arteriosclerosis, but is reported here for reasons explained later.

Case III. A racetrack man, aged 34 years, 6 feet 2 inches in height, having a broad, massive frame and extraordinary muscular development, was referred to me December 28, 1908, by Dr. Forcheimer of Cincinnati. He had weighed 431½ pounds when he first consulted Dr. Forcheimer a few months before, and when he came to me in Los Angeles weighed 392 pounds, having been meanwhile on a moderately restricted diet. He seemed in perfect health with a normal pulse and blood pressure. He was kept for thirteen weeks on the following diet: An extremely light fruit meal in the morning and a little meat with green vegetables at night, two very light meals a day only, though he was actively engaged out of doors every day. At the end of that time his weight had been reduced to 307 pounds, a loss of 85 pounds, or of 124½ pounds since he began

dieting. He continued to feel well in all respects, and wrote me May 30th that he then weighed 296. He was adhering to the diet and expected to get down to 250.

This case is included in these reports merely to show how excessive three hearty meals a day must be, when such a giant could remain active and well on scarcely one-third the amount, and therefore that it is eminently practicable and safe in treating our arteriosclerotic patients to spare their hearts, kidneys and digestive organs by restricting their diet very much more than is commonly done, especially when they are above their normal weight and are leading sedentary lives, or when their activities are greatly restricted as they should be.

While preparing this article I have come across a paper by Prof. Glax*, in which he reported a very striking case of arteriosclerosis with marked cardiac insufficiency, rescued from a desperate condition by reducing the daily ingestion of liquids from 1900 ccm to 760 ccm, after a bold use of digitalis and other remedies had failed. The amount of urine, which had been 840 ccm, or upwards of 1000 ccm less than the intake, continued to be 820 ccm or 60 ccm more than the daily intake, so that the dropsy and with it the dyspnea and other serious symptoms were soon relieved. It is probable that in my Case 11 a reduction of the liquids ingested in addition to that of the solids would enable the patient to bring his still excessive weight down to below 200 pounds with a further improvement in his cardiac condition.

It remains to speak of climatotherapy in arteriosclerosis. Climate can help much in the treatment. Moderate warmth and dryness promote the action of the skin, and joined with equability afford the arteriosclerotic the most favorable external conditions for attaining a high old age in spite of his disabilities. Many places in our great Southwest suit well, especially for the winter months.

When the patient can live all the year round in such a comparatively dry and equable climate as that of Southern California, at nearly the sea level, his chances for improvement will be greatly increased. This is especially true for the more favored localities of that region near the coast, though as a rule not directly on the seashore. The blood pressure is not disturbed in this region either by altitude or by violent storms, cold waves or extreme changes of temperature, such as prevail so much of the time in many parts of our country.

For patients who are difficult to control or whose environment is unfavorable from whatever cause, and especially for advanced cases in which the heart unaided is no longer equal to the task of maintaining the circulation, sanatorium treatment in a good climate, with sometimes a Weir Mitchell rest-cure, offers the best possible remedy. In this way only can a suitable hygienic and mechanical treatment by diet, massage, resisted movements, baths, including in appropriate cases the Nauheim baths, electricity, etc., be systematically carried out.

* Read before the Section on Int. Med. of the 66th deutscher Naturforscher und Aerzte in Wien.

GENITO-URINARY TUBERCULOSIS.*

By THOS. J. CLARK, M. D., Oakland.

A more intimate study of the conditions brought about through the invasion of the genital and urinary organs by the tubercle bacillus in the few years passed has placed before us a knowledge of the problems involved, so that we may go about the management of these cases in a more orderly fashion and also with better assurance of the outcome for the patient.

Here, as in other tuberculous conditions, an early recognition of the symptoms and a confirmation of the diagnosis by the finding of the tubercle bacillus or a demonstration through animal inoculation, takes away a large part of the handicap that formerly prevailed against the workers.

Through the use of the cystoscope we have vision to aid us in the differentiation of bladder problems, and by taking the urine directly from each ureter, we may find the variations that occur in each kidney so far as the functional capacity is concerned, and also what destructive action either side is sustaining, so placing us in a better position in deciding the advisability of removing a kidney with its dangerous source of infection to other structures.

Purposely the kidney is mentioned for from the gathered statistics it has been found that these organs are usually the first to become the harboring point of tubercle in the urogenital system and the epididymis takes second place in this initiative, and later the infection may spread to other portions of the tract through the channels to the bladder and posterior urethra, being comparable to infection through the sputum of the upper respiratory tract following lung foci. Bladder involvement early has been found to occur in about one-third of the cases where a tuberculous kidney exists, but rather rarely with a diseased epididymis, whereas primarily the kidney is so seldom diseased in this way as to be negligible; only one case so far having been reported.

Is tuberculosis of these organs a frequent occurrence and how often are they the first centers of the process in the body?

Considering the excretory function of the kidneys and the favorable opportunity for organisms to pass from the single layered vessels of the glomeruli, it is strange they are not more often involved, for tubercle bacilli may often be demonstrated in the urine of individuals tuberculous in some other portion of the body. Aside from general miliary tuberculosis, the kidneys are said to become diseased in from five to ten per cent of tuberculosis cases; that is to say, they are infected comparatively early, so that definite microscopic kidney lesions are found at autopsy. Probably in most cases the bony or respiratory systems are the centers from which the blood carries the bacilli to find lodgment in the kidneys, it being now believed that so called primary urogenital tuberculosis is rare.

From a more careful clinical study with the better instruments now possessed, the blood stream is

* Read before the Alameda County Medical Society.

acknowledged to be the real source of infection in renal and genital cases, aside from such sources as direct contact, as in spinal caries, so that the former post-mortem conclusion of ascending infection has now been abandoned.

Nature has been kind even in her distribution of such a misery, as unilateral involvement is the rule for quite a while at least, and even where bilateral disease exists, nephrectomy of the side most destroyed may allow the fellow kidney to recover to an apparently normal state.

The disease in general attacks young life and the years from fifteen to thirty show the majority of this type. In sex, females have furnished slightly more of the cases reported.

Alertness on the part of the physician may discover a case early, for an irritable state of the bladder may be present even before actual lesions ensue here. The most striking features of the symptoms are the increased frequency of urination both night and day, increase in the quantity of urine, lessened bladder capacity, bladder pain that gets very distressing as ulceration increases.

The usual fever and toxic features of the tuberculous invasions are not present till comparatively late. Loss of weight and inability for sustained effort of any kind are more or less noticeable. Blood in the urine and seminal secretion may be present but does not necessarily follow, but blood elements microscopically are usually found.

The urine is pale, cloudy, acid in reaction till secondary organisms in the bladder or kidney pelvis modify to alkalinity: of low specific gravity and in quantity is generally from a third to double the normal, till such destructive loss of tissue may reduce this. Albumin is proportionate to the blood and pus present. Tissue elements can be found in the sediment. From blocking of the ureter of the diseased side, the urine may at times be quite clear and free from tissue debris. Small blood clots almost pinhead in size, or quite extensive hemorrhages, may be noticed. Later there may be fever, sweats, emaciation, a palpable kidney tumor and a most distressing bladder condition with almost continuous desire to urinate made all the more deplorable where, as in the case noted below, urethral stricture causes retention of urine.

In the genital cases the epididymis may show nodulation, later softening with abscess formation. The seminal emissions may be pus and blood stained, and if the seminal vesicles are involved, pain will likely be present at the periods of discharge. Irregular nodulations of the testicle proper, with later abscesses, is the rule here.

To have a better appreciation of the conditions that modify symptoms, let us see what are the pathological changes in the tissues. Mention has already been made that the disease begins quite regularly as a unilateral process and so remains for a considerable time. As the infection follows the blood stream, the cortical or medullary substance of the kidney shows the first small tubercles in the connective tissue near the small vessels. At this site then the small round cell growth takes place with giant cells and later caseation and liquefaction with small or large abscess formation. The process may remain quiescent and masked for long periods, should the inflammation be confined to the cortical substance, but usually the infection spreads to the pelvis of the kidney and thus a descending inflammation follows. More or less interstitial nephritis accompanies the tubercle formation with gradual obliteration of vessels. Should the foci begin at the pyramidal papillæ, the case will be characterized by considerable hemorrhagic symptoms. Through contractures or even by clot formation and tissue debris, the ureter channel may become clogged or obliterated and a hydro or pyonephrosis ensue, with possible palpable tumor formation.

The bladder tissue at first shows a congestion and edema of the mucous membrane, especially about the ureteral papillæ. Later tubercles appear and from surface erosion ulceration and contractures follow.

The establishment of a correct etiological diagnosis is certainly a most important consideration here, and the false position that the use of such general terms as "cystitis" and "pyelitis" leads to, may well be condemned. We should not be satisfied in any urinary or genital case that shows a chronic course, to rest till our modern clinical laboratory methods have given to us the causative factor in the case, so that we may then intelligently lay out a course of treatment upon rational lines.

Should a case present itself that gives the chain of evidence mentioned in the symptoms, we can suspect tuberculosis, and then by careful urinary examination and cystoscopy fit our case to the demonstration of tubercle bacilli in the urine and make the evidence complete by showing damaged structures and the cause thereof. Masked cases are liable to confound us, and the bacilli in the urine must not lead us to say we are dealing with damage to the urinary or genital structures, for we have seen that the urine may simply act as a conveyor for such. In the differential diagnosis conditions that produce bladder or renal pain, pyuria, hematuria and renal or testicular tumor, and also increased frequency of urination must be distinguished.

Calculi may cause pain and the urine show pus and blood. Where renal the characteristic colic is frequently present periodically with nausea and vomiting. Crystals may be found in the urine suggestive of the stone and also the urine is not so markedly modified as in tubercle. The X-ray may demonstrate the calculus. Bladder stone should be easily distinguished by the cystoscope. Prostatic calculi may cause painful and frequent urination, with blood and pus associated, but there is likely to be residual urine, prostatic tenderness and enlargement shown per rectum.

Septic infection in the bladder or the renal pelvis is liable to be a more acute or subacute condition following circumstances that would be suggestive and a pyonephritis may be consecutive to some acute constitutional malady such as pneumonia or typhoid. In such cases cultures from the urine are easily produced, whereas tuberculous urine is sterile until quite late.

Malignant disease of the prostate or kidney with

purulent urine and blood and also pain would more likely show tumor formation and would lack the evidence of the tubercle bacilli.

So called essential renal hemorrhage may be confusing until careful search excludes tubercle bacilli, which should be the final link in our chain of evidence and only where their presence is demonstrated by reliable laboratory methods, excluding organisms of a similar character. As a diagnostic agent, tuberculin may aid, giving a more active local reaction.

In the genital organs nodules of the epididymis often follow gonorrheal inflammation and prostatic abscesses, early or late.

What shall be our estimate when the patient asks us can we cure him? Reports from the medical world everywhere are more optimistic in tone, so that with the proper regimen we can promise a probable cure most likely through surgical means, but possibly through medical alone.

The treatment must be considered from several viewpoints, as the removal, surgically, of the centers of infection; the increase of the powers of resistance of the organism as a whole; the use of agents to promote phagocytosis; the employment of drugs to inhibit the growth of organisms in the urinary tract; and such local measures as can be used to advantage.

Nephrectomy is recognized at the best possible measure to undertake after the satisfactory examination of the urine from each ureter is accomplished, demonstrating the presence of both organs, the side most diseased and the functional capability of the other kidney. In the case of the epididymis, castration should follow only after the testicle is shown to be diseased, following the practice of Cumston of Boston, who prefers to remove the diseased epididymis alone if justifiable.

To increase the general resistance of the patient we employ good feeding, moderate exercise, the open air life and plenty of rest, with the use of such drugs as tend to "tone" up the system, iron, nux vomica, quinin, and cod liver oil. In the last few years the use of tuberculin under the most careful observation has taken what would seem to be a permanent place in the therapy of tuberculous cases, and following out the same line of thought the joint employment of autogenous vaccines prepared from such organisms as may be secondarily engrafted upon ulcerations of the kidney, pelvis or bladder, would be rational.

Another agent that would seem to offer a most thorough trial in these cases is the intramuscular injection of mercury, for it would seem to be the "chemical opsonin" par excellence, if the term is permissible.

It has been the custom to use urotropin, salol and such other so-called urinary antiseptic drugs to as much as possible inhibit the growth of organisms, and this is surely a measure of aid.

Locally the tuberculous inflammation in the bladder may be combated by irrigation of solutions containing guaiacol, creosote, phenol and instillation of oily solution of iodoform. Silver nitrate and solutions of the bichloride or oxycyanate of mercury so valuable with the ordinary pus cocci have been found to be too irritating in these cases.

The notes of the following cases are reported to give an illustration of the symptoms:

Case 1. J. C., male, age 16 years. Parents living and well, and also three brothers and one sister. Two years preceding the spring of 1903 when I saw him, he had been having trouble with the bladder, and he came to me with a diagnosis of bladder and renal tuberculosis, having been examined by Dr. Chismore of San Francisco and advised that if there was any hope of a recovery it would be through non-interference medically or surgically, but rather by hygienic means.

At the time of my seeing him he presented a fairly well nourished body, but of spare build, had some cough, was languid and tired easily; had a variable temperature and had lost some weight. In the region of the right kidney there was tenderness and a sense of weight and discomfort, but the distress principally was with the bladder having pain, frequent urination, twelve to fifteen times and even more at night, and half hourly in the day, with at times difficulty in passing urine, apparently on account of clot formation obstructing the urethra. The urine was very cloudy, with a large sediment made up of pus and blood cells and frequently blood clots, was ill-smelling, alkaline in reaction, sometimes above normal in quantity, at others scanty, while clumps of tubercle bacilli could easily be demonstrated.

The scrotum on right side had several scars and the testicle here was atrophied; left side normal. Patient said that four or five years previous to the bladder trouble he had some abscesses here.

In the succeeding two years his symptoms continued to grow worse, and on a few occasions it was necessary to catheterize him to relieve retention of urine, and I found a tortuous stricture formation in the deep urethra admitting with difficulty a web catheter, No. 8 French.

No attempt at curative measures was undertaken, and on examination at Lane Hospital, operative measures were not advised. He lived on for two years from the time I saw him, and died of inanition.

Case 2. Miss A. R., age 30, school teacher, was referred to me by Dr. McCleave on account of bladder trouble that had persisted for a few months. When I saw her she had given up her teaching duties and was quite incapacitated on account of frequent urination and bladder pain, especially on walking or standing much. She had lost some in weight, but had no fever or sweats. The urine was pale, much increased in quantity, somewhat cloudy, acid or neutral in reaction, low specific gravity, a small amount of albumin and showed blood, pus cells and tissue shreds.

The cystoscopic picture showed an inflamed bladder wall with the mucous lining ragged and with some ulceration and swelling about the ureteral opening of right side, and redness and swelling about left side; no distinct jet in the delivery of urine.

The bladder capacity was about six ounces, and even this quantity caused discomfort. I was not satisfied with my own microscopic examination of the urine for organisms, so sent Dr. Nusbaumer some specimens. Nothing definite was reported from a catheterized specimen, but from the 24-hour quantity a positive demonstration of tubercle bacilli was made.

As the clinical symptoms agreed with this finding, and as the urine gave evidence of destructive action going on in the kidneys, and the bladder showed centering of the inflammation about the ureteral openings, the diagnosis of kidney tuberculosis with complications of the bladder was made, though no other foci could be demonstrated outside of the urinary organs.

The patient was placed upon a general tonic course of treatment, advised to live in the open and remain quiet as long as the bladder gave distress.

Intramuscular injections of a soluble mercury preparation were given, alternating with the administration of sodium iodide. Locally bladder irrigations of a one half per cent solution of phenol were used, alternating with instillations of iodoform in olive oil. Use was also made of either urotropin or salol.

There was an improvement from the start, and at the end of six months the bladder ulceration was healed and comparative comfort established. The urine quantity was also quite normal and with better color, specific gravity, and very little organic sediment.

Tuberculin injections were then begun and have been continued to the present time, a period of six months. With intervening periods the mercury injections have also been continued.

At the present time the patient is progressing nicely and is practically free from all bladder symptoms. The urine is normal in quantity, being passed at intervals of two or three hours in the day and twice at night, but it still shows cellular elements in excess. She has gained about twenty pounds in weight. It is probable there will be a cure, though as yet she has not attained that desirable state.

THE THEORY AND THE VALUE OF TUBERCULINS.*

By EDWARD VON ADELUNG, M. D., Oakland.

In the following ten-minute paper, although I shall discuss cursorily the theory of the action of tuberculins and their value in diagnosis and treatment, I shall have to omit discussion of dosage, intervals between doses, indications and contra-indications, and the other therapeutic details, because that subject would include so many particulars, all of which are important, that it cannot be dealt with except at length.

When the human organism is the subject of certain infections such as diphtheria, we have a localized process which generates toxins which circulate in the blood-stream. The fever, weakness, depression, paralysis, and other general symptoms are the expression of the toxemia. The injection of the specific antitoxin neutralizes the toxin, the symptoms disappear, and the patient gets well.

When the human organism is the subject of certain other infections, notably tuberculosis, the case is quite different; here we have notable differences. The diphtheria antitoxin is soluble in blood; the tubercular antitoxin is insoluble in blood, and therefore impracticable. The pathological process too is different: instead of fighting in the open, the enemy attacks from a fortified position. The invading organism is enclosed within the firm walls of a tubercle. In tuberculosis this investing barrier prevents more or less successfully both egress and ingress—the egress of the bacilli and their products; the ingress of antitoxic and bacteriolytic agents.

This condition of affairs, it is readily seen, hinders the system generally from earning its immunity, for only those cells directly concerned with the tubercle formation are in a position to receive the necessary stimuli that develop immunity. It is further conceived that later, in unfavorable cases when the defensive wall fails to perform its protective function, the tissue cells of the whole body are subjected to such doses of tubercular toxins and at such unfavorable times, that they are overwhelmed instead of immunized. Baldwin puts it in these words: "The tissues in general experience but slight effect from the presence of a few tubercle bacilli well localized, and there results a lack of effective resistance from absence of a general stimulus at favorable moments in most cases of chronic tuberculosis. The ultimate result consequently often depends on the efficiency of the cell nutrition throughout the body to bear repeated severe exposures without harm." This is evidenced by the state of affairs observed in those cases of immunity resulting from a previous attack of tuberculosis—cases that we refer to as arrested. Such persons frequently continue the subjects of secondary anemia, disordered digestion, imperfect assimilation, and consequent tissue vulnerability. Such persons are liable at any time to suffer another attack.

In the presence of forces that tend toward such a predicament, and recalling the pathology of the tubercle, tuberculin offers some rational hope of escape. It does so by offering an artificial means for immunization of the general tissue cells, those not directly concerned in the tubercle formation. This procedure, as at present practiced, is not absolute in its results, is explained by theories and not by known processes, is open to the criticism of exact science to some extent, and yet has a definite valued place in scientific medicine.

Some have turned to sero-therapy, convinced that tuberculosis is to be conquered with the same weapons that controlled diphtheria. And although the acumen of such men as Trudeau, Baldwin and notably Maragliano has been brought to bear on the problem, nothing convincing has thus far been presented. Organotherapy likewise has failed.

The fact seems to be fairly clear, that in order to fight the tubercle bacillus successfully by artificial immunization, it is necessary to employ not only a stimulus to the formation of antitoxins, but stimulants to the bacteriolytic and phagocytic functions as well. In searching for such agents we naturally turn to the tubercle bacillus itself, for it stands to reason that they must be found within the specific bacillus and its products.

But since these various elements have thus far escaped the scrutiny of the laboratory analyst, since they have not yet been differentiated, we are still unable to choose those parts of the bacillus and of its products that are the essential immunizing elements. Is it the proteids? Is it the waxy coat that envelopes the bacillus and renders it acid-fast? Is it a carbohydrate? Is it the nucleic acid or one of its compounds? Or is it one of the many products resulting from the decomposition of the bacilli? As yet, no one can answer.

Hence in the manufacture of tuberculin, many methods have been followed, according to the various theories of the producers. The many tuberculins that have been offered the profession may be divided into two kinds: those that do not contain insoluble elements, and those that do contain insol-

* Read before the Alameda County Medical Society.

uble elements. The latter include the vaccines and emulsions. Tuberculins are prepared from either the human or the bovine type of the bacillus. The auto genetic tubercle vaccine, although theoretically correct, fails clinically.

The term "tuberculin" originated with Koch, who applied it to his first product, a filtered, concentrated, boiled broth of full-grown human bacilli. This was known as Koch's Old Tuberculin; later, Koch changed his technic; he took his bouillon culture, removed the bacilli, dried and pulverized them, mixed them with water, and centrifuged. The upper watery extract is known as T. O. (Tuberculin Obersc), referring to the upper portion; the lower, slimy, more solid part is known as T. R. (Tuberculin Residuum) referring to the residue.

This latest and still bolder product is B. E. (Bacillus Emulsion), which is a suspension in glycerin solution of the entire substance of the bacilli after pulverizing. Only the coarser particles are refused. The glycerin is depended on to sterilize any bacilli that escape pulverization. This being somewhat dangerous, some manufacturers secure sterilization by heating this product.

Beraneck invented a complicated chemico-physical process too long even to sketch here.

Trudeau attempted to precipitate the active principles by chemicals. Maragliano prepared a watery extract by heating the bacilli for a long time in water, and filtering. Hahn, desiring to get an extract of the bacillus unchanged by heat or by chemical action, simply expressed the juice from a mass of live bacilli. Denys used the unaltered filtrate from both cultures. A score or more different processes for preparing tuberculin might be enumerated.

Suffice it to say that all tuberculins contain the peculiar nuclein, or its derivatives, which is supposed to be the active principle of the bacillus.

All tuberculins produce the characteristic reaction when injected. Inasmuch as a similar reaction is obtained by injecting other nucleo-proteids, yeast nuclein, albumoses, cinnamic acid, and some other substances, the reaction can not be regarded as entirely specific.

This confusion of tuberculins leads to the frequent query, which tuberculin is the best? No satisfactory reply can be given. The question is unsettled. Certainly the ideal tuberculin has not yet appeared. Still, it is well known that some tuberculins are more toxic than others. Guinea-pigs are killed by much smaller doses of T. O. than of B. F. Undesired reactions do not occur so frequently and are not so severe with B. F. as with T. O. Therefore B. F. is probably a better tuberculin for those who are beginning tuberculin work, better for those unfamiliar with the early signs of threatened reactions, better for those who are inexperienced in the use of tuberculins, and who would therefore profit by a wider margin for errors in technic. It is safer than the emulsions and is probably as safe a product as the market offers. Sahli states what is undoubtedly true, that the qualifications of the physician who administers it are certainly of more importance than the quality of the tuberculin. Being ignorant as to which parts of the bacillus or of its products are the essential therapeutic elements, some clinicians are now employing an emulsion of tubercle bacilli in the bouillon filtrate. Furthermore, there seems to be some evidence of an antagonism between the bovine and the human bacilli products, which has led some operators to use the bovine tuberculins in human treatment.

The value of tuberculin is mainly twofold: diagnostic and therapeutic. True it is that some claim a prognostic application, and some a prophylactic use. But these claims are as yet insufficiently supported.

For diagnosis there are several tests: Moro's percutaneous or inunction test; von Pirquet's cutaneous or scarification test; Calmette's (or Wolff-Eisner's) conjunctival test; Detre's differential test, a modification of von Pirquet's; Koch's subcutaneous test, and others of less repute. The last, the subcutaneous, is the only one which has been satisfactorily interpreted—the only one that yields fairly definite information.

Though lack of time forbids a description of these tests and a discussion of their relative values, I will mention that many practitioners reject the conjunctival test as not free from danger to the eye. The employment of the von Pirquet and Moro tests is very common, although their exact values have not been fixed, but they are entirely safe. Still more uncertain is the claim that prognosis is defined by the character and time of appearance of the reaction to these tests, these observations being rather too indefinite for dependence.

Klebs regards the subcutaneous diagnostic test as approaching very closely in value the finding of tubercle bacilli in excretions and tissues, but he warns against its promiscuous employment. He is inclined to abandon the conjunctival test altogether. Bonney states that he has procured results with it that were impossible by the hygienic-dietetic method. Dr. Minor, after years of conservatism, has finally adopted tuberculin. I think all of the important tuberculosis sanatoria employ it.

The consensus of opinion of experienced bacteriologists and practitioners seems to me to be fairly presented in the following resume:

Resume.

1. Tuberculin acts by stimulating the body cells to perform their immunizing functions.

2. The essential constituents of tuberculin are not defined, but include the proteid-nuclein of the tubercle bacillus.

3. All tuberculins produce the characteristic reaction.

4. Bouillon Filtre is one of the safest tuberculins for beginners.

5. Of the diagnostic tests, Koch's subcutaneous test is by far the most reliable. Its use is not free from danger.

6. The conjunctival test is too dangerous for general use, although fairly reliable to indicate a present or past infection.

7. Therapeutically administered by experienced persons, tuberculin is a valuable adjunct to the

treatment of tuberculosis. Under proper supervision it is practically harmless.

8. In glandular tuberculosis tuberculin is of signal value.

9. Experience and painstaking supervision are necessary to avoid injurious effects.

10. In general, the tuberculins are of definite value in diagnosis and therapeusis.

Discussion.

Dr. Martin Fischer presented a great variety of different pathological specimens embracing all the various forms of tuberculosis of the different organs, various forms of tuberculosis of the different organs. Some of the lesions were not discernible macroscopically, but could be plainly seen by section through the microscope. The lung specimens were especially interesting, embracing all the various stages up to cavity formation. Dr. Fischer stated that the percentage of tuberculosis found at autopsy was enormous, the great majority of all individuals at some time having had tuberculosis in some form. Many times this could not be diagnosed microscopically, but could be by the inoculation test. He thought that pneumonia was becoming a more dangerous disease than tuberculosis.

Dr. Emmet Rixford spoke on tuberculosis of bone, stating that it was extremely common, especially in the younger ages. The position of the tubercular lesion is more common to the epiphesis than the shaft of long bones, possibly because of its circulatory position. The lesion occurring in the form of a triangle would indicate emboli. Trauma may be considered, but not always the cause. Tuberculosis of the epiphesis very easily involves the joint. He doubts very much if there is such a thing as primary involvement of the synovial membrane, or of the cartilages. It is often impossible to locate the tubercular focus. Hyperemia treatment and tuberculins have come to stay. Probably Percival Pott was first to commence the hyperemia treatment by using a hot iron up and down the back in spinal trouble, causing a hyperemia; immobility was the treatment of old. Not free from danger. A certain amount of mobility is better. Hyperemia of Bier in orthopedic surgery has demonstrated its efficiency in tuberculosis of the extremities. Don't overdo the Bier method. Hyperemia nor stasis is the desired condition. When treating osseous tuberculosis, although the symptoms have disappeared, the patient is not necessarily well. It is a serious matter to operate on a hip joint that has been the seat of a tubercular infection.

Dr. Rixford presented a patient who had had a very extensive tubercular affection around the anus, having been operated on for this condition before. A complete excision of the tubercular area was made; recurrence took place. Patient was sent to the mountains. The spine later became involved and partial paralysis ensued. Tuberculin caused the paralysis to disappear. The wrist being involved, responded to the Bier treatment. The recovery in this case was credited to tuberculin and Bier treatment.

Dr. Chas. M. Cooper presented a number of X-ray plates, demonstrating the various stages of lung involvement in tubercular lesions, as well as bone and other different organs.

The doctor described the method of interpreting X-ray plates and the manner of detecting various pathological lesions. By this method lesions were often detected which gave no clinical symptoms. A number of plates showing stone in the kidney and ureters were also presented.

Dr. S. H. Buteau, in discussing genito-urinary tuberculosis, said that finding tubercle bacilli in the urine did not always indicate kidney involvement; when this was accompanied by the classical, clinical symptoms of a kidney lesion, then we should make the diagnosis. He thought it possible by too frequent catheterization of a non-infected ureter to infect a non-infected kidney. Tuberculosis of the bladder in his experience was generally secondary to a kidney lesion. Tuberculin will aggravate tubercular symptoms, especially if the kidney is involved. He thought the Harris segregation a much safer instrument for the general practitioner. Tuberculosis of the kidney does not always mean removal of the same. Some of the newer remedies should be instituted first.

Dr. Geo. Evans commended the splendid work Dr. Cooper was doing with the X-ray, but thought a great many of these conditions should be diagnosed clinically. The fact that these conditions can be demonstrated with the X-ray should stimulate us to more accurate diagnosis. Speaking of tuberculin administration, he thought it was being handled too loosely. We are now on the threshold of a specific treatment of tuberculosis. Tuberculin is still a two-edged sword. Local reaction at signs of injection is a good guide to index of dosage. Small doses safest. Reaction of bovine and human tuberculin are generally antagonistic.

Dr. L. Loran Riggin closed the discussion. He stated that he had secured two positions for patients with pulmonary tuberculosis in the dynamo room of the electric power company. The ozone in this department is very apparent; both patients have greatly improved.

THE IMMEDIATE REMOVAL TREATMENT OF MORPHIN HABITUATION.*

By R. E. BERING, M. D., Tulare.

At our meeting held at Riverside in '05 I presented a short paper on the method of treating patients with hyoscin hydrobromate for the morphin habit. At that time I gave the members all the information I then possessed. During the time that has intervened I have received many letters from different sections of the country asking for more detailed information. The purpose of this paper is to provide such information as has grown out of my own increased experience and to present it to you as clearly as possible that you may the more successfully use the treatment in your own practice.

In order that you may observe a practical demonstration of this method the Santa Clara County Hospital has placed at my disposal the facilities of the hospital where you will find two patients under course of treatment. One is a morphin patient provided by Dr. H. B. Gates. This patient has used the drug for fifteen years. The other is a victim of cocain who has been in the habit of using sixty grains of the drug daily. You are cordially invited to visit these patients at your convenience.

The treatment of the morphin habit is divided into three distinct periods, each of which is equally important. We may designate these periods as, first, the period of preparation; second, the period of treatment with hyoscin; third, the period of convalescence.

I shall attempt to present briefly what my own experience has shown to be the most effective method during each of these periods.

In treating a case of morphin habituation it is very necessary to gain the confidence of the patient. If

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

you succeed well in this the patient's attitude towards his treatment will remove many difficulties.

It is imperative that a competent nurse attend the patient constantly during the administration of hyoscin. The room should be free from furniture or any article which may give the patient the basis for distressing illusions. The room should be darkened as the light may cause serious iritis.

The first period, that of preparation of the patient for the administration of hyoscin by the elimination of toxic material requires about one week. To accomplish this I open the pores of the skin thoroughly by using vapor baths and small doses of pilocarpin. For the kidneys I use any effective diuretic. For the bowels powdered cascara sagrada 24 grains, calomel 24 grains, powdered ipecac 2 grains, resinous extract podophyllin 3 grains, strychnin sulphate 1-3 grain, make into 9 capsules, giving one at 5, one at 8 and one at 10 p. m. on alternate nights until the nine capsules are given. In addition use magnesia sulphate, castor oil, high enemas, etc. Should this treatment fail to secure free purgation within twelve hours after each administration I use 1-20 grain strychnin sulphate hypodermically every four hours until three doses are given. This applies to a man of average size.

While the dose of strychnin recommended may seem excessive it must be remembered that morphin patients *require* this large dosage to start peristaltic action on the almost paralyzed bowel, and that its administration is perfectly safe.

During this first period the patient is encouraged to carefully limit the amount of morphin he uses, as more thorough elimination of toxic material is thus secured.

The patient is now in condition to enter the second period of treatment, that of administration of hyoscin and the complete withdrawal of morphin. About two hours before the patient would usually take his first daily dose of morphin begin the hyoscin treatment, and from that time on do not allow any morphin to be used. Endeavor to have the patient thoroughly under the hyoscin before the time at which he has been accustomed to take his first daily dose of morphin.

Give 1-300 grain of hyoscin hypodermically every half hour until its *mild* physiological action is secured. This condition is indicated by redness of the face, dryness of the throat, dilatation of the pupils, mild hallucinations, and the slowing of the pulse fifteen or twenty beats per minute. One or more doses of hyoscin will put the patient to sleep for several hours but he will not again sleep during this period of treatment.

Discontinue the hyoscin till the patient awakes, then resume in increased doses say, 1-200 grain every half hour until the patient again manifests the mild physiological effects above mentioned.

If proper elimination has been secured we now have freedom from pain and an absence of the more pronounced nervous symptoms that would otherwise follow the abrupt withdrawal of morphin. There should be no chilly feeling, vomiting, purging, profuse sweating, aching of the bones, joints or muscles, and there should be no sign of heart failure. In fact the patient should be completely deprived of morphin and experience no more discomfort than usually attends a case of la grippe.

Contrast this condition with the picture of a morphin patient who has been completely deprived of the drug without being fortified by treatment. I quote from Pepper's System of Medicine, pages 657-8-9:

"The nervous system, whether it has been accustomed for months only or for years to the influence of opiates, is upon their withdrawal forthwith thrown into derangements of the most serious and widespread kind. In the course of a few hours after the last dose the steadying influence of the drug disappears. General malaise is associated with progressive restlessness, the ability to perform the ordinary duties of life gives way to profound indifference; precordial distress, accompanied by cough, is followed by insomnia, hallucinations, and sometimes mania. The habitual pallor of the face is replaced by a deep flush or cyanosis. The heart's action becomes excited or irregular, then feeble; the pulse, at first tense, becomes slow, thready, and irregular. Colliquative sweats appear. Attacks of yawning and sneezing are followed by convulsive twitching of the hands. Speech becomes hesitating, drawling, and stuttering. These phenomena are associated with a sense of perfect prostration, which obliges the patient to take to his bed. Pain in the back and limbs followed by neuralgias occur. Complete anorexia, with easily provoked or even causeless vomiting and persistent nausea, and diarrhea difficult to control, add to the gravity of the condition. . . .

"During the early days of abstinence the evidences of cardiac failure are marked. Enfeeblement of the first sound, irregularity of the heart's action, and intermissions are common. . . . Restlessness is continuous and very often intense, and patients are with difficulty kept in bed; if left to themselves they move frantically about the room, moaning, bewailing their condition, and begging the attendant for that which alone is capable of relieving their distress. This condition gradually subsides, giving way to one of profound exhaustion. . . . The exhaustion, due to the reaction of the nervous system deprived of the stimulus of the drug, is on the one hand favored by pre-existing derangements of the nutritive process, and on the other increased by the pain, wakefulness, diarrhea, and vomiting which accompany it. The appearance of the patient is now most pitiable: the countenance is blanched and pinched, the body occasionally drenched with sweat, the heart's action feeble, and the pulse thready and irregular."

It is well to keep in mind that slowing of the pulse to 50 or 55 is to be expected under hyoscin treatment, but so long as the pulse is of good tone and full volume do not use a stimulant. I have had patients whose pulse beat went below 50 and one ran as low as 36. This case required heroic treatment. The pulse rate may increase to 100 or 120 beats per minute instead of decreasing, but this condition is due to excitement and not to the hyoscin treatment.

In the event of the pulse going lower than 50, I give strychnin sulphate 1-20 grain and spartein sulphate 1 grain hypodermically, discontinuing the hyoscin until an improvement in the pulse rate is noted. The practitioner who desires to do so, however, may re-enforce the heart action with 1 grain

spartein sulphate or, of 1-100 grain digitalin administered hypodermically every six hours.

In some cases, where thorough elimination has not been secured, or, where the patient has used atrophin with his morphin a larger dose of hyoscin is indicated. I have had occasion to increase the dose to 1-100 grain every half hour for a number of doses, but as soon as the patient is under the hyoscin the dose should be reduced to the normal.

After the patient is well under the influence of hyoscin *give just enough* to maintain its mild physiological action. This amount varies with the patient. If he should suffer pain, more hyoscin is indicated. Do not be afraid to give a dose every half hour *if needed* but discontinue as soon as freedom from pain is secured.

During this second period, and after the sleep that follows the administration of the first dose of hyoscin and the withdrawal of morphin, the patient is restless, tries to get up and move about, talks at random, has many illusions and delusions. Cocain patients manifest the symptoms in a marked degree, it being necessary at times to restrain them, but the morphin patient is easily controlled and is never boisterous.

These symptoms, however, together with the physical ones mentioned above may seem formidable to one unfamiliar with the physiological action of hyoscin, but there is no cause for alarm as the symptoms will all disappear with the discontinuation of the hyoscin treatment. It only requires that some one be with the patient to prevent him from getting out of bed and falling, as co-ordination is impaired when one is well under the influence of hyoscin.

Keep up the *mild physiological* action of hyoscin from thirty to forty hours; in most cases I suggest the latter. During all this period as well as the one following, careful attention should be given to the bowels as persistent constipation may ensue. To prevent this give magnesia sulphate, citrate of magnesia, phosphate of soda, etc. See that the patient has water at frequent intervals to make up for the fluid lost through the skin. It further dilutes the toxins and helps to eliminate them through the skin and kidneys. Give liquid nourishment during this period.

The patient now enters the third and last period of treatment, that of convalescence, about a week having been devoted to the first period and two days to the second, nine days in all. The length of period of convalescence will depend upon the patient's recuperative powers, and will extend over a period of three to five weeks. Thus requiring a total of from five to six weeks in sanitarium.

We now have to deal with a neurasthenic whose convalescence is like that of a patient recovering from a severe illness.

It is better for the patient to remain in bed and to take only liquid nourishment every two or three hours during the first week of convalescence, after which time solid foods may be used.

I wish here to mention and emphasize one of the most important features of this, the third stage of treatment.

The patient has had no sleep since that at the beginning of the hyoscin treatment, and he may be in an extremely weak, exhausted, and irritable condition, due to loss of sleep and lack of nourishment, and to the re-adjusting of vital functions in response to changed conditions. Tact, patience, and good judgment on the part of the attendant are essential at this time.

It is highly important that the patient now secure proper rest and healthful sleep during convalescence. In no article on hyoscin treatment, so far as I am informed, is more said than that the patient should woo sleep for himself. His inability to do this has often been the cause of unfavorable results. Since realizing this important feature I have had no failures from this source.

About five or ten hours after the patient has had his last dose of hyoscin, and before he is entirely free from its influence, I give bromide of potash 30 grains and chloral hydrate 10 grains. This usually provides a number of hours of the much needed sleep. Keep the patient well under bromide and chloral for a day or two, or, until he has secured sufficient sleep, then give the dose only often enough to allay the intense nervousness from which he suffers.

The second day after discontinuing the hyoscin give veronal 7½ grains at 4 p. m., repeating the dose in two hours. Sulphonal may be substituted for the veronal. The patient should not know what he is taking or what he is taking it for. Continue the veronal daily for a week, then use only on alternate nights for a week or two, then discontinue. I usually give a tonic of I. Q. & S. three times a day.

After the tenth day of convalescence require the patient to take sufficient exercise daily to produce mild fatigue and to retire at an early hour. If he has any pain or diarrhea it is due to autointoxication and should receive careful attention.

At the end of the period of convalescence the patient has increased in weight twenty to thirty pounds. He has normal appetite and sleeps without the aid of a soporific. He has returned to a normal frame of mind and has no desire whatever for his accustomed drug. He returns to his customary occupation with confidence in himself and the assurance that he is forever free from the slavery to which he has long been subjected.

This course of treatment with modifications applies to the treatment of alcoholism and cocain patients as well as to those addicted to the use of morphin.

Of the many cases treated during the past seven years permanent cures can be shown in more than 75%.

I am conscious of the fact that in this brief paper I have been unable to mention various details that may arise in special cases. But I have attempted to emphasize the essentials in a general course of treatment in sufficient detail that the method of treatment may be successfully used by any careful practitioner.

SURGICAL TREATMENT OF TRIFACIAL NEURALGIA.*

By CHAS. D. LOCKWOOD, M. D., Pasadena.

Nine years ago I began the systematic treatment of trifacial neuralgia and determined to follow up every case that came under my observation until the patient was more or less permanently relieved, abandoned treatment or died.

During this period I have treated about twenty cases. The first five cases were treated either medically or by resection of the peripheral branch of the affected nerve. The cases treated medically were little relieved. Those in whom the peripheral branches were resected were relieved for from one to two years.

Five years ago I began to use osmic acid injections into the exposed nerve-trunks and into the foramina of exit, according to the technic advised by Dr. John B. Murphy. In this way I treated three cases successfully. One of these, a very severe case, suffering intense spasms in the lingual and inferior dental branches, was completely relieved for four years. The pain recurred at this time, in the same areas of distribution, only more severe. Deep injections of alcohol repeated four times gave only transient relief, when I again exposed the branches in the mouth, resected them, and again injected a 2% osmic acid solution. This operation has given complete relief, as at first.

About one year ago I began the use of deep alcohol injections using the special needle and the technic of Levy and Baudouin. Up to the present time I have given twenty-eight injections in fifteen patients.

I will leave the detailed reports of cases for another time and only attempt to summarize the results with a few comments on the method and its value. Of these fifteen cases all have received some relief from pain. In two cases the relief was of short duration. In one of these I had previously injected osmic acid, producing a very dense scar in the inferior maxillary branch just before it enters the inferior dental canal. The other case had an operation on the infra orbital branch with only temporary relief. These two cases suggest the possibility that previous operations, with the subsequent scar tissue, interfere with the analgesic action of the alcohol upon the distal portions of the nerve.

Of the remaining cases, nine have received immediate and complete relief which has lasted periods varying from one year to one month. The other four cases I have not heard from or are too recent to report.

The technic is extremely simple and may be carried out by any one familiar with the anatomical landmarks.

Patients afflicted with this disease have suffered so much pain that they bear the pain of injection with slight complaint. I have given an anesthetic but twice for the purpose of injection. I find it unnecessary to use a special needle, although it is safer until one learns the landmarks, the direction in which to go and the depth at which you may expect to reach the nerve. I now use an ordinary exploring needle and a glass syringe holding 2 c. c. of fluid. This needle causes much less pain and penetrates the tissues more easily.

I no longer attempt to remember the intricate anatomic directions given by the originators of this method, but locate the point of injection in the following very simple way:

Place the index finger firmly against the face just beneath the zygoma and ask the patient to open his mouth. In this way you can locate the condyle of the lower jaw, the sigmoid notch and the coronoid process. The injection for the inferior maxillary branch is made just in front of the condyle through the sigmoid notch. The needle hugs the inferior border of the zygomia and is carried a little upward and backward to a depth of 4 centimeters.

The injection for the middle or superior maxillary branch is made just in front of the coronoid process which can be distinctly felt when the patient opens his mouth. The needle again hugs the zygoma and is carried slightly upward and inward to a depth of 5 centimeters.

The injection for the ophthalmic branch is through the orbit close to its outer wall to a depth of 4 centimeters. This injection I believe is too dangerous and unreliable to command confidence.

The solution I have used has been either alcohol 80% to 90% or alcohol 80% containing cocaine or novocaine ¼ grain to 10 c. c. Two cubic centimeters are injected at each treatment.

If the patient is not relieved after three or four injections I advise osmic acid injections for the inferior maxillary, and resection with osmic acid injection for the infra, and supra orbital branches.

Every case coming to me thus far has been relieved by these measures. Should they fail to relieve I would divide the sensory roots within the skull, just as they are given off from the gasserian ganglion. I do not believe that this serious and difficult operation should be undertaken until the simpler operations have been thoroughly tried. I have found that the cases of recent origin yield most readily to the injection method.

If all cases of *tic douloureux* are recognized early and treated with alcohol injections before the pathologic changes have progressed far, I believe it will reduce the number requiring the severer operations.

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

CUTANEOUS ANESTHESIA AS A SYMPTOM OF OSTEOMYELITIS.*

Report of a Case.

By HARRY I. WIEL, M. D., San Francisco.

The accompanying case seems so clear that there will truly be no justification for animadverting to it were it not rather unusual; so much so that those of us who saw it considered it striking. The history as far as concerns this presentation is as follows:

Mr. S., single, unmarried, aged forty-seven, came to me February 6th, 1909, complaining of pain in left knee readily diagnosed as gout, I having treated the patient in many previous attacks. He was given the routine treatment of colchicum mixture with some aspirin and local compresses. The gout improved

* Read before the San Francisco County Medical Society.

and as he insisted on attending a wedding at which he was the best man, he was allowed to be on his feet in two days. He was seen by me then and though his knee seemed all right he complained of his lower lip feeling numb and swollen on the left side. A complete examination revealed nothing systemic; there was, however, an almost complete hemianesthesia in the left side of his chin as far as the mental symphysis, and lower lip as far as the mucous membrane inside the mouth.

It seemed rather evident that the nervous symptom was a local thing purely; he had just recently been treated by a dentist for a pyorrheal condition particularly affecting the second left lateral incisor. The dentist had manipulated with a small wire around the roots of this tooth, which was loose, for the purpose of disinfecting and cleaning. This seemed rather more than a coincidence and it seemed to us that perhaps a small nerve filament had been in some way injured, although the area of sensory paralysis was large out of proportion. The patient was advised not to worry over the matter as we could set at rest his fears of any intracranial disturbance. Doctor Newmark coincided in this view and suggested that the nervous regeneration would follow in the course of time. Two weeks later, the hemianesthesia persisting and the patient's worry increasing, the patient wished something done. He said the lip gave him the sensation of "a piece of tripe." On closer examination it all betrayed a lack of tone and seemed to hang somewhat. A second consultation with Doctor Newmark, the neurologist, revealed nothing new except it was thought wise to take X-rays of the lower jaw in case there might be something there which we would otherwise overlook.

This was accordingly done and to our great astonishment a large cavity about 2 cm. in diameter was discovered in the inferior maxilla around the roots of the left incisor and the first and second lateral incisors. Around this cavity the bone seemed rarefied and showed changes as far as the region of the mental foramen, and in this cavity were seen small areas giving the impression of sequestrae. The first lateral incisor swung free, held in place apparently only by one of the guns. The accompanying X-ray photograph shows very plainly the condition.

This certainly explained the course of events. The dentist having previously entered this region with his instrument and reporting the absence of pus, it seemed apparent that we were dealing with a chronic osteomyelitis of pyorrheic origin and of long standing, the so-called dry caries of bone. The process was evidently extended and must have just recently reached the mental foramen, involving the mental nerve. As the area of hemianesthesia corresponded exactly with that of the distribution of the mental nerve the cause and effect was clear. It was thought well to have surgical advice in this matter and Doctor Camillus Bush, seeing the case, agreed that that was probably the cause. As an alternative he suggested the possibility of a bone cyst but in the absence of any enlargement at all of the alveolar processes it was considered improbable. Operation was advised and agreed upon.

On March second, the incisor and first lateral incisor on the left side were drawn, and a bone flap removed from the alveolar process. A cavity was found corresponding to the X-ray. Some small sequestrae and granular detritis of diseased bone were curetted away and iodoform drainage put in.

The patient left the hospital in seven days with the cavity healing well. The area of anesthesia was clearing somewhat according to outlines made on the chin from day to day; sensation returning in the region of the mental symphysis. Frequent outlines were made with the skin pencil and a slow return of sensation noticed from the bottom of the chin toward the top. At the present writing there has not been a complete regeneration, sensory paralysis being partial in the skin of the left side below the lower lip and still complete in the mucous membrane.

It is of interest and even satisfaction to note that here medicine, surgery and dentistry met and had a common interest, but it seemed rational, the diagnosis once made, to regard such an affair as eminently surgical. When one comes to a matter of osteomyelitis, and with that we are actually dealing, whether of the femur or inferior maxilla, whether acute suppurative or chronic dry, it should be neither the physician's nor the dentist's province, but the surgeon's to handle. The cause of the infection being the tooth, should induce us no more to put the dentist in charge than relegating to the chiropodist infections of the foot starting with the nail. All the more strikingly was this impressed, for the dental scheme of treatment would have been to bore through the tooth and treat the cavity through this insufficient opening with one or another antiseptic solution. It has always appeared to the writer that the dental conception of free drainage does not extend as far as it should.

Probably this condition of maxillary osteomyelitis of pyorrheal origin is frequently not discovered because many cases occur without giving any symptoms. It may be safely ventured that were we to take X-ray pictures of the maxillæ of pyorrheic patients, that we might find such processes in other portions of the jaw, and this one cavity was only discovered because of the involvement of the mental nerve.

RHEUMATISM.*

Its Relation to Diseases of the Throat.

By B. F. WALKER, M. D.

In presenting this paper, I have selected a subject that is of interest, alike to the general practitioner and the specialist, and one especially in this vicinity, is a condition that comes under our notice very frequently. I shall not discuss the etiology of rheumatism save to mention that it is now recognized to be an acute, infectious disease, the exact cause of which is not definitely known but supposed to be a specific organism, in fact Triboulet in 1898 claimed to have isolated a micrococcus which was the specific cause of rheumatism and his assertions have been confirmed by many other investigators since

* Read before the San Joaquin County Medical Society, March 9, 1909.

then, giving this organism the name of micrococcus rheumatism, but be the cause what it may, my object in this paper is concerned only with rheumatism in relation to disease of the throat, and any one either in general or special practice, will recognize the fact that rheumatism occurs most frequently in the first half of life, as does tonsilitis, that rheumatism occurs more in the male than the female, so does tonsilitis, that rheumatism occurs most in the winter and spring months, so do affections of the throat—these are general statements, now let us see what relations they bear—one to the other.

In reviewing a report covering thirteen years of the Osler clinic, I select and present some of the important facts, they report that rheumatism make up 2 per cent of the cases admitted to the hospital, while Montreal claims 3.8 per cent and the figures from London 3.5 per cent to 7 per cent—the relation of white to colored patients is as 4.8 to 1. I might also recall to your minds that the negro is very much less troubled with rheumatism and seldom does he have tonsilitis. Now the question is, what relation do rheumatism and tonsilitis bear—one to the other.

Going back over my case records, I find that in the history of a great number of cases of tonsilitis and some pharyngitis give accurate histories of previous attacks of rheumatism, and investigations into the reports of others, particularly from the Osler clinic as well as from London, I find at least 10 per cent and in some instances, even much higher per cent, showing unmistakable evidence of rheumatism.

In my own cases, I do not mean that the patient admitting his having had rheumatism is sufficient for me to class him as a rheumatic, for you will find few patients but what think they have rheumatism, but I class such cases as such, only after extensive inquiry do I class them as rheumatics.

This one fact is evident: that in cases of simple inflammations of the tonsilar tissue, without pus formation, which continues for more than four or five days under ordinary treatment, you will almost without exception, find positive evidence of a rheumatic taint. Also in the cases of simple pharyngitis, cases in which only a mild congestion and very little thickening of tissue occurs, but painful swallowing, cases when the oft-prescribed Tr. Ferri Chlor. and Pot. Chlorate is used as well as the various antiseptic and astringent remedies but give no results, you will find yield very readily under the usual rheumatic remedies, whether it be the lithias, the salicylates or the newer snythetic remedies, separately or in combination. I shall not attempt to cite cases in detail but state in general, that very frequently, cases come to the specialist of which the history is much like the following:

Has frequent attacks of sore throat, tonsils more or less swollen, pain in the throat, difficult to accurately locate, but on inspection, the general characteristics of the throat do not compare with the amount of discomfort it is causing the patient, who, often complains of a smarting, burning pain in the throat. Sometimes the patient's main complaint is cough without a visible cause, afttimes cough is quite severe on exposure to even a slight degree of cold, and invariably in questioning these patients closely and going back into their previous history, you will find that patient has suffered from one or more well defined attacks of rheumatism and in all cases cough sedatives, local applications of whatsoever kind, except when used in the acute stage, are all found wanting, yet these cases yield to your anti-rheumatism remedies.

I recall one case in particular in which the patient, a lady, whose main complaint was a persistent cough, so severe at times that it would end up in a spell of vomiting and was later followed by considerable loss of flesh, but on inspection of the throat, there was only a mild congestion, the vocal cords slightly reddened, she had gone the rounds of cough sedatives, local applications and various modes of attempting to control the cough but all of little benefit. The patient gave a clear history of previous attacks of rheumatism and one attack immediately preceding the beginning of the cough, which had existed for more than three months, but under no other remedies than 12½ gr. doses of aceto-salicylic acid, the cough ceased within 36 hours and has not yet recurred.

I have not mentioned this subject with the idea of bringing you something new or in any particular original, but a subject of interest to the man in general practice, as well as to the one who confines his work to the region here mentioned. A class of cases which yield very poorly to the routine treatment of sprays and gargles, but react most readily to those medicines which eliminate and counteract the rheumatic poison and is a subject that should be discussed as much by the family physician as the man in special work. I have avoided fine technicalities and detail of cases, desiring rather to present broad general statements, being a brief resume of an every day condition we all meet with in our rounds of practice.

SUTURE OF THE AORTA.*

By H. E. CASTLE, M. D., San Francisco.

Through the courtesy of our President, Dr. Ryfkogel and I are permitted to present this little dog that has had his aorta sutured. This operation was done one and one-half months ago and there has been no paralysis up to this time. The dog has always been very lively. The object of presenting him now is because on a subsequent day the aorta will be removed and sectioned and then we shall show you the histological changes under the microscope. The operation in itself is not of much importance. We were preparing our abdominal technic for vascular surgery so that we could go on with the transplantation of organs. There is some difference between working in the neck of a dog and in the abdomen on account of the field of operation being so crowded in the latter, and the many vessels that come off the aorta in the lumbar region make it rather difficult. In this case there was no ligation of any of the arteries. Instead

*Demonstration before the San Francisco County Medical Society, May 11, 1909.

of cutting the arteries off, which would be the common procedure, we simply pulled them back and clamped them in the same clamp which held the vessel that we were suturing. This procedure left no anemia of the cord which is the cause of paralysis in these operations. Our technic is similar to that of Drs. Carrel, Watts and Guthries; that is, three guy sutures and a circular continuous suture around the vessel. In the Carrel method the circular suture is tied to each guy suture as it is passed. We carry the same suture around the entire vessel. We have been asked if this causes the purse string effect. It does not. The silk will not slide enough to cause constriction. We do not use rubber gloves because the vaseline on the sutures and needles makes them difficult to handle. The needles are very likely to puncture a glove and cause infection, so we use Professor Murphy's gutta percha solution. We have been asked how to keep the sutures. They must be sterilized in vaseline, and as we had a great deal of difficulty in our early work in getting the proper temperature for sterilizing and yet not burning them, we now do it in the following manner: We thread the needles and sew them into a piece of bandage and immerse this in a wide mouthed bottle, pour the bottle full of melted vaseline, cover securely, and put the bottle into an autoclave. After removal from the autoclave the bottle is sealed with wax. At the time of operation the bottle is washed off with pure lysol and opened by sterile hands. We have had no trouble whatsoever with infection.

REVERSE PERISTALSIS.*

By REXWALD BROWN, M. D., Santa Barbara, Cal.

Having features altogether out of the usual clinical run leads me to present the following case history: On May 27, 1907, I did a posterior drainage operation with the Murphy button to relieve the symptoms dependent on carcinoma of the pylorus in a gentleman of sixty-five. The stomach was found of about normal size. The immediate convalescence was uneventful—patient was home in two weeks and was eating and enjoying solid food in the third week. Free easy bowel movements occurred daily.

On June 26, one month after the operation, having been out of doors and very comfortable all of the morning, patient had a light luncheon, immediately followed by abdominal pain severe enough to send him to bed. He felt nauseated, and vomited a small amount of greenish-yellow fluid. Shortly after he had a large free evacuation.

During the afternoon patient was not especially uncomfortable; had some pain, however. Toward evening the nurse noted that the abdomen was a trifle distended and hard. She thought it wise to give an enema to bring away the gas which she considered present. Accordingly she gave one and one-half quarts of a saline solution—three large teaspoonfuls of salt to a quart of water—which failed to relieve. Immediately the abdomen progressively increased in size. Becoming alarmed, the nurse gave another quart and one-half of saline enema. This, too, failed to relieve, and the abdomen attained still greater dimensions. I was sent for and before my arrival patient vomited, as the nurse said, volumes of fluid of a very salty taste and containing fecal matter. As I reached the bedside patient again vomited at least two quarts of the same material. In all there must have been some four or five quarts of vomitus.

Examination revealed a patient practically in collapse, with a rapid stringy pulse, shallow respirations, and an abdomen which was barrel shape, enormously and uniformly distended from pelvis to chest. It actually appeared that the abdominal wall must burst from the extreme tension. Eserin 1/50 and atropin 1/60 hypodermically was given at once. Patient was turned onto his left side. No more vomiting occurred, abdomen rapidly fell to its normal proportions and pulse dropped to 90. By midnight patient was asleep and had a fairly easy night. The next afternoon by enema there was a large loose movement in which the button came away.

Still open for analysis is the interesting field of acute dilatation of the stomach, under which caption I placed the above case at the time, its occurrence following hard upon my having read an article on the subject by Connor. Clinical reports of the condition are not numerous, nor do they describe a uniform picture—some cases present symptoms absent in others—and the literature can stand reports of individual instances of the phenomenon. Some feature or features common to any two or more cases may be the key to the etiological factor or factors responsible for the stomach dilatation.

Compression of the duodenum by the root of the mesentery as found at many autopsies does not adequately explain, and cause is being sought in disturbance of the innervation of the stomach, either in the plexuses, along the gastric nerve trunks or their centers in the brain or cord.

The above case—if acute dilatation it were—is noteworthy because, 1st, it followed an operation on the stomach—of 217 cases reported, only four followed stomach surgery; 2d, to my knowledge, the condition has not been mentioned with reference to the use of the Murphy button—the button may have had nothing to do with it; 3d, onset four weeks after operation—usually occurs in the first two or three days; 4th, the rapid evolution and devolution; 5th, complete recovery—75 per cent of cases die; and 6th, a stomach tube recommended by all writers on the subject, as the most efficient treatment, was not used.

The topic of this paper, however, is not acute dilatation of the stomach.

Attention is therefore directed to the vomitus which occurred in this case. Though anti-peristalsis is normal in the large bowel, it is altogether denied by some observers that there can be a reversal of peristalsis throughout the intestinal length. Other observers, clinicians and experimenters claim that anti-peristalsis does occur. In support of this affrmative contention is the nature of the vomitus being considered. A great amount of emesis was thrown

* Read before the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

from the stomach thirty minutes after the introduction of the first saline enema, and almost immediately following the introduction of the second. It was very salty and contained fecal lumps, evidenced both by smell and sight.

Certainly the small intake of salt at any meal could not render vomited material extremely salty, nor could fecal matter be present unless a reverse peristalsis or a compression of the intestine above an obstruction—squeezing out the contents—were causative. The abdominal muscles did not act to compress the intestines, as they were stretched almost to the breaking limit by the extreme distention. Nor was there adequate reason to believe an obstruction present. A free, well formed bowel movement had taken place after luncheon. The button was considered as a cause of acute obstruction, but this could not be, as the button is patulous in many places and always allows passage of intestinal contents. How, then, could the stomach have ejected salt water and feces unless the salt water carrying fecal lumps had traveled from the rectum backward by a retrograde peristaltic action to the stomach?

Nothnagel states, referring to experiments of his own, that the introduction of powerful chemic initants into the intestine, especially strong solutions of sodium chlorid, do positively excite a true anti-peristalsis which project the solutions beyond the ileocaecal valve some 40 cm. Also he quotes clinical cases in which castor oil and methylene blue enemas were vomited ten minutes after rectal introduction. Treves and Langman report similar cases. Anti-peristalsis has interested but few investigators and experiments undertaken to determine affirmation of the pathologic activity are not numerous. Beer and Eggers have brought the literature to recent date, and their own research work is very interesting. They have tested the capacity of the intestine for working in the reversed direction by resecting segments in the large and small bowel, turning them around and sewing them in place in reverse direction. Large segments—several inches—were in different dogs so treated and regular defecations following the procedures occurred for several weeks. This was rather conclusive evidence that the reversed bowel did do anti-peristaltic work, for passage of intestinal contents could hardly take place unless the whole bowel functionated isoperistaltically. Also direct observation in some instances of the reversed loops through an exploratory incision some time after the reversals showed the peristaltic wave in the reversed segments clearly in the direction of the rest of the bowel.

Cannon, after thoroughly cleansing the large intestine has introduced nutrient enemata containing bismuth subnitrate, and has observed by means of the X-rays that the mushy masses have passed through the ileocecal valve and into many coils of the small bowel. The ileocaecal valve is thus seen to be incompetent at times.

I trust the discussion to follow will inform me if the case was one of acute dilatation of the stomach with reverse peristalsis in addition, or if the intestines alone were concerned, both anti-peristalsis and distention being present. Further, was the button in any way responsible, reflexly perhaps, for the condition, whatever it was?

MERCURY IN THE TREATMENT OF TUBERCULOSIS.

By G. G. MOSELEY, M. D., Redlands.

The number of remedies and methods constantly being offered the profession for the treatment of tuberculosis is very confusing to the careful, conscientious physician, who is always anxious to do the best for his patient; and amid these constantly changing methods of treatment it is no wonder that both physician and patient at times grow skeptical of all medication for tuberculosis.

But fortunately there are certain fundamental principles of treatment upon which all are agreed, viz: rest, fresh air, sunshine and good food, and these are applicable to every case in all stages of the disease.

How Tuberculosis is Cured.

It has been shown that serum injected into tubercular patients acts upon the bacteria and not on the leucocytes, as was formerly taught. While working with this technique, Dr. A. Wright, of London, demonstrated beyond doubt that the serum acts upon the bacteria, preparing them for phagocytosis, and furthermore has shown that normal serum contains a certain amount of the substance necessary for phagocytosis, to which he has given the name of opsonin. This word, opsonin, comes from the Greek which literally means "boiled meat" or, a more general meaning, anything eaten with bread or food to give it a flavor or relish.

By comparing the number of organisms ingested by the leucocytes in the presence of the serum to be tested with the number ingested in the presence of normal serum, Dr. Wright has established what he calls The Opsonic Index. He found that by using certain sera, the opsonic index was increased up to a certain point, and if the injection was pushed beyond a certain point the patient reached what he calls the "negative phase" and his opsonic index decreased.

The action of serum and mercury are very similar in many respects. If mercury is pushed beyond a certain limit, producing ptyalism, there is a decrease in the red blood corpuscles and a lessening of the power of the phagocytes.

The Physiological Action of Mercury.

When one of the milder preparations of mercury is taken into the body there may be no effect until by large and repeated doses the system begins to feel its influence. The first evidence of over-dosage is found in the mouth, where there is an increased flow of saliva, slight pain when the teeth are brought suddenly together, fetid breath, etc., all growing worse and gradually giving rise to tremor, and paralysis. The blood also suffers a degeneration of the corpuscular elements.

The rapidity of absorption and elimination of mercury depends very much on the variety given. Some of the insoluble preparations, such as calomel and bluemass, are eliminated slowly because of the time it takes for their absorption. Authorities differ as to the manner in which mercury is absorbed.

The French hold that the mercurial preparations are converted in the stomach and intestines into bichloride, which unites with the sodium chloride of the blood and circulates in the blood as double chloride of mercury and sodium.

In Germany it is taught that it forms an albuminate of mercury. Whatever may be the true theory of its absorption, there is abundant proof that it is absorbed. It is known to escape as an albuminate by every excretion of the body. It is largely excreted by the kidneys, and may also be found in the faeces, sweat, saliva, tears, milk, pus and serum from ulcers.

If given in a single dose mercury begins to be eliminated in two hours and is entirely eliminated in about twenty-four hours. If the doses are small and often repeated, the mercury accumulates in the system and may remain for an indefinite time, being often deposited in all the organs of the body.

The doses of mercury ordinarily given are large enough to produce a cumulative effect. It has been demonstrated by experiment that the amount of mercury that can be eliminated by the kidneys when the body is saturated with the drug is about one-sixteenth of a grain in twenty-four hours.

In giving mercury in tuberculosis as advised by Dr. B. L. Wright the amount is equal to one-tenth of a grain daily. Later the dose is diminished and iodide of potash is given to hasten the elmination of the mercury.

Dr. Schuster reports finding mercury in the faeces three months after cessation of a mercurial course.

It would not be profitable to enter into a discussion as to how calomel acts, although it is probable that it stimulates the glandular system, but in some way mercury influences nutrition and produces an increase in weight. This has been worked out experimentally in both men and animals. The number of red blood corpuscles is increased and all the effects follow that are generally ascribed to a tonic. To accomplish this, mercury must be given in very small doses, for if too much is given it has an opposite effect and the blood becomes thin and watery, with fewer red cells present. This is probably the negative phase described by Dr. Wright of London.

Dr. B. L. Wright, of the United States Naval Hospital, claims that in tuberculosis mercury acts as a tonic and that it renders the blood bactericidal, producing an antitoxin which has a direct effect on the bacilli, and that the effect of mercury is cumulative and lasting.

Method of Treatment.

The method of treatment has been somewhat modified by Dr. Wright in that he no longer uses iodides, having found that the use of this drug increased the cough and disturbed the digestion of the patient to such an extent that their use was impracticable.

The method now pursued is to begin with one-fifth of a grain of the succinimide of mercury injected deep into the gluteal muscle every other day until thirty injections have been made; then discontinue the injections for from two to three weeks; then resume the injections, giving one injection every other day until thirty have been given, on alternating injection days giving one-fifth and one-tenth of a grain of the succinimide respectively. Then again discontinue all injections for from two to three weeks, then resume the injections, giving one-tenth of a grain every other day until thirty injections have been given.

At the end of this third series experience will dictate any necessary further treatment.

Before beginning the treatment the patient's temperature should be taken at least three times daily for a period of three or four days. If there is any reaction after the second dose as shown by an increase in the temperature, the dose has been too large and should be reduced. In my judgment here lies the secret of success in the use of the drug. The dose is to be regulated to each individual case, and in my experience I have found comparatively few cases in which it has not been necessary at some time to reduce the dose. A few of the cases seem quite susceptible to the use of the drug and in some instances it has been necessary to reduce the dose to as low as one-twentieth of a grain for a few injections.

Results of Treatment.

In a former paper I reported the results of the treatment in twenty-five cases that had been under treatment at that time for about six weeks. Since then, through the kindness of Drs. Tyler, Perry and Shreck I have secured the history and results of treatment in a number of other cases, making in all thirty-three cases to date. The results obtained in these cases are as follows:

Patients treated three months or more	Stage of the Disease			
	First Stage	Second Stage	Third Stage	
Cured	3	6	24	
Marked Improvement	5			15.15%
Slight Improvement	11			33.33%
Stationary	8			24.24%
Failed	4			12.12%
Died	5			15.15%
Total	33			

Combining the items marked improvement and slight improvement we find that 48.48% of the total number treated have improved.

Dr. B. L. Wright reports improvement in 89.16% of 161 cases treated.

Conclusions.

This method of treatment has not been used in a sufficiently large number of cases to warrant any very definite conclusions. However nearly all the cases improve for the first month or six weeks; the appetite is better, night sweats are less marked and often stop altogether, the haemoglobin increases from ten to twenty points and the patient feels stronger. But after a month or six weeks the patient is apt to remain stationary or perhaps lose a little in weight and the haemoglobin decreases five to ten points. This may be partly due to giving too large doses. I think if we give one-fifth grain for two weeks and then decrease the dose one-half, the result might be better; yet I have never noted any bad effects from this treatment. Some patients have had pain occasionally following the first few injec-

tions, and one patient was salivated, but he recovered rapidly on the withdrawal of the drug and seemed none the worse for the experience.

I believe the action of mercury in tuberculosis is that of a tonic and that it is especially useful in those cases that are markedly anemic and in cases complicated by syphilis, inherited or otherwise.

Dr. B. L. Wright certainly deserves great credit for bringing this treatment to the attention of the profession and in properly selected cases, has undoubtedly given us another weapon in the great warfare against tuberculosis.

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SOCIETY REPORTS

SAN FRANCISCO COUNTY.

Regular Meeting, May 11th, 1909.

Demonstration of specimens by Dr. Chas. G. Levison:

The first specimen was removed from a girl 23 years of age who gave a most unusual family history of tuberculosis. One sister and a grandmother died of consumption; one brother had a white swelling, one had necrosis of the bone which made an amputation below the knee necessary; one sister had weak lungs and the mother lost an eye from scrofula when she was $2\frac{1}{2}$ years of age; otherwise her previous history was of no interest.

The X ray picture showed a disorganization of bone by a structure which seemed to be springing from the medullary substance. In view of the tuberculous history given, this disease could not be ruled out. At the operation just as soon as the skin was incised, a bluish tumor presented which when penetrated bled so profusely that it was necessary to apply an Esmarch on the thigh as well as to make a firm compression of the femoral artery. The tumor was removed as far as possible by curettage the object being to treat the sarcoma, which it surely was, by conservative measures. More particularly was this done in view of what statistics have recently shown to be the most desirable procedure. Packing was very firm and the patient was put to bed with the Esmarch in position with the bleeding thoroughly controlled. The patient did well for 14 days when it was recognized that there was a recurrence of the growth at the site of the wound. In view of this a hip joint amputation was decided upon and performed immediately. The operation was carried out without the loss of a tablespoonful of blood, the Wyeth pins being used for hemostasis.

There was no reaction as a result of the operation; subsequently there was a recurrence in the groin where a large mass the size of an infant's head formed. Death occurred a few days ago, the patient having survived the operation by about four months. The tumor had involved the entire shaft of the femur up to the articulating surface of the head, the medullary substance of this structure having been almost entirely supplanted by the tumor growth. Microscopically the growth was found to be a mixed sarcoma, of large and small cells. This tumor which is known to be exceedingly malignant is usually followed by a rapid recurrence whether a radical operation is performed or not.

The second specimen was removed at autopsy from a woman aged 37 whose family history was negative. She gave a history of having been ailing for 12 months during which time she had been aspirated 12 or 14 times. There was a great loss of weight, some cough with little or no expectoration and the patient was profoundly cachectic. When seen by me she was running an evening mouth temperature ranging from 102½° to 103°.

Examination: Her eyes were prominent to the extent of an exophthalmus. The breathing was very rapid and was thoracic in character. The patient could not lie anywhere but on her left side and she was compelled to sit quite upright to breathe with any degree of comfort; her complexion was pale and muddy.

There was a mass of discrete glands at the outer side of a hard tumor which had obliterated the supraclavicular space on the left side of the neck and had extended backwards to the trapezius muscle. The right supraclavicular region was uninvolved. The tumor on the left side was densely hard and the size of a hen's egg. It seemed to be pushing upwards behind the left sternoclavicular articulation from the mediastinum. The mass extended behind the sternum so that its lower border could not be palpated. The upper border could be definitely outlined, however. There was no pain elicted upon pressure. The axillary glands were enlarged. Pulse was 124.

Anteriorly. There was a marked dullness covering the entire left side of the thorax which extended three finger-breadths to the right of the right border of the sternum. Posteriorly, a similar condition existed. The respiratory murmur was heard on the right side and was accompanied by squeaking rales. The breathing on the left side was quite loud at the base of the lung but it was unsatisfactory to interpret on account of the adventitious sounds that the patient made with her mouth as a result of the dyspnea. It was evident that there was a growth at the root of the left lung which extended through the thoracic opening behind the sternum. An X-ray picture which was taken with the patient in an upright position revealed a dense opacity of the left half of the chest which extended a hand's-breadth beyond the median line towards the right side. The remaining part of the right side of the thorax was quite clear and free from opacity.

Examination of the blood revealed nothing of importance. The patient was aspirated and about 600 c.c. of a straw-colored fluid were removed. The report of the cytological examination was as follows:

Exudate very fibrinous coagulating rapidly; there are no tubercle bacilli present; there is no lymphocytosis; leukocytes are very few and are mostly of the polymorphonuclear variety. A shred of tissue

which was removed by the aspirating needle was described: first, connective tissue cells (spindle); second, small round cells (few plasma cells); third, endothelial plaques. Microscopic examination suggested the diagnosis of sarcoma.

The mass of glands which could be palpated were suggestive of carcinoma but the large size of the tumor together with its slow growth and the fact that sarcoma and lymphosarcoma is common in this situation together with the cytological examination made the diagnosis of sarcoma probable. Tuberculosis was never seriously considered.

The patient died shortly afterwards and the partial autopsy findings were as follows:

An incision was made which extended from the jugulum to the ensiform cartilage. When the sternum was removed the thorax was seen to be filled with a tumor mass which had the appearance of fat. The right lung appeared to be normal and the mass which extended beyond the median line towards the right corresponded to the exact position that was outlined by percussion and that was also seen in the radiograph. The heart occupied the median line. The base of the heart and the great vessels were infiltrated and were covered by the tumor mass which filled out the thorax on the left side and the mediastinum with the exception of a cavity between the diaphragm and the tumor. This was the cavity from which the fluid had been aspirated. The mass was intimately adherent to the parietal pleura and was separated from this structure with considerable difficulty.

The tumor could not be removed until the mass that extended up into the neck was cut through. The trachea was cut and when this was done the entire mass which included both lungs and the heart was completely removed.

The specimen showed that the right lung was uninvolved and that the lower lobe of the left lung was intact. The upper lobe of the left lung was completely destroyed and it was plainly seen that this had been produced by the invasion of the tumor. Microscopical examination of the tumor showed it to be lymphosarcoma.

Regular Meeting, June 8th, '09.

Presentation of Case by Doctor Fleischner.

The patient which I wish to present this evening for your consideration is a boy 4½ years old, suffering from hereditary syphilis, who at present has a laryngitis of specific origin and who has recently passed through an attack characterized by meningeal symptoms probably of syphilitic origin. Family history: On the paternal side there is a definite history of syphilis contracted one year before marriage; the mother had an eruption lasting 1½ years after marriage and was treated for this in Doctor Somer's clinic with anti-specific treatment; the first pregnancy resulted in a miscarriage; the second pregnancy was terminated at full term and the child died at the age of 2½ months of a supposed meningitis; the symptoms of this condition were, however, very vague. The patient has two younger brothers, both of whom are apparently healthy at present, the older of whom, however, was under treatment by Doctor Porter for inanition, possibly of specific origin.

The present history is as follows: birth premature, pregnancy terminated at 8 months, otherwise normal; as far as can be determined there were no symptoms of hereditary syphilis at birth; the child was breast fed for 7 months; first teeth at 9 months; began to talk at 9 months; first walked at 11 months; at the age of 5 months the child had symptoms of a meningitis which promptly subsided, however, with a rupture of the left tympanic membrane; at the age of 7 months the patient developed an interstitial keratitis of the left eye for which it was treated at Cooper Medical College; subsequent to this there developed a cataract in that same eye; during his infancy, patient received mercurial inunctions evidently on account of the very positive family history because the child itself did not have typical syphilitic symptoms; patient has never had dactylitis; the cataract has been operated upon a number of times by Doctor Sewall and is gradually disappearing. Up to the 2nd of May patient had never had any infectious diseases; at that time the child developed a typical attack of measles; he had along with this a severe paroxysmal cough which the mother thought was whooping-cough; on the 12th of May the child suddenly developed an aphonia; the mother said that he was very hoarse on speaking and that at night he had choking spells. There was no stridor. He was brought to the clinic of Cooper College on May 19th on account of this aphonia.

The physical examination revealed a poorly developed, somewhat emaciated boy of 4½ years of age. The mucous membranes were pale, the left eye showed a cataract, the nasal half of which has been removed by operation; the nose is somewhat saddle-shaped and there is a slight muco-purulent discharge from the nose; all the glands are enlarged except the epitrochlear; the A. C. and axillary glands are especially enlarged; child has a very apathetic appearance; on breathing there is an expiratory and inspiratory sound of a stridulous nature transmitted mostly from the larynx. Thorax, shape negative. Heart normal. Lungs, percussion does not show any decided enlargement of the bronchial lymph nodes nor does it give any evidence of a persistent thymus. Auscultation over both sides, anteriorly and posteriorly, the respiratory murmur is masked by the sounds which are transmitted from the larynx. Over the left side sibilant rales are rather diffusely heard. Abdomen, slight umbilical hernia, liver enlarged 1½ finger's breadth below free border and of rather firm consistency. Extremeties, negative except on the dorsal surfaces of both hands there are brownish scars of what is aparently an old impetigo; the child has an aphonic cough. There is hypertrophy of both tonsils. Patient was referred to Doctor Sewall who made an examination with the following report:

Nose—R space good—little discharge.
L filled with discharge and space small.
Mouth—Negative.
Pharynx—Right tonsil crypts filled with cheesy material; both tonsils slightly hyperthrophic.

Doctor Sewall had the patient admitted to his service in the Lane Hospital; he was put under an anesthetic and the larynx examined by the direct method; both vocal cords were edematous, red and covered with a false membrane; it was perfectly evident that the condition was not diptheritic nor did it present the picture of tuberculous involvement. The boy was kept in the hospital several days and his laryngitis appropriately treated; it did not, however, respond satisfactorily to treatment and he was discharged from the hospital. On Friday, May 28th, in the evening the child was more or less apathetic and feverish; in the morning he was suffering acutely from headache and the mother noticed that the head was retracted, he vomited his food once. He was first seen by Doctor Sewall who made a tentative diagnosis of meningitis. On the evening of May 29th, physical examination revealed the following: expression somewhat apathetic; child, however, perfectly conscious and mentally very acute and bright. There was marked retraction of the head and rigidity of the muscles of the neck; tache cerebrale was present. There was marked Kernig but no Babinski. The superficial reflexes were negative; the heart and lungs were negative; the abdomen was not retracted nor did the examination of the abdomen reveal anything but what had been apparent on the previous examination; pupils were equal and they reacted promptly to light and accommoda-

tion. Temperature 102°, pulse 120, regular, full, of good tension. It was recommended at that time that the child should go into the hospital; this was, however, not feasible. Dumbar puncture was not done for two reasons; primarily because the child showed so little evidence of toxemia; a very negative feature to the epidemic variety of meningitis and secondarily on account of the marked specific history of the family. The following treatment was given:

Tablets of calomel as gr. ¼ No. 8 1 q ½ h.
Magnesium citrate the following morning.
Ice-cap to the head.
Pot. iodid gr. 10 q 2 hr.
Milk diet.

On May 30th in the morning the patient was considerably improved, retraction of the neck was much less marked and the boy was very bright. Kernig sign less apparent, temperature 99°, pulse 100, regular. Examination otherwise negative. Treatment given was Pot. iodidi gr. 20 q 3 h. On the next morning the patient was markedly improved, practically no retraction of the neck, Kernig absent, child sitting up in chair, appetite improved, examination otherwise negative. The mother was advised to bring the boy into the clinic. Temperature was 98°. On June 2nd, 1909, the patient brought to the clinic, very much better, as far as the examination was concerned, practically negative. Doctor Porter suggested that the boy be put on anti-specific treatment using mercury instead of Pot. iodide and he was given gray powder ½ gr. t.i.d. On June 8th, the child was brought into the clinic in very good condition; examination reveals nothing new except that the aphonia is a little less marked. The Wasserman reaction, which was done on the 2nd of June, is positive in the case of the mother and shows partial hemolysis in the case of the child.

The differential diagnosis of the condition from which this boy was suffering at the time when he presented the symptoms of meningeal irritation required the consideration of three distinct diseases, first, an acute suppurative meningitis, second, meningitis due to syphilis; third, meningysmus due to the action of some toxins. The strikingly positive family history suggested syphilis as the cause of the condition. Another striking feature of the case which prompted ruling out of acute meningitis or atoxic meningysmus was the very clear mentality of the child and the lack of toxemia. The therepeutic result undoubtedly has proven the diagnosis to be correct. The dose of iodide may seem enormous to some of you but experience rather shows that if given in milk large doses of iodide are at least as well borne, if not better, than small doses and if any result is to be expected from their use they should be given in extremely large quantities. Since this case was reported the laryngitis has cleared up completely under anti-syphilitic treatment.

Discussion:

Doctor Langley Porter: This case is one of interest from two points of view, first in the matter of diagnosis, and second, the treatment. The question arose as to whether the patient suffered from meningysmus due to some intestinal infection or whether he was suffering from a plastic meningitis due to syphilis. I am at a loss to make a decision in the matter. It seems to me impossible to say that the patient was not suffering from a very acute plastic meningitis which cleared up under large doses of iodide. That interpretation is one, one cannot overlook. On the other hand we know that these children who suffer from congenital syphilis have their neuroses in different forms. The question of treatment is also a matter of importance. I think that except under the circumstances in which this case was treated where one has reason to suspect a plastic outpouring, we have no right to use iodide in cases of congenital syphilis. We get much more prompt results from the use of mercury and a child of this age should be given gray powder.

ACADEMY OF MEDICINE.

Demonstration of Brain Cases by Doctor Camillus Bush:

The first case is that of a young man who has always been perfectly healthy up to the present illness. He admits that there may have been the possibility of luetic infection. One and a half years ago he fell on the ice, striking the back of the head; he was not unconscious. Almost immediately he complained of headache which has persisted up to the present time. The peculiar part of this headache is that it has been limited entirely to the left side of the head. He began to have changes in his disposition, becoming morose, jealous and having fits of temper and being apt to jeopardize the lives of his best friends. At the same time there was a sense of oppression in the head and sense of dulness in the eyes and he was unable to see things clearly. When he would talk he said his eyes felt as if they were "poking out" of his head. Aside from these subjective symptoms there was nothing else to be noted. On examination the only thing which gave a clue was the fact that his left eye background showed perfectly distinctly, though only to a mid degree, choked disc. The right eye was perfectly normal. In the meanwhile, for six months, this man had been on antisyphilitic treatment without improvement. X-Ray plate taken of his head showed a shadow in the region of the occipital protuberance which seemed somewhat like a depressed fracture of the head; but the symptoms were so obscure that no great dependence could be put upon this point. After a long discussion, the only point in favor of the trouble being organic being the headache and choked disc on that side, we finally decided to do a decompressive operation. The trouble was probably on the left side on account of the headaches. A subtemporal decompressive showed something hardly to be expected, although Dr. Birch was strongly of the opinion that it was likely to be some lesion of the frontal lobe. We uncovered parts of the inferior and anterior central convolutions and went down to the tense dura which, when opened, showed perfectly clearly a beautiful subdural cyst, really a cyst of the arachnoid; the summit of the cyst was very thin. It was cut away and the cyst emptied itself of a good deal of fluid, probably almost an ounce. The cyst did not penetrate deeply into the brain but spread out. We excised the top of the cyst and enlarged the decompressive opening but did not see any more evidence of the cyst. This was four or five weeks ago. The eye ground promptly cleared up, the choked disc subsided. There were few objective symptoms in the first place. We have to take the man's word for the improvement and he says that the world looks differently to him.

The second case is that of a young man who was perfectly healthy when he sustained a gunshot injury to the left temple at very close range. He was admitted to the Central Emergency Hospital and afterwards transferred to the Lane within an hour of the time he was shot. He had a small bullet wound on the left temple, the eyes bulged. Within an hour pulse was very fast and irregular suggesting the later stages of pressure pulse. (This is a surprising thing because usually the pressure pulse takes quite a while to come to that stage. It is not until the bulbar anaemia appears that one finds the pulse that this man had within a very little while of the accident). The pressure, however, was extremely great. He vomited soon after he entered the hospital, large amount; projectile vomiting. We immediately decided to do the decompressive operation on that same side. It was very clear that he had an enormous intracranial tension. The operation was done not far from the wound of entrance. The minute the dura was incised the blood gushed out, the brain was plum colored, the convolutions edematous. Almost immediately afterwards the man's pulse dropped down

to 80 and the respiration increased in frequency. The whole picture changed. He was put back to bed after a regular subtemporal operation had been done and he did perfectly well all through that day until the next night when he again developed pressure symptoms, the pulse was down to 40 and 45. In the morning he had a somewhat extreme grade of bulbar anaemia. I decided to go in on the other side and do the decompressive operation. The brain was under still more tension here than on the day before and thinking that there might be an accumulation of blood I put in the trocar and tapped the ventricle, and I obtained a great deal of blood-stained fluid. As soon as the ventricle was emptied the condition became good, the pulse dropped and the respiration improved. The man made an uneventful recovery. However, he shot off his left optic nerve and so is perfectly blind in the left eye, the right eye had a postbulbar accumulation of blood but has cleared up and is now getting so that he can see pretty well. The bullet is still in the head some place. He shows one complication of subtemporal decompressive operation, he is having an asphasia for long words which I think is getting better.

Demonstration of a Specimen of Ball Thrombus of the Heart. By Dr. August Jerome Lartigau.

Demonstration of a Specimen of Ball Thrombus of the Heart, by Dr. August Jerome Lartigau:

This specimen was removed from a thirty two-year-old hunch-backed woman, with a marked deformity of the pelvis and eight months pregnant. When first seen dyspnoea and cyanosis were pronounced. There was a marked distension of the veins of the neck, with a pulsation synchronous with the heart beat. Physical examination of the heart and lungs disclosed no abnormality. The dyspnoea any cyanosis were therefore attributed to pressure. Without any premonitory symptoms the patient died suddenly.

Autopsy—An irregularly globular, firm thrombus the size of a walnut, made up of concentric layers, was found in the dilated right auricle. It was freely movable, although attached by a few fresh bands of fibrin to the walls of the auricle.

DEPARTMENT OF TROPICAL MEDICINE.

The intimate trade relationships now existing between the Pacific Coast and tropical and semi-tropical countries, and the still more intimate relationships that will spring out of the opening of the Panama Canal render unnecessary any special arguments concerning the necessity of the study of tropical diseases in all medical schools, and particularly those of this western country. Not only is it important that men should have opportunities to become trained in tropical diseases in order that they may meet the health problems confronting the native and the white man who enters the tropics, but tropical diseases are fast becoming a serious menace to the white man in his own country. The Pacific Coast has not only frequent opportunity to see cases of acute and chronic tropical disease that have been imported into the United States, but several already exist endemically here, and unless properly handled by trained men, threaten danger, not only to the communities in which they now exist, but to the United States in general.

The faculty of the Oakland College of Medicine has long felt the need of establishing a department of tropical medicine, which would offer to its students an adequate training in this important subject. The opportunity to satisfy this need has just been rendered possible through the generous monetary bequests to the college of a number of its friends.

The faculty considers itself fortunate in having had Dr. Creighton Wellman accept its invitation to the chair of Tropical Medicine in the Oakland College of Medicine.

The courses of instruction that are to be offered by the department of tropical medicine will be announced at the beginning of the next school year.

DANGEROUS DRUGS IN HEADACHE MEDICINES.

Acetanilid, antipyrin, and phenacetin (acetphenctidin) are three comparatively new drugs which are widely used to produce insensibility to pain, and proprietary headache medicines are very apt to contain one or more of them. The use of such drugs without the advice of a physician is dangerous, since they tend to depress the heart and the nerves and may lead to the formation of a drug habit. This is proved by reports from 400 physicians, made in response to inquiries from the United States Department of Agriculture. These physicians state that from 1884 to 1907 they have known 28 deaths resulting from the use of one or another of these three drugs, besides 814 cases of poisoning, and 136 cases in which the patient had formed the drug-using habit, with various evil results. In 14 cases antipyrin was poisonous even when used externally. Even supposing the 525 physicians who failed to reply had no cases to report, what a terrible showing would be made if the 125,000 physicians in the United States could all give their testimony. Of the 400 physicians, acetanilid is rarely or never prescribed by 212, antipyrin by 307, and phenacetin by 180. In more than one-half the cases of poisoning the drug was taken by direction of a physician, a fact which leads one to reflect that if the physician is likely to have bad results in the use of these drugs the ordinary man should be doubly cautious in using them or anything containing them. Nowadays no one need take them unknowingly, for the National Food and Drugs Act requires that labels of proprietary medicines containing them shall show the fact.

The statements of these 400 physicians are confirmed by those of a committee of the British Medical Association which investigated the matter in 1894. The medical journals also, from time to time, have contained articles describing cases in which the use of these drugs has resulted badly. Altogether medical literature makes a showing of 13 deaths and 297 cases of poisoning from acetanilid; 488 cases of poisoning from antipyrin; and 70 cases of poisoning from phenacetin.

Physicians are using these drugs less freely and with greater caution than when they were first introduced. But the general public, on the other hand, in response to ingenious advertising, seems more and more to be purchasing headache mixtures containing these drugs and dosing themselves without advice from a physician. When considered in connection with the fact that cases of poisoning and death have been more frequent in recent years, this should lead the common man to be extremely cautious in the use of any remedy containing acetanilid, antipyrin, or phenacetin.

These facts are shown in detail in Bulletin 126 of the Bureau of Chemistry, U. S. Department of Agriculture, entitled, "The Harmful Effects of Acetanilid, Antipyrin, and Phenacetin," recently issued.

A JUST COMPLAINT.

California State Journal of Medicine:

Gentlemen—We have before us your issue of July, 1909, in which is reviewed Kassabian's "Roentgen Rays and Electro-Therapeutics," which we sent you on August 30, 1907.

With the review we have no quarrel, as the writer is of course entitled to his opinions and to express them, but in condemning a book that is not up-to-date, would it not be only even-handed justice to let it be known that the book was issued over two years ago, even if you did not show that it had

been in your hands for review that length of time?

Yours very truly,

J. B. LIPPINCOTT CO.

[The review referred to was written by Ferdinand Freytag, Ph. D., and through error no credit was given him.—Ed.]

NEW AND NON-OFFICIAL REMEDIES.

Articles accepted for N. N. R.:

Alypin Tablets, 3 1-3 grs., 1 1-8 grs., 1-3 gr., 3-4 gr. (Farbenfabriken of Elberfeld Co.).

Helmitol Tablets, 5 grs. (Farbenfabriken of Elberfeld Co.).

Sabromin Tablets, 8 grs. (Farbenfabriken of Elberfeld Co.).

Veronal-Sodium Tablets, 5 grs. (Farbenfabriken of Elberfeld Co.).

Thyresol (Farbenfabriken of Elberfeld Co.).

Novocaine Nitrate (Koeehl & Co.).

Holadin & Bile Salts (Fairchild Bros. & Foster)

Oxone (Roessler & Hasslacher Chemical Works).

Apinol (Apinol Chemical Co.).

Articles accepted for N. N. R. appendix:

Tablets Atoxyl 1-3 gr. (Sharp & Dohme).

Tablets Novocaine Soluble 1.14 gr. (Sharp & Dohme).

Tablets Novocaine 1-3 gr. (Sharp & Dohme).

Tablets Novocaine 1-3 gr. (Sharp & Dohme).

Ampules Atoxyl Solution 10% (Sharp & Dohme).

Ampules Atoxyl Solution 10% and Novocaine 1% (Sharp & Dohme).

Massolin (Lederle Laboratories.)

Triferrin:

Triferrol: The agency for these products has been transferred from C. Bischoff & Co. to Knoll & Co.

PROGRESS IN CUBA.

With the beginning of the present fiscal year the Republic of Cuba established a Bureau of Information, President Gomez appointing Leon J. Canova, an American newspaper man, who has resided in Cuba eleven years and has a wide acquaintance with the Island, as its director.

Parties wishing information of any nature concerning Cuba can obtain same, free of charge, by writing to Leon J. Canova, U. and I. Bureau, (Utility and Information Bureau), Department of Agriculture, Commerce and Labor, Havana, Cuba.

A FINE BEQUEST.

Through settlement of the contest over the will of the late Frederick Hewitt of Owego, N. Y., the New York Post Graduate Medical School and Hospital will receive the major portion of its $2,000,000 bequest, and large improvement and building plans are being considered.

BOOK REVIEWS

The Ophthalmic Year Book, Volume vi. By Edward Jackson, A. M., M. D. Professor of Ophthalmology in the University of Colorado. Geo. E. de Schweinitz, A. M., M. D., Professor of Ophthalmology in the University of Pennsylvania. Theodore B. Schneideman, A. M., M. D., Professor of Ophthalmology in the Philadelphia Polyclinic. The Herrick Book & Stationery Company, Denver, Colo., 1909.

To-day it is essential for one practicing medicine to be thoroughly abreast of the times, and owing to the tremendous increase in the number of publications it is beyond the endurance of the individual to digest and assimilate even half of the current literature. Hence, such reviews as the above are a necessity and their value is dependent solely upon their reliability and, so to speak, readability.

The present volume is most systematically arranged, both views of a subject being presented and generally only the most reliable ones.

Beginning with the biographical notices of the late practitioners of ophthalmology the various subjects of diagnosis, hygiene, etc., etc., are presented serially and in good sequence.

The volume covers the literature of the year 1908 fully and in more important subjects a few facts are given of the work accomplished in the previous years.

The paper is good, the print clear and numerous illustrations illuminate the text. The index is very complete and should in itself be a guide to one looking more fully into any subject.

I can recommend this work most highly, for such honest, painstaking and competent work should be appreciated. W. S. F.

Diseases of the Bones and Joints. By J. E. Goldthwait, M. D., C. F. Painter, M. D., and R. B. Osgood, M. D. Publishers: D. C. Heath & Co., Boston, Mass.

These clinical studies are designed to give the physician in general practice an insight into the more common forms of bone and joint disease. The authors have shown great care in the arrangement and presentation of their subject matter and their statements are clear and concise, general deductions being well illustrated by case histories. "Painstaking bedside observations," they say, "are of more real value, taken by themselves, than the most minute pathological researches," and the book everywhere emphasizes the importance of careful and exhaustive bedside study.

Methods of physical examination are dwelt upon at length and these chapters are particularly valuable. The many illustrations, all of which are original, serve well to illustrate the text. The subject-matter has been chosen with discrimination by these specialists and the practitioner will find in its pages much to guide and direct him in this difficult field of surgery. R. R.

Tuberculosis: A Preventable and Curable Disease. By S. Adolphus Knopf, M. D. Publishers: Moffat, Yard & Co., New York.

In his preface the author tells us that this work is intended to be of use to the patient, his family nurse and physician; to the hygienist and sanitarian; to municipal and health authorities; to legislators, employers, clergy and philanthropists, etc.,—in fact, to anyone in any manner whatsoever connected with or interested in the subject of tuberculosis. It is primarily a book for the layman, aiming to teach him that the disease is a preventable and curable one and to acquaint him with certain fundamental facts of importance. To the physician the book is intended to be helpful by enabling him to give detailed instructions to his patients and by suggesting means of curing the tuberculous poor in crowded cities where sanatoria are unavailable.

The reputation of the author in the field of tuberculosis is sufficient guarantee of the soundness of the advice given. The work is very fully illustrated, chiefly by photographs which are in all cases excellently reproduced. Particularly interesting and instructive are the illustrations showing how the poor city dweller may manage to secure a substitute for out-of-door treatment by simple adaptations in his own home. It is especially here that the physician may obtain useful hints.

Occasional inaccuracies or misstatements occur but in general these are of very minor importance. Future editions of the work should correct the state-

ment that milk should be kept at the boiling point for one-half hour in order to sterilize it.

The book cannot fail to be of use in the manner indicated by its author in the preface. H. W. A.

Treves' Operative Surgery. New (3d) Edition. A Manual of Operative Surgery. By Sir Frederick Treves, Bart., G. C. V. O., C. B., LL. D., F. R. C. S., Sergeant-Surgeon to H. M. the King, Surgeon in-Ordinary to H. R. H. the Prince of Wales, Consulting Surgeon to the London Hospital; and Jonathan Hutchinson, F. R. C. S., Surgeon to the London Hospital. New (3d) Edition, revised and rewritten. In two octavo volumes. Volume I, 775 pages, with 193 engravings and 17 full-page plates. Half-morocco, $6.50 net. Lea & Febiger, Publishers, Philadelphia and New York. 1909.

The present edition of this popular book has been so thoroughly revised that there is little in it to suggest the first edition of Treves' Operative Surgery which appeared in 1891. It is full of sound advice and some of the generalizations are worthy of repetition. "An unsuccessful operation," they say, "is often attended by much abuse of the assistants and by very severe criticism of their manipulative powers. Such condemnation may be just or may only serve to illustrate the proverb that 'a bad workman complains of his tools.' It is during the most perplexing stages of an operation, and when things are going ill, that the indifferent operator finds that knives will not cut, that forceps will not hold, and that the clumsiness of assistants is beyond the limits of human belief.

"The best work is done with the simplest implements. A surgeon who is dependent upon a special instrument for this, and a special instrument for that, is a poor handicraftsman. . . . Some of the least progressive periods in the surgeon's art have been marked by the prolific production of instruments. . . . . A great multitude of the instruments which figure in the maker's catalogues are evidences of incompetence and of a lack of dexterity which prevented the inventor from making full use of his hands.

"The surest sense of confidence rests with the operator who knows accurately what he intends to do, and how to do it. The least success follows the hand of the man who retains throughout an operation a speculative spirit, who depends largely upon his imagination for conditions, and upon the fortune of events for results. A shakiness of the hand may be some bar to the success of an operation, but he of a shaky mind is hopeless."

American surgeons cannot agree with the authors' views on the question of asepsis. On this point the book emphasizes the common practices in vogue in England. The book is abundantly illustrated and while exceptions can be taken to some of the statements, it is on the whole sensible, well written and thoroughly practical. R. R.

Politzer on the Ear. New (5th) Edition. A Textbook of the Diseases of the Ear, for Students and Practitioners. By Professor Dr. Adam Politzer, Imperial-Royal Professor of Aural Therapeutics in the University of Vienna; Chief of the Imperial-Royal University Clinic for Diseases of the Ear in the General Hospital, Vienna, etc. Translated at the personal request of the Author and edited by Milton J. Ballin, Ph. B., M. D., Assistant Surgeon, New York Ophthalmic and Aural Institute; Assistant Surgeon, Mount Sinai Dispensary, Ear, Nose and Throat Department, etc., and Clarence L. Heller, M. D. Fifth Edition, enlarged and thoroughly revised. Octavo, 892 pages, with 337 original illustrations. Cloth, $8.00, net. Lea & Febiger, Publishers, Philadelphia and New York. 1909.

With the appearance of the fifth edition of Prof. Adam Politzer's classic work, we note at once that it has kept apace with the most modern ideas of Otology. The old form and general arrangement have been preserved. This is not especially to be commended. Several books published in this country and abroad in the last year have by arrangement of material and general heading and subheading made the task of the student much easier The nature of the treatise, however, its great depth and scope, make such small details of little significance. There is no book on the ear so exhaustive in its treatment or so backed by the personal experience of the author, and of those directly connected with him through his clinic. Politzer is to-day the greatest living teacher in matters pertaining to the ear, and the great number of those all over the world who have come in personal contact with him in his work will recognize the weight that the selection by him of the good and the rejection of the worthless will have.

The chapters of anatomy and physiology are especially exhaustive, and though many of the cuts are somewhat antiquated, like those of Gray's anatomy, they have been again called upon to do service because of the clearness of the line drawing. It is a help to find the anatomical points, so well given in our modern anatomies, brought to our attention with especial reference to their significance in the understanding of the ear—healthy and diseased. The wealth of thought that is added to the cold anatomical facts makes the reading broadening. For example, after describing the external ear, he adds: "Imhofer is of the opinion that certain peculiarities of formation of the auricle are often hereditary, and considers them as an important aid in the establishment of descendants—for example, in cases in which the parentage of a child is in doubt. The new criminal school of Italy, of which Lombroso is at the head, considers the anomalies in the form of the ear as degenerative changes. Gradenigo mostly found anomalies of conformation of the auricle among the insane and criminals. Bertillon, Blau, and others inclined towards this latter theory."

The minutia into which the author has gone, gives always the stimulating impetus towards experimentation so lacking in the brief tabulations of well-known facts, condensed into so many text-books.

The anatomical and physiological parts with the citation of the authorities for the different observations make the subject a live one, and we realize that the opinion of these complexities is still in the forming.

We find the chapters devoted to methods of examination and treatment, equally thorough and complete. The methods of inflating the ear have been given the closest study by the author, and the comparative values of the various procedures estimated. It is to be expected that the method which bears Politzer's name should be strongly advocated. Its use in the treatment of certain ear conditions would not, however, be so constantly advised by all otologists.

Considerable space has been worthily given to the instruments and methods used in testing hearing. This chapter is of especial value and represents the best thought upon these subjects. Gradenigo's useful forks are especially described. They serve to give us a constant intensity for certain tuning-fork tones. Bloch's forks are a clever modification, but somewhat cumbersome.

Especially in the exposition of the pathology, diagnosis and treatment of the non-suppurative processes that occur in the middle ear has Prof. Politzer given us the last word. In regard to the

treatment outlined, we must feel that from the results obtained in the best clinics of the world, that one should be cautious in employing the many methods which truly may have their value in certain cases. I refer especially to the injection of fluids, and the passage of bougies through the Eustachian tube.

While dealing with the necessity of operating radically in certain cases of chronic purulent Otitis Media, he states the question of prognoses very fairly. We must recognize the experience which dictates the following: "The occurrence of incurable aural suppurations after the radical operation must not astonish us, if we take into consideration that the bone affection may extend to parts of the pyramid which can not be removed without danger to the labyrinth and to the facial nerve."

At this time, no part of this long subject is of more vital interest than that dealing with labyrinthine and brain complications. To quote again: "Labyrinthine suppuration must be reckoned to the most frequent anatomical causes of intracranial complications arising from the temporal bone; their significance in reference to otitic meningitis and brain abscess will be discussed in the following paragraphs."

The diagnoses and treatment of this yet but little explored field is conservatively given. One feels, however, that the author might well have devoted more space to a fuller consideration of the more recent experimental work on this subject.

The book is in every way up to its previous high standard and will be a welcome addition to the literature on the ear.

EDWARD C. SEWALL.

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California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

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VOL. VII OCTOBER, 1909. No. 10

EDITORIAL NOTES.

A VICTIM TO DUTY.

With the remarkable successes in aerial navigation, comes the news that the Wright brothers are to begin suit against their rival, Curtiss, for infringement of patent. The statement is of more than passing interest because it brings to mind the fact that not only fame and honor attend discoveries in the mechanic-arts, but great wealth as well. Mechanics furnishes every incentive to the investigator. How different is it in the field of medicine, where he who is not satisfied to follow in beaten paths receives but scant assistance in hewing out new trails. Even when his work is done—when some great and important discovery has crowned his efforts and his associates have been convinced of its utility and worth—his reward seems most meagre. The names of the navigators of the air are on every tongue, yet the men of the Army Medical Commission, who identified the stegomyia as the carrier of yellow fever, a discovery which has been one of the greatest boons to humanity, are known but to a few; Reed, Carroll, Lazear, Agaramonte—the value of their work will at some time be appreciated by an indifferent public. In medicine the reward must come from within; from a consciousness of work well done, of theories proved and facts demonstrated, and after all there can be no greater satisfaction than this.

In May of this year a Californian sacrificed his life in the pursuit of duty. Dr. William Martin Wightman of the United States Public Health and Marine Hospital Service died at Guayaquil, Ecuador, of yellow fever. Graduating from Cooper Medical College in 1899 he served as an intern in the Marine Hospital for a year and later entered the service. He was a thorough and conscientious student and his genial disposition and excellent qualities won him a host of friends. He was engaged for a time in quarantine work in San Francisco and became a member of the County Medical Society. The qualities which had distinguished him as a student ripened with the years, and he became a competent and painstaking officer. His work was his life for his heart was in it and his details were done with that promptness and cheerfulness which characterize the physician of high ideals. He had a sterling character and his sunny temperament reflected on all who came within its sphere; his life was an inspiration to those who worked with him. It is strange that such a man, so much needed by his fellows, should be signaled out to die. He was a victim to duty; he gave his life to the cause of preventive medicine and added another name to the long list of heroes of his service. A self-absorbed public neither knows nor cares of Wightman's life or his ill-timed death. It is only in his own corps, among the men who so often place their lives at hazard in following the path of duty, that his name, his work and his character cannot be forgotten.

GROUND SQUIRRELS AND PLAGUE.

The work of the United States Public Health and Marine Hospital Service in uncovering and outlining the focus of squirrel plague in California marks one of the greatest advances which has been made by Preventive Medicine in the last decade. During recent years each summer has been marked by the occurrence of one or two human plague cases in Contra Costa or Alameda counties. It has been known for several years that an epizootic was spreading among the ground squirrels of that region, and it was suspected that this epizootic was bubonic plague and that the human cases received their infection from this source. This, however, was entirely a matter of conjecture until the summer of 1908, when four plague infected squirrels were found. Several officers of the Public Health Service had previously worked out the susceptibility of the ground squirrel to bubonic plague, but these were the first natural plague infected squirrels reported. Following up this lead Surgeon Rupert Blue began an active campaign in Contra Costa county in the spring of 1909. This has yielded results of the greatest importance from a scientific standpoint and has placed the pathology of natural plague among ground squirrels upon a solid basis. In fact, this phase of the work is as epoch-making as that of the British Commission in India with the rat. Thus far, infection has been found in almost every place in which men have been placed at work, a total of some two hundred odd infected squirrels having been found. These were not confined to Contra Costa county, but were also found in Alameda county where it may be remarked, en

passant, a human case directly traceable to squirrels has recently occurred. Interesting as all this is from a scientific standpoint, the question naturally arises as to what practical application is to be made of these discoveries. Primarily, it may be said that a focus for plague is being dealt with which, if allowed to continue, will stamp California as an endemic plague center, and it further appears that the squirrel is the animal in which the disease is kept alive to spread to rats and thence to man. The natural deduction is, therefore, that the ground squirrel must be eradicated. This means an extensive propaganda of education to the end that the individual ranch holder will lend his thorough co-operation. This has already been launched by Passed Assistant Surgeon W. C. Rucker, who is in charge of the field work, and bids fair to yield excellent results. An extensive article by him upon this subject appears in the Public Health Reports for August 27th and it should be read by every physician in California. There is no telling how far the infection has spread and what other counties in the state may be harboring the disease in rodent form. We must, therefore, be on the lookout for human or rodent cases and should report to the health authorities the occurrence of suspicious cases in our practice or a high death rate among ground squirrels.

DIABETES IN NEW YORK CITY.

The impression that glycosuria and diabetes are not "rare" or "uncommon," as stated in some textbooks, has in recent years gained a strong hold on the minds of many physicians. While many statistics have been printed concerning the incidence of these conditions, the great variance of the figures have made it difficult to arrive at any accurate conception of the truth. So much so has this been the case that Naunyn, in his book on Diabetes, says that almost any figures desired can be selected from the various estimates, and that only out of courtesy to the authors does he quote any of them. For the most part such statistics are based on hospital and mortality records, and while useful in some directions, it must be realized that they give no information as to the actual incidence of either glycosuria or diabetes in the community at large, for many diabetics never enter a hospital and many die from other diseases.

The recent study of Ballinger (the Archives of Internal Medicine, May, 1909), however, throws some light on this interesting question. His conclusions are based on the records of one of New York's large insurance companies. Between the years 1902 and 1907, 71,729 adults were examined medically by this company. They belonged, naturally, to the better social class, which shows, as is generally recognized, a greater incidence of diabetes than does the poorer class of people. Probably 95% or more of them were men between the ages of 18 and 60, and of course they were practically all on a mixed diet (one containing carbohydrates). The number showing glucose on one or more examinations was 2,043 or 2,840 per 100,000. Of these 681 showed between 1 and 12 per cent, and 1362 less than 1 per cent of sugar. If we consider the presence of 1 or more per cent of sugar in an office specimen of urine, a criterion of the existence of diabetes, the incidence of diabetes per 100,000 of population would be 950. Such a criterion, however, is obviously a very arbitrary one, but not without some justification, as pointed out by Barringer. Experience has shown that persons having 1 per cent or more of sugar on an ordinary diet containing slight or moderate amounts of carbohydrates, are under strong suspicion and probably have diabetes. Moreover, Barringer and Roper have shown that of a group of twenty patients with slight glycosuria, nine or 45 per cent developed diabetes at the end of five years.

Figuring on the basis that 50 per cent of the 1362 cases with less than 1 per cent of sugar in the urine, Barringer finds a total of 1895 per 100,000 of population with diabetes. These figures are nothing short of startling when we consider the statistics of Osler, who says that among 99,000 patients admitted to the medical wards and medical dispensary of the Johns Hopkins Hospital, there were only 226 cases of diabetes or 228 per 100,000 of medical admissions; or the last mortality statistics by the United States Census Bureau, which show between 1901 and 1905 a yearly average of 11.6 deaths from diabetes per 100,000 of population.

POST-OPERATIVE PULMONARY COMPLICATIONS.

From time to time the subject of post-operative lung complications is brought in review before the surgical world. during the past few months a number of noteworthy articles have appeared. Among these, the two most suggestive to the writer are those by Munro in our own land, and by Ranzi, of Vienna. The former deals exclusively with bronchitis and pneumonia, and the latter with lung conditions of an embolic nature. Both papers more or less clearly point the same moral, and that rather a different one from the time honored conception of post-operative chest complications.

It has been the habit for a long time for surgeons to shift the responsibility of these disconcerting contingencies to the shoulders of the anaesthetist. The irritative properties of ether are likewise accused of marring the results of operations that were expected to be successful. The complacent comfort of having these scapegoats of the surgical conscience, is being rudely torn from our all too short list of consoling excuses. The first threat that such an invasion of our vested rights was coming, was seen in the results of operations after local and spinal anaesthesia. As regards the subject at issue, the results were no whit better. Here was food for thought.

The answer to the puzzle seems to be pretty clearly worked out, and necessitates a shifting of the direction of the finger of accusation from the anaesthetist and anaesthetic, to the operator himself. It comes back, as so many other matters come back, to the subject of technic. In other words, with the exception of operations about the mouth and throat,

which involve the sensory or motor control of the upper organs of deglutition and respiration, and so allow a real aspiration pneumonia, the great majority of lung complications are of an embolic nature, and have their origin at the site of operation. The two great factors are wound infection, either gross or hidden, and trauma to veins. Both causes promote thrombosis and embolism, and the lung lesions referable to them may be single, as an infarct or abscess, or multiple, as a septic pneumonia, or multiple infarcts.

Certain operations necessitate the soiling with bacteria of large wound surfaces, such, for example, are those on the rectum and the laying of fecal fistulae. It is exactly these cases that in all hands are responsible for a strikingly large part of the lung complications. Then there is a group following so-called clean cases. In many of these, handling and tying of vessels is a feature, notably in pelvic work, and in the radical cures of hernias containing omentum. Here it is the custom of many operators to seize large masses of tissue in strong forceps, and to tie in bunches with strong catgut. How common it is for the operator to complain bitterly of the weakness of the catgut. Such a disposition of ligatures leads surely to a much more extensive formation of thrombus than necessary and invites embolism.

Years ago, one of our older American surgeons, attacked the problem in his clinic by introducing as a ligature for all clean cases, a fine silk tie that would break at a given low tension. By means of this strategy, he compelled his assistants to pick up small bits of tissue, and to isolate the individual vessels to be tied. Also the silk knot tied in this way was so small as to offer little foreign material, and could not serve as a culture medium for stray bacteria which might settle exactly at the mouth of a vessel, and infect the thrombus formed by the ligature. This method, however, has found many more critics than imitators, on account of its requiring more pains in its execution. It is at least interesting in connection with our subject.

But after all, the most important single demand is for an aseptic technic, for it is wound infection that precedes most lung complications and thromboses. Even when a wound heals per primam, we can conceive of infection, potent enough to attack thrombi in the ends of cut veins, and yet not virulent enough to cause breaking down of a wound in the presence of the juices of the more resistant tissues. Many surgeons who have an otherwise good technic, expose a large skin area around the wound. This is merely one of the negligences that invite wound infection.

It is superfluous to say that we should consistently and patiently struggle to eliminate every source of danger to our patient. Is it possible that some day the occurrence of post-operative lung complications may accuse the operator just as the occurrence of puerperal fever accuses the obstetrician to-day?

HYSTERICAL PAROXYSMAL OEDEMA.

Under the name of "Hysterical Paroxysmal Oedema," Edgeworth has recently described (The Quarterly Journal of Medicine, 1909, No. 2) some interesting cases of angio-neurotic oedema, characterized by the repeated occurrence of transitory oedema affecting "geometrical" or "segmental" areas of the body-surface, associated in some instances with disturbances of sensation, hysterical in type. These cases present the features of a sub-cutaneous oedema of fairly sudden onset, raising the surface of the skin from one-quarter to three-quarters of an inch above its ordinary level. The whole area becomes affected at the same time—the oedema is not a spreading one. The surface of the skin is generally natural in color, but in some cases hyperæmic, or white, or purplish. The oedema is firm and non-pitting when at its height; during its subsidence it becomes softer. No bullæ are formed on the skin and blebs are rare. The oedematous area is almost invariably sharply marked off from the adjacent normal surface by an abrupt edge.

The occurrence of the oedema generally causes no pain, although in some cases there is a sensation of itching or burning at the beginning of the attack. The duration of each attack varies from a few hours to several days and occasionally lasts several weeks. The areas affected by the oedema are not supplied by any branch or branches of the cranial or spinal nerves nor by those supplied by cranial or spinal nerve-roots (segmental areas of Thornburn, Head and Sherrington). They correspond with natural divisions of the body, e. g., mamma; or with areas covered by articles of clothing, e. g., stocking, sock, glove—that is, with the areas called "geometrical" or "segmental" by writers on hysterical phenomena. In some cases disturbances of sensation—partial or complete loss of sensibility to touch, painful or thermic stimuli—co-existed with the attacks of the oedema. These disturbances are evidently not due to the mechanical effects of the oedema, since the area of distribution never corresponded exactly to that of the oedematous swelling. The areas over which this loss of sensibility occurred were also of the "geometrical" type, though differing from those of the oedema in their greater extent. In other cases the fields of vision are contracted.

The peculiar distribution of the oedema in this group of cases, and its association, in some, with disturbances of sensibility, suggested that it was of hysterical origin. This conclusion is supported by comparison with the hysterical chronic oedema first described by Sydenham in 1682, and subsequently by Charcot and his pupils. This affection is rarely found as an isolated phenomenon; it is generally superimposed on some other hysterical manifestation, such as arthralgia, paralysis, or contracture. It is of variable aspect, and affects the whole circumference of the involved part. It is generally accompanied by disturbances of sensibility, which are apt to take the form of hyperæsthesia in arthralgias, anæsthesia and thermo-anæsthesia when superimposed on a paralysis or contracture.

ORIGINAL ARTICLES

THE PREDISPOSING CAUSE OF CHRONIC SUPPURATIVE OTITIS MEDIA.*

By G. P. WINTERMUTE, M. D., Oakland.

I would divide the subject which has been assigned me in this symposium, into two divisions: the first being the predisposing cause of the acute otitis media, which usually precedes the chronic; and the second being those factors which tend to cause an acute otitis to become chronic.

The direct cause of the acute cases is an infection by the pus producing organisms, which meets a locus of low resistance in the middle ear, overwhelms it and sets up a suppurative process. The indirect causes are those conditions which tend to lower the resistance of the parts. Under these indirect causes we may consider climatic conditions, nasal conditions, and the condition of the middle ear itself.

All aurists are familiar with the fact that during seasons of pronounced climatic change, particularly a season of cold, damp weather, their cases of suppurative otitis media increase in number. The climatic effect is one of reducing the resistance of the body generally to those infections which may produce the ear trouble in acute cases, or result in an exacerbation in a slumbering, but unhealed, chronic case. So, too, a draft of cold air blowing upon the ears and neck of a patient who is resting while perspiring, without proper protection, may lead to the same result through sudden vaso-motor disturbance of the parts, causing a secretory form of inflammation of the mucous membrane, which, with the access of pus organisms, may lead to a suppurative form; or furnish the best conditions, in the slumbering cases, for the renewed propagation and activity of the resident microbes. In just such proportion as males are more exposed to the inclemencies of the weather than females, do we find our preponderance of cases among men.

As another contributing factor we have nasal obstructions. Enlarged turbinates, spurs, deflections of the septum or polyps, if they obstruct one or both nares, tend to form a partial vacuum in the naso-pharynx, and indirectly in the Eustachian tube and middle ear, with each inspiration of air. This rarefaction of air induces a chronic engorgement of the parts, and forms a contributing factor towards lessened resistance in the event of infection occurring.

Under conditions of the middle ear itself favoring suppuration, we have the secretory benign form of inflammation, which if existent, renders the parts an easy prey to invading suppurative bacteria. We also have in the new born, the tympanum filled with a mass of gelatinous embryonic tissue, similar to Wharton's jelly, which offers an especially favorable soil for germ growth, and accounts for the cases of suppurative otitis media which occur directly after birth.

We have two great paths for the travel of infection to the ear: the first is by direct extension of the process from the naso-pharynx through the Eustachian tube; the second is through the lymphatics —particularly from the tonsils and pharynx. To my mind the latter is the more frequent route for the bacterial invasion. We also have, far more rarely, direct extension of a diffuse external otitis through the Rivinian segment; and infection occurring through a traumatic rupture of the membrana tympani. All forms of rhinitis contribute directly or indirectly to an infection taking place. Personally I believe that direct extension through the tube is not as frequent as was formerly supposed. That suppurative otitis media is often coincident with the various forms of rhinitis is evident to all otologists, and that infection occurs by direct extension sometimes is also evident, but it is my belief that the usual cause lies in interference with drainage which the nasal inflammations cause by engorgement of the tube, blocking of its lumen, and destroying its cilia cells, causing a retention of the middle ear secretions, which then become infected through the channel of the lymphatics. Direct infection can take place in improper douching of the nose in suppurative sinus conditions, whereby the douching liquid carrying infecting material is forced into the middle ear cavity. So, too, coughing, vomiting and sneezing may force a suppurative nasal discharge similarly into the tympanum; and post nasal tampons are great sources of danger when used to prevent blood entering the pharynx in operating under general anesthesia on pus producing nasal conditions, because they sometimes excite violent attacks of sneezing. Dirty Eustachian catheters and bougies may be set down as occasional causes.

Adenoids play a three-role part. Infection may take place primarily in them, and through the lymphatics reach the middle ear; as adenoids are usually accompanied by inflammatory condition of the naso-pharynx it has its indirect effect; and finally if their bulk is so great that it encroaches upon the tube they mechanically interfere with drainage.

The role the tonsil plays in middle ear infections is only recently becoming recognized. It is undoubtedly a very important channel of infection. Tonsilitis, acute otitis media and enlarged glands of the neck is a clinical sequence so frequently seen that it is cause for wonder that the relationship was not pointed out years ago. When we remember that the lymphatic channels of the ear freely anastomose with the submucous lymphatic system of the pharynx and tonsils, and also with the superficial lymphatic glands between the platysma and the sterno-cleido-mastoid muscles, we can readily account for this mode of infection and this common clinical picture. Not only acute tonsilitis, but hypertrophied tonsils and tonsils with chronic lacunar inflammation, being abnormal tonsils which offer a feeble barrier of resistance to infections, may certainly be put down as a predisposing cause of otitis media; and degenerate fibrous tonsils from their tension and dragging through the pillars upon the tensor palati muscles, which control the patulency of the tube, act as an indirect cause as well.

The exanthematous diseases are responsible for

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

many cases. Twenty per cent of scarlet fever cases develop a suppurative otitis media; and as the scarlet fever cases are noted for their bone destruction, they are the most apt to become chronic. Measles is complicated similarly in five per cent of the cases and diphtheria shows about the same average.

Cases of general streptococcus infection are very apt to find a point of low resistance in the ear, and both whooping cough and influenza contribute cases. In measles, streptococcus infection and influenza, the complication occurs early. In measles the characteristic macules have been observed upon the drum coincidently with their appearance in the mouth and naso-pharynx, which points to the toxins being carried to the ear by the general hematogenous infection. In scarlet fever the ear infection is late, occurring about the time of a post scarlatinal nephritis, which may have a similar mode of origin.

Coming now to the predisposing cause of the chronic cases we must first consider the tubercular cases, which might be described as chronic from the onset. These cases come on without any of the acute symptoms of pain, swelling or noticeable fever, so that the patient can scarcely give the history of the onset, and may properly be termed chronic throughout their course.

Under the factors which tend to cause the acute cases to become chronic we must consider treatment, bone necrosis, cholesteatoma and resistance. Proper treatment is important for two reasons: to secure as cleanly a field as is possible and to secure good drainage. It is a well known fact that the bacteria which are present at the onset of an acute suppurative otitis differ from those present in the chronic cases. In cultures made from acute cases at the time of the rupture of the mebrana tympani, or paracentesis, pure cultures are usually found: the pneumococcus most frequently, followed by the streptococcus and seldom the staphylococcus. Mixed infection takes place in the chronic cases; pure cultures are rare, and the primary bacteria give way to the secondary. The staphylococcus is the common microbe of the chronic cases, with diplococci, bacillus proteus vulgaris, gonococci, bacillus fetidus, coli, Klebs-Laeffler and leptothrix following about in frequency of the order named with the fungi aspergillus niger and yeast occasionally met with. With the advent of these hardier germs, the more virulent but less resistant pneumococci and streptococci die out. Conditions which favor the mixed infection taking place through the external auditory canal or the Eustachian tube are predisposing causes of the chronic condition, and treatment which renders these pathways clean favors the healing of the acute cases. Likewise if good drainage through the external canal and the tube is not present conditions are set up which favor a protracted course for an acute condition.

In those cases where the invading microbe is virile, resistance being low, and bone necrosis ensues, the character and extent of the lesion favors a more protracted course of the condition. Likewise if the suppurative discharge irritates the epithelium on the membrana tympani to the point of exciting its growth through the perforation into the tympanic cavity, forming a cholesteatoma, we have another potent cause for the condition becoming chronic.

And, finally, we have those cases where the treatment has been good, but which nevertheless pursue a chronic course, attributable only to the low resistance of the individual—a known lack of resistance which so frequently expresses itself in diabetes and syphilis; and an unknown lack of resistance, which has its counterpart in successive outbreaks of furunculosis in some patients, which is paralleled occasionally by the apparent inability of the body organism to overcome the middle ear infection.

CEREBRAL COMPLICATIONS OF MIDDLE EAR SUPPURATION.*

By LOUIS C. DEANE, M. D., San Francisco.

After accepting for presentation at this meeting, the subject of this paper, I was struck with the difficulty of my task, for ten minutes is entirely inadequate to more than lightly touch upon a few salient points. I was encouraged to proceed only with the thought that many of these complicated and obscure cases come first to the notice of the general practitioner. It is to his prompt and ready recognition of an involvement of the cerebral tissues that frequently saves the life of the patient. So much depends upon the first visits of the physician. Though he can hardly be called upon to treat such a case, for the subject is so complex that even to one who makes a study of its intricacies it is often bewildering, yet a knowledge and appreciation of the chain of symptoms that associate themselves with a cerebral invasion is most important.

The brain and its workings are still and always will be a source of conjecture. It is in this organ that lies the inherent power of all our functions from simple muscular action and active manifestations of our senses to such complicated and unsolved functions as memory and reason. Many of the motor and sensory centers have been located within certain circumscribed areas but our knowledge concerning the action of other areas becomes confused as we consider the more complex psychological functions.

It is again a subject of interest, the remarkable manner that nature has protected the brain from external injury. Aside from the circulation, only through one or two routes can it be encroached upon by disease. The physical manifestations of disease and the methods used for its eradication are another source of wonderment. Its effect upon an organ apparently so delicate and vital yet so resistant that abscesses containing several ounces of pus and tumors the size of a hen's egg can exist, with indications so slight as to pass unnoticed, until by pressure or liberation of an infected focus we have evidences of a lesion of considerable extent. If the lesion is located within the motor or sensory areas something can be learned of its situation; but un-

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

fortunately an array of diagnostic symptoms is the exception rather than the rule.

The ear, though not directly connected with the cranial cavity, can become so when involved with suppurative disease. Like other nasal sinuses it has by nature been well protected from traumatism by its deep situation. It occupies the larger part of the petrous portion of the temporal bone jutting boldly into the cranial cavity with only the thinnest lamella of bone as an inner covering. By its own prominence it separates the middle from the posterior cranial fossæ.

While thus being protected from external injury the ear forms a peculiarly favorable spot, with its numerous ramifications, for harboring an infection. Its connection through the Eustachian tube with the pharynx and nasal cavities gives it an ideal position to receive and lodge within its confines pathogenic material.

The means by which the meninges, brain tissue and venous sinuses are involved, by the ear, is of considerable interest. Its bony covering becoming carious would allow the meninges to come in direct contact with an infected area. The most likely spot for this to occur is through the roof of the middle ear, the roof of the antrum and its posterior wall, the latter being in more direct contact with the sigmoid sinus and cerebellum. These points are particularly susceptible because of the extreme thinness of the bone and virulence of the pathogenic changes which go on in contact with them.

Another means by which the cerebral contents might be involved is through the intermediary of little veins which pierce the bone and connect directly the sigmoid sinus and dura with the mastoid cells, also the mastoid emissary vein sometimes comes in direct contact with these cells.

A third means by which the cranial contents may be involved is through the labyrinth which has become infected, from the middle ear, through the round and oval windows or by caries of the wall of the horizontal semi-circular canal. It is not necessary for the labyrinthian walls to break down for through the aqueductus vestibuli the endo-lymphatic space is directly connected with the dura which divides into two leaves at this point. The presence of pus can form a sac here which could break outward forming an epidural abscess or inwards causing a diffuse leptomeningitis. The labyrinth is also connected directly with the subarachnoid space through the meatus auditorius internus and aqueductus cochlæ. This channel of infection may be accountable for the deep cerebellar abscess in contradistinction to the infection which breaks through the posterior wall of the antrum producing lesions more anterior and superficial.

The resistance of the dura to pyogenic processes is marked, for it is very frequent that a previously unsuspected pachymeningitis is revealed during the course of a mastoid operation. It may have existed for a long period with no tendency to extend. The most favored seat in chronic otitis media, for this condition to exist, is in the region of the tegmen tympani. This chronic inflammation of the dura soon attempts to localize itself by forming inflammatory adhesions with the bone and later may form into a circumscribed pus cavity. If the adhesions are not sufficient to contain the pus and withstand its pressure it will gravitate posteriorly into the posterior fossa or anteriorly into the middle fossa and thus an epidural abscess exists at some distance from the seat of original infection.

The symptoms of an epidural abscess may be marked with signs of cerebral pressure and general infection or they may be so mild as merely to give evidence of an aggravated mastoiditis.

A pachymeningitis may involve the brain proper forming a focus of pus within the cerebrum or cerebellum. Locally the arachnoid space becomes obliterated by adhesions and the dura, arachnoid, pia and cortex are bound together. The lymphatic sheaths of numerous small bloodvessels which traverse the cortex at right angles to its surface connect directly with the subarachnoid space, and so the infected matter easily traverses the cortex and forms a focus some distance from the surface or in the white matter. It is interesting to note that frequently brain abscess can be of considerable size and yet not involve the brain tissue nearly as much as one would imagine. A brain abscess may be very chronic, slow growing and thoroughly encapsulated. The original line of communication through the cortex may become obliterated, leaving it practically unaffected. Thus the abscess, gradually increasing in size, would push aside the tissues rather than destroy them, exerting only pressure, likely on the internal capsule. This view is supported by the fact that when the abscess is drained the paralysis and other effects of pressure will immediately subside.

The most common situation for an abscess is in the tempero-sphenoidal lobe immediately above the tegmen tympani or in the lateral lobe of the cerebellum, the latter emanating from the posterior wall of the antrum and mastoid cells.

An involvement of the venous sinus adjacent to the ear is not of rare occurrence. The sigmoid sinus extending from the knee to the jugular bulb is the usual site. This sinus is of such size that it encroaches, seeming to push itself directly into the mastoid. The bone separating it from the cells is thin and easily breaks down, the dura first becoming inflamed, then the walls of the blood vessel, resulting in a phlebitis and thrombosis.

A number of cases of cerebral involvement might be quoted and each teach its lesson, though in studying such cases they become confusing in their lack of characterizing symptoms.

A case comes under our notice and by one or more symptoms our attention is drawn to the cerebral cavity as possibly being involved. Either those of pressure, toxic infection, or a symptom which shows that the function of some area has become impaired. If of pressure, the following symptoms may be present: reduced pulse rate and temperature, pain in head, nausea, vomiting, vertigo, physical depression, lethargy, convulsions and choked disc or optic neuritis.

The symptoms of toxic infection are those of septicemia, such as chill, great and rapid variations of temperature, high polynuclear count, profound pallor and the presence in the blood of a pathogenic organism as seen most characteristically in a thrombosis of one of the venous sinuses of the brain. All these symptoms can easily be confused or associated with the symptoms of a purulent meningitis (epidural abscess) or serous meningitis. Again these symptoms may be associated with the effects of cerebral pressure. The symptoms of abscess of the brain are those of brain pressure primarily. At the beginning the temperature may rise but soon drops to normal or subnormal, remaining so until rupture, when the abatement of the pressure and absorption of toxins cause the temperature to rise.

As to location of a brain abscess. If the function of some motor or sensory area is deranged we are always justified in locating the pressure at or near that area. For instance, in a lesion of the third frontal convolution on the left side we find agraphia and alexia. In lesions of the first temporal convolution on the left side we may have word deafness, crossed deafness and anosmia; of the occipital lobe, optic aphasia and hemianopia. If the lesion is about the fissure of Rolando, epileptiform convulsions and crossed paralysis of the extremities and facial paralysis.

If pressure is exerted in the cerebellum we may have ataxia, vertigo, staggering gait, nystagmus, emaciation and rigidity of the muscles of the neck associated with vomiting, prostration, pain locally on percussion, flexed limbs and upturned face.

It is not unusual that all these symptoms may be absent and yet the cerebellum harbor an abscess of considerable size. The obscurity of cerebellar abscess can well be judged when it is stated on authority that the vast majority of cerebellar abscesses are first revealed by post mortem examination. An abscess of the tempero-sphenoidal lobe may or may not give rise to localizing symptoms. They may largely be dependent upon an associated meningitis or an extension of the abscess cavity.

Time does not permit of my entering into an analytical consideration of the diagnostic value of cerebral symptoms but I cannot close without a word regarding lumbar puncture as a valuable means of diagnosis as well as of treatment. It gives us a clue as to the nature of the intra-cranial effusion and bacterial and purulent invasion of the meninges are here clearly shown in the cerebrospinal fluid. Lumbar puncture also acts as a means of relieving intra-cranial pressure which in a serous meningitis may lead on to recovery.

In times past the mortality of pyogenic invasion of the intra-cranial cavity must have been complete. While it is yet high the cures that have been enacted by our modern methods of brain surgery are most encouraging. Be it said that it is to surgical methods alone that we may look for a cure in such cases and to one whose experience and knowledge of this vital region renders him capable of being conservative as well as radical in reaching the ultimate limits of the affection.

EYE SYMPTOMS IN INTRACRANIAL COMPLICATIONS FOLLOWING MIDDLE EAR SUPPURATION.*

By VARD H. HULEN, A. M., M. D., San Francisco.

The above subject allotted to me in this symposium if followed fully and to its logical conclusions would result in hundreds of pages, hence I shall only be able in my few moments to allude to the important eye changes often revealed and to the necessity of ocular examinations in these serious cases. It is hoped this supplement, as it were, to the broader subject of symptomatology treated here by another member, may be justified.

The eye symptoms which may be found are: anomaly of pupils, paralysis of ocular muscles, edema and palsies of lids, displacement of globe, diminished central vision, limitation of the fields, photophobia, lacrimation, and nystagmus. The ophthalmoscope may show a hyperemia of disc, an inflammation of the optic nerve, choked disc, engorgement and tortuosity of the retinal vessels, hemorrhages and edema of retina. Any, many or none of these ocular symptoms may appear in the dozen or more intracranial complications following middle ear suppuration. The absence of eye symptoms is not significant nor, unfortunately, is their presence necessary for a conclusive diagnosis. There is nothing characteristic, I need hardly say, in the occurring eye symptoms to determine otitic origin. For instance we cannot with the ophthalmoscope distinguish an optic neuritis of syphilitic cause from one produced by secondary meningitis, but the ophthalmoscopic picture or the special eye symptoms noted added to the other knowable facts may bring the aural surgeon to a positive conclusion. Thrombosis of the cavernous sinus gives the most extensive eye lesions such as edema of lids, ptosis, paralytic squint, exophthalmos, chemosis, choked disc, retinal hemorrhages, defective vision, etc., and yet all of these cannot be called helpful in making this diagnosis. But should such symptoms shift from one eye to the other a differentiation would be made from a primary orbital inflammation. In a possible meningitis, brain abscess, etc., fundus changes even slight may be of decided value in determining the advent of a complication.

Eye Grounds. While the ophthalmoscopic changes are not confined to the optic disc still the helpful symptoms are principally observed in the changes of the papilla and neighboring retina and blood vessels. The significant lesions in the disc vary from slight hyperemia to extensive papillitis with an elevation of several diopters. While the mirror will not enable us to differentiate the intracranial complications in otitic infections, partly because the cranial lesions may overlap thus changing the ophthalmoscopic picture, still we think of a meningitis when an optic neuritis is present and an intracranial abscess with papillitis. Changes in the nerve head are frequent in cerebral abscesses though less so than in tumors of the brain. The neuritis is usually not intense as it is a comparatively late symptom and the inflammation of the nerve may

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

even increase after the evacuation of the pus; in any case this symptom remains for six or eight months or more. If the abscess is of rapid formation there will probably not have been time for any fundus changes at all; this may also be the case with small abscesses. Optic neuritis may be found in abscesses situated in the frontal and temperosphenoidal lobes as also in the cerebellum. It may be that the neuritis is no more marked on the side of the abscess; in fact it may be greater in the eye of the opposite side.

It must be remembered that optic neuritis is said to have accompanied suppuration of the tympanic cavity.

Thrombosis of the retinal veins may be seen in thrombosis of the intracranial sinuses. McKernon reports that intraocular changes are found in about one-third of the cases of thrombosis of the sigmoid sinus.

It does not, for lack of time, seem advisable to attempt here a description of the ophthalmoscopic appearances in the various complications under discussion.

Central Vision. When considering the acuity of vision it is important not to be misled; to remember that the imperfect vision may be due to a considerable error of refraction. It is never safe to judge of the significance of diminished sight when recording uncorrected vision, or to forget the possibility of abnormal media in no way due to the disease in question. Nor can one at all judge the acuity of vision from the appearance of the eye-ground; there may appear to be a normal fundus or very slight ophthalmoscopic changes and yet greatly diminished vision is present; on the other hand the mirror may show tremendous changes, as an enormous choked disc, and practically normal vision.

Fields of Vision. When possible it is important to take the fields as hemianopsia has sometimes been noted in cerebral abscess.

Pupils. Any abnormality of the pupils is most significant of intracranial complications, and in brain abscesses an important localizing symptom. When the abscess is small and produces cerebral irritation the pupil on affected side may be contracted and sluggish in reacting to light and accommodation. If the abscess is in the temperosphenoidal lobe or frontal lobe the pupil on same side may be either contracted or dilated with a degree of stability. In general meningitis as a rule both pupils are equally affected, at first contracted, later dilated and fixed. Thrombosis of none of the sinuses except that of the cavernous affects the pupils as a rule. Two advanced cases of cerebellar abscess reported by Macewen gave wide pupils (blindness). Pressure in cerebellar fossa gives pin-head pupils.

Ocular Muscles. Cerebral abscess may produce third nerve paralysis on same side which will recover on removal of the pressure, leptomeningitis implicates the cranial nerve in a more general and erratic manner than brain abscess. In advanced cases of abscess of the cerebellum ocular paralyses have been noted.

Nystagmus. Some of the results from the study of this extremely important eye phenomenon of otitic origin have lately been reported. McKernon stated in his paper at the A. M. A., 1908, that nystagmus is frequent in meningitis serosa which is not an infrequent extension from extensive mastoid and sinus involvement. Recent articles by Jansen and Barany are of the greatest interest and value and I cannot close this synopsis of eye symptoms in intracranial complications following middle ear suppuration more fittingly than with this quotation from Barany in *Annals of Otology*, December, 1907.

"Not only for the diagnosis and treatment of labyrinth suppuration is the consideration of nystagmus very important but also for the diagnosis of cerebellar abscess and cerebellar tumor, or tumor of the nervous acousticus. The nystagmus in these cases is produced by irritation or paralysis of the nervus vestibularis or of the nucleus in the medulla oblongata or of Deiters' nucleus. The diagnosis of cerebellar abscess in middle ear suppuration is very difficult, and I have seen some cases where the nystagmus alone has helped us to the diagnosis with resulting operation and cure of the patient. Most cerebellar abscesses are caused by an old labyrinth suppuration, and in these cases the diagnosis is relatively easy. If one has to deal with a chronic middle ear suppuration without fever, with deafness, and no reaction to cold water, and this patient has strong spontaneous rotary nystagmus to the diseased side, the diagnosis of cerebellar abscess can be made at once and for the following reasons: If the patient does not react to the syringing with cold water, the labyrinth must be destroyed and he can have spontaneous nystagmus to the sound side or no nystagmus. Spontaneous rotary nystagmus to the diseased side proves that this nystagmus is produced by an intracranial complication in the posterior fossa of the skull, and as there is no fever and no meningitis there must be a cerebellar abscess."

THE TREATMENT OF CHRONIC SUPPURATION OF THE MIDDLE EAR.*

By M. W. FREDRICK, M. D., San Francisco.

The best way of treating chronic otitis media purulenta is by preventing it. Although this point has been insisted on many times, I do not think it amiss to bring it up again. The general practitioner, who sees most of the cases of acute otitis media, should be taught the importance of recognizing the condition and of bringing it to a speedy termination. He should have the value of an early and well-placed paracentesis of the drum-membrane impressed upon him, and the seriousness of a neglected case of middle-ear inflammation should be repeatedly pictured to him. Generally speaking, there are few conditions which are more grateful for a little attention of the right kind than an acute otitis media. The general practitioner, is, however, as a rule, wholly unfamiliar with the appearance of the tympanum in disease, and relies for the

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

treatment of his ear cases on two or three old recipes, usually boric acid, atropin and cocain, or, worse yet, hydrogen peroxid. When the pain in otitis media acuta has subsided, no further attention is paid to the remaining otorrhea in many cases. In fact, the old fable that a chronic aural discharge acts as a sort of safety valve for the rest of the organism is, like Banquo's ghost, hard to down. To this popular delusion and to the indifference of many patients towards anything which does not cause them physical discomfort we are indebted for a large number of the cases which have proceeded to grave involvement of the bone before treatment is sought. Another thing which causes some observing patients to look with distrust on any attempt to check the aural discharge is the fact that many of them hear better when the discharge is active.

In approaching the subject, the first question that presents itself is: when is a case of middle ear suppuration to be considered as chronic? The periods of time stated in this regard are most arbitrary. Some authors give two months, others eight months, others a year and over. Others again make the answer depend on the amount of treatment received, and this seems to me to be the more logical way. I would hesitate to class an otorrhea as chronic that has persisted over a longer period of time through sheer neglect, and yields, as we often see it, to a few treatments.

Here, as elsewhere, too much importance can not be put upon an exact diagnosis. It is not always easy to make an exact diagnosis at the first visit; some time may have to be spent on cleansing, reducing acute exacerbations, and removing products of inflammation before one can obtain a clear picture. In 10% of the chronic cases there are polypi and granulations springing from the edge of the perforation. In other cases we have the same formations arising from the wall of the canal or the mucosa of the middle ear and these should be removed. While many favor caustics and the actual cautery for this work, others prefer the snare and the curette, claiming that caustics, especially the much-used chromic acid, is a source of much danger because one cannot gauge the depth of its penetration, and that much harm to the inner ear may result from its use. When the inflammation products are situated on the promontory one has to use great caution whichever agent he works with. When proper cleanliness and drainage are provided these excrescences will often take care of themselves.

The first and most important thing to note towards a diagnosis is the position of the perforation. Ballenger, in his recent work, gives an excellent diagram, and B. A. Randall, in the Transactions of the Otological Section of our A. M. A. for 1898, gives the statistics of the various positions of the perforations in 1,000 cases, and shows that the majority of the perforations are central. Ruppert, in an excellent article published in the *Munchener Medicinische Wochenschrift* No. 21, 1908, gives us the results of some carefully compiled statistics which show that in 55% the perforations were central. This places these cases in the column of those that should be treated medically, or, at least, be given a prolonged medical treatment before surgical measures are resorted to. Even when the probe, which is not used as much as it deserves to be, shows roughened bone, patience will often accomplish wonders. Many of our otologists to-day are so enthusiastic about operating that they seem to recognize surgical measures only, and swell their statistics of successes by including a number of cases which could have been brought to a complete cure by milder measures, which would have insured the patients far better functional results without danger to life and the horrors which always attend operative procedures in the lay mind. While various operators report improvement in hearing in a number of cases their results do not compare with the number of cases in which hearing was improved when the suppuration was checked by medical means, and a restitutio in form, if not in tissue elements, of the drum membrane was obtained. In dismissing a case on which a mastoid operation has been performed and the drum cavity has become epidermatized, the operator is obliged to instruct the patient that he must return at intervals to have his ear inspected; if the drum membrane has been reformed such caution is unnecessary.

In those instances in which the discharge is maintained by some constitutional fault, such as chronic nephritis, diabetes, syphilis, tuberculosis, etc., we cannot hope to obtain much improvement unless the underlying fault can be corrected, and our aim should be to maintain cleanliness and drainage as much as possible while striving to correct the underlying dyscrasia. To operate under these conditions would be an error. The nature of the secretion is somewhat of a guide; if it is muco-purulent, without pronounced odor, the disease is probably confined to the mucosa, and will respond readily to medical treatment; if, on the other hand, it is thin and contains bone sand, or is fetid and inspissated, caries and retention are probably present, and the need of surgical interference becomes more likely.

Having obtained a picture of the drum and the tympanic cavity, and made a probable diagnosis of the condition of the accessory cavities, the next thing to do is to ascertain the condition of the Eustachian tube. This is often neglected by the continental aurists, judging by their writings, but is given a fair amount of attention in this country. The lack of attention given to this part will often explain why a discharge will persist even after a radical operation. W. S. Bryant has described in several articles the excellent results he has obtained by treating the Eustachian tube, especially at its pharyngeal end. The great number of centrally placed perforations show that the majority of middle ear inflammations must proceed from infection through the Eustachian tube, and prove that a proper treatment of these inflammations must include an appreciation of the epipharynx.

An exact diagnosis should also include a bacteriological examination of the secretion, which, I am afraid, most of us neglect. The presence of streptococci in the secretion makes the prognosis

much worse than the presence of staphylococci. The presence of tubercle bacilli is a strict contra-indication for operative measures, unless an acute condition imperatively demand them. As this point will be taken up in another paper this afternoon, I shall proceed to outline the different methods of treatment. Broadly speaking, we can recognize the dry and the wet treatment. Both include the cleansing of the ear with various detergent and antiseptic fluids. The usual ones are plain boiled water, solutions of boric acid, corrosive sublimate 1 to 2,000, bicarbonate of soda, etc. Potassium permanganate (Liq. Potass. Permang. drachm ss to ℥ VI), makes an excellent disinfectant and deodorant. Carbolic acid, in 1 or 2% solution, and formalin 1 to 500, were formerly used, but have been abandoned as too irritating. Having dried the ear, various astringent and antiseptic fluids are then introduced, if the wet treatment is adopted. The number of drugs used in this direction is so great that I shall content myself with quoting a few of them only. Silver nitrate in weak solutions, argyrol, protargol, zinc sulphate, salicylic acid in alcoholic solution, boric acid in alcohol and glycerin, resorcin, and many others. The use of the gas forming solutions, such as peroxid of hydrogen, and its compounds menthoxol, camphoroxol, etc., deserve a word for themselves. When the perforation is large and they are used by the physician, I think much good can be had of them, as they penetrate into the recesses of the middle ear, notably the hypotympanic space, and facilitate the removal of inspissated secretions which would be washed over without being disturbed by the usual solutions used in syringing. I do not think that their use should be intrusted to the patient, especially not when the perforation is small, as there is little doubt that many a case of mastoiditis has followed their slipshod use.

In the dry treatment various powders are applied to the middle ear after syringing and drying. These powders are mostly combinations of some iodin derivative with finely powdered boric acid. The use of pyoktanin blue is warmly recommended by G. L. Richards. It is dusted into the cavity as thickly as possible, a gauze drain or a pledget of cotton packed in, and the ear is not touched for two or three days. Richards claims that in this way every part of the diseased area is reached. The drug is non-poisonous, and the stain can be easily removed from the skin with alcohol. W. C. Phillips has tried radium without results. The use of the stronger alcoholic solutions is indicated when the secretion has grown much less in quantity. McKeown gives an 8% solution of salicylic acid in alcohol as a good remedy when there is exfoliation of the epithelium and a roughened condition of the canal walls. The treatment with gauze wicks, either plain or saturated with an astringent, also deserves mention.

The treatment by Bier's method is one which I have never known to be tried in this part of the world, but several of the continental aurists have reported their results, and they seem to encourage a trial. In acute otitis media it is not only useless, but even dangerous, as it masks the symptoms of mastoid involvement. In chronic otitis, however, it has been tried in 30 cases, of which 7, at the time of reporting, had shown marked improvement in hearing, the pus and fetor had vanished, and the mucosa had healed, or the tympanic cavity had become epidermatized. Fifteen other cases had shown marked improvement, but had not remained long enough under observation to warrant any statements as to permanency. Two other cases, although undoubtedly tuberculous, were improved. Some of these cases were of as much as 35 years standing, and had resisted other forms of treatment. A suction bell of 5 centimeters diameter was used, applied at intervals of 2 to 3 days, generally for 10, and never for more than 15 minutes. From 2 to 35 applications were made. The suction was strong enough to show a distinct swelling of the auricle, but never strong enough to cause a distinct pain in the ear. Stimmel says it is surprising how much pus and serum are found in the ear after using the suction treatment, even when the ear has been thoroughly dried prior to using suction. Caries and cholesteatoma contraindicate the treatment, but small hemorrhages coming from granulations do not.

Time will not permit me to go into the treatment of chronic suppuration of the attic, nor to take up the subject of cholesteatoma. In most of these cases I think that surgical measures would probably have to be resorted to.

I do not consider a case of otitis media cured until the drum membrane has been restored, and I think we should keep the patient in hand until that has been accomplished. Occasional touching of the edge of the perforation with trichloracetic acid gives god results. Blake proposes fitting a disc of very thin sterilized paper over the opening, which seems to stimulate the growth at the edge of the perforation.

One point we should not overlook in our treatment is that the patient or whoever undertakes the home treatment can be of the greatest service to us, and that we should see that whatever home measures we recommend are carried out in the proper way. A little time spent in instructing the patient or relative in the proper way of using the syringe, in drying the ear and insufflating the powder, etc., is well spent. We have all seen cases in which no progress was made until the home treatment was put on a proper basis; and we have also seen cases in which retention with its attendant danger was due to too liberal use of the powder blower.

In conclusion, allow me to say that the burden of this paper is: Give every patient with chronic suppuration of the middle ear a chance to see whether he cannot be cured by medical means. Do not hurry him into an operation which carries with it all the dangers of a major operation with the added possibility of infecting the brain tissues. A colleague says that he considers it better to operate ten mastoids unnecessarily than to allow one necessary one to escape. That is the other extreme. If you want to have substantiation of my view, read V. Ruppert's splendid article already referred to, and you will have a much more exalted opinion of the possibilities and results of the conservative treatment.

INDICATIONS FOR OPERATION IN CHRONIC PURULENT OTITIS MEDIA.*

By EDWARD C. SEWALL, M. D., San Francisco.

How is to be decided the question when and upon what patients are we to operate radically in chronic purulent otitis media? Since the work of Schwartze, and more particularly of Stacke, which began a new era in the treatment of purulent ear disease, surgeons, because of the multitude of cases and statistics, have found out the worth of the measure and its limitations. The methods of operation, and the after treatment are fairly uniform, and the results in the proper hands are well known. That the operation is one of the first magnitude is recognized. Granting that the operator has full knowledge of the parts and the necessary technical skill, that it puts in jeopardy the life of the patient not only through the possibility of infection, but also to a certain slight extent through the use of an anesthetic, can not be gainsaid. These dangers, which are almost inconsiderable, in uncomplicated cases, should not be overestimated, but cannot be disregarded in weighing judgment in a given case. Other facts that must enter into our calculations are,

I. That the operation does not promise absolute freedom from discharge.

II. Even when a perfectly dry ear is the result, the formation of epithelial debris and accumulation of wax leading to irritation of the epithelialized area often necessitates the occasional attention of the surgeon.

III. The time required in the tedious after treatment, which the ablest surgeons place at 8 to 12 weeks, on an average.

These facts do not in any way figure when we are considering cases which are dangerous to the life of the patient. The operation is then one of necessity, not of choice. However, when we are contemplating the advisability of operating upon an ear which in no way is dangerous to life they are important.

The points that come up for consideration when a patient suffering with chronic purulent otitis media presents himself to the surgeon are as follows:

I. Is the ear dangerous to the life of the patient?

II. Can the ear if considered dangerous be put into the safe class by measures other than the radical operation?

III. Is the ear free from danger to life, and if so shall it be operated upon?

It would be a simple matter to dispose of the question of operative necessity were it possible to throw all cases into the dangerous or non-dangerous class. Great difficulty is encountered in deciding this question, and no particular branch of surgery is more benefited by wide clinical experience.

The appearance and characteristics of a dangerous ear give a picture which in many cases is not difficult to interpret. There are many factors entering into the formation of such a picture. Often instinctively the able clinician recognizes that he has a perilous situation to deal with. Asked, however, to write down the points that have lead him to consider an ear dangerous, and of necessity operable, and he would have difficulty in defining his reasons. The cultivation of a certain clinical feeling is an excellent and inevitable consequence of large experience. This clinical sense, however, must be accompanied by facts which one can put into writing if progress is to be made; otherwise it is liable to give a complacency that is subject to rude awakenings.

The diagnosis of the dangerous ear is made on objective appearance, subjective symptoms, or the combination of the two. We will first take up a consideration of such cases.

Often the patient may present no subjective symptoms whatever. Such cases are most difficult to handle properly. The kind and situation of the perforation in these dangerous cases is of considerable importance. A perforation in the upper part of the drum is worse than one in a lower segment. A hole in Schrapnel's membrane is especially significant, because of the anatomical structure of the attic. Such a perforation must necessarily mean disease of that narrow space. Either the pus has broken through Schrapnel's membrane via Prussac's space or directly from the attic.

A marginal perforation, that is, one which extends to the tympanic ring, especially where such a perforation is in the upper posterior segment, and is accompanied by a roughened condition of the adjoining bone, must be given its proper value as a danger signal, indicating often disease of bone in the antrum.

Granulation tissue not only acts injuriously by blocking the drainage from the diseased parts, but when coming from such a perforation just mentioned, must be taken often as an evidence of necrosis in the attic or additus.

The character and amount of discharge is of great importance. A large amount of creamy pus rarely comes from the middle ear alone. The greater the volume of the discharge, the greater the diseased area. However, the danger is not necessarily in proportion to the amount, for the presence of granulation, or small perforation, or other obstruction such as exostoses of the external canal may lead to suppression of discharge, and increase in the danger. Many times are these patients comfortable with this discharge as long as it flows freely, but exceedingly disturbed from headache and dizziness when from obstruction, the discharge is lessened.

The direction from which the pus comes is very important; is worse again when coming from the upper posterior region. The Siegel otoscope is of use in determining the direction from which the pus comes by employing gentle suction after cleaning.

The bacteriology of the pus in these chronic cases is usually not of much significance. The germs, no matter what sort, usually become comparatively inactive because of the chronicity of the process, but quickly regain their virulence when obstruction confines them.

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

Odor of the discharge has considerable significance. It may be due to decomposition of accumulation in an improperly cared for ear. In such a case, a few irrigations will remove the stench. However, when after repeated washings, especially where irrigation of the attic with canulæ has been employed, the odor persists, it is often evidence of extensive destruction in parts inaccessible to our washings, and indeed may mean the presence of that sponge-like mass, cholesteatoma, which holds on to the odor so tenaciously.

Cholesteatoma (nearly always we should say pseudo-cholesteatoma) forms one of the most significant evidences we have of the dangerous character of the ear.

Its presence is diagnosed by seeing it in the fundus, or by the white bits that come out in the washings, and sink in the solution, or by extracting it with the blunt probe. It often hangs in little tufts, somewhat resembling the tufts of leptothrix on the tonsil, from the attic and as we wash or brush it away other flakes appear. Although usually an operative indication, it is not necessarily so, and even has been known to produce a condition in the antrum and attic through pressure, surpassing that result obtained by operation. Its dangers, however, are hard to overestimate. We are toying with the "dynamite bomb" as Macewen says, in allowing it to remain hidden and unoperated upon.

The probe examination for caries is of some help, but I am inclined to think that its usefulness is easily overestimated, and that harm may come from its too free employment. Also there is no doubt that the sensation of rough bone is often produced by the surgeon's too firm pressure. I am sure of this in my own cases because I have had instances where I demonstrated caries to my complete satisfaction, and had the same cases heal in a few weeks under treatment. I think we should use the probe only with the greatest caution.

I shall not go into the symptoms and diagnostic signs of an acute mastoiditis complicating a chronic purulent otitis media. It has all the characteristics of such a case when acute, with grave possibilities added. Such an attack puts an ear in the dangerous class at once. If allowed to heal without operation, the parts must be in much worse condition than before, and intracranial complications much more liable to occur.

The subjective symptoms that add to our knowledge of the dangerous character of an ear are liable to misinterpretation, both on the part of the patient and the surgeon.

Headache is an important symptom; that it accompanies, sometimes, these chronic purulent otitis medias there is no doubt. We often see it come on suddenly when the discharge is in some way blocked, to disappear again when good drainage is established. It is a symptom of great value, but as we have so many other conditions, including hysteria, which produce this symptom, its value is a matter for good judgment of the surgeon to determine.

Intracranial symptoms, which the scope of this paper will not permit of enumeration, immediately put our ear into the operative class.

In vertigo, we have a symptom which also is liable to a good deal of misinterpretation on account of the patient's misconception of it. However, a true disturbance in the sense of equilibrium signifies disease of the labyrinth, and is to be recognized as a dangerous symptom. This subject of labyrinth disease, and the methods which have been recently worked out, we can only mention in passing, as they form such a new, interesting and important part of our advanced ideas of ear disease.

The hearing does not enter into consideration where we are dealing with this first class of cases.

Class II. Can the ear, if considered dangerous, be put into the safe class by measures other than the radical operation? Yes, I think they occasionally can. Thorough cleansing and removal of debris by Hartman's canulæ, or other methods, and the use of quickly drying solutions in cleansing and the employment of dry treatment as consistently as possible, even to wiping out the attic with fine, soft cotton swabs, will give results at times rather unexpected. I have seen cases with cholesteatoma, ragged, marginal perforations in the upper posterior quadrant, although not accompanied by much discharge or other symptoms, heal entirely under this treatment.

Class III. Ears discharging, but not dangerous to life: Is it possible for us to make such a classification? Can we say that such an ear will not light up and suddenly lead to grave complications? I think we can. I think the danger from such an ear as I shall now speak of, is no greater, or very little greater than to a normal ear. One may light up occasionally, and lead to operation, but so will a normal ear, become diseased and I think there is about as much reason in surgeons operating on all such ears as there would be in removing all appendices from the new born.

The ear I am going to describe can be quickly considered by excluding the features portrayed by the first class, or dangerous ears. The perforation, instead of being marginal, is usually central, or low, and surrounded by a good bit of drum margin. The remains of the drum present a fairly thin appearance. The mucus membrane of the promontory is or is not injected, swollen or reddened.

The discharge is not milky pus, but is either thin mucus in character, or is muco-purulent; is of small amount, and except when the patient has a cold it almost disappears. Study often shows it to be coming from the region of the Eustachian tube.

Such an ear has none of the symptoms which we consider indicative of danger, but it will not become dry under treatment. The disease clearly is located in the tympanic cavity. What good is done by an operation on parts which are not diseased? Of course the region of the Eustachian tube can be curetted and if the disease is confined to that part, a cure obtained, but that could be accomplished without the entering of the antrum and attic. If disease of other parts of the wall of the middle ear is the cause of the continued discharge, it will not be possible to curette freely enough or certainly enough to cure because of the possibility of damaging the stapes, or internal wall, forming a com-

munication with the inner ear through which dangerous infection might pass.

These are the cases which after a well performed radical operation, still continue moist. The operation was not indicated and when it was done it did not meet the necessities of the case.

THE DIFFERENT OPERATIONS FOR CHRONIC SUPPURATION OF THE MIDDLE EAR.*

By H. BERT. ELLIS, M. D., Los Angeles.

The treatment of chronic suppuration of the middle ear certainly does not present a brilliant field for medicine or surgery. Local treatment of a medical character frequently stops a discharge which has existed for months or even years, but the suppuration is more than likely to return with the first severe so-called "cold in the head" or on exposure to untoward atmospheric conditions. This fact has caused a reaction from local therapeutic measures to surgical interference.

The objects of treatment in chronic suppurative otitis media are, 1st. To arrest the discharge; 2nd. To prevent complications; 3rd. To restore hearing.

The surgical procedures invoked to accomplish these objects may be classified (1) adenectomies; (2) curettage; (3) ossiculectomy; (4) the meatomastoid operation and (5) the radical mastoid operation.

1. *Adenectomy.* The first surgical procedure in a chronic suppurative otitis media is to remove all adenoid tissue, and to reduce such superfluous nasal tissue as may be necessary to give natural nasal breathing, for we may be tolerably certain that to remove the discharge from the ear, it will be necessary to get rid of the infecting secretion from the Eustachian tube, and this is particularly so when the perforation of the drum head is centrally located over the tympanic orifice of the Eustachian tube. In these cases, it is sometimes necessary to dilate the isthmus of the tube, in addition to doing the adenectomy.

To remove adenoids it is better to use a general anesthetic in all children under sixteen years of age, excepting in such individuals whose pathological condition contraindicates the use of an anesthetic, and it may be well to state right here that chloroform is *always contraindicated* in the adenoid operation.

2. *Curettage.* When polypi or granulation tissue are present in the external auditory canal, they should be snared or curetted away. A perforation of the membrana tympani at its margin usually means necrosis of the bony walls or of the ossicles. When the perforation is at the lower border, the floor of the middle ear may be cautiously curetted with a small bent curette, after making the opening in the drum head sufficiently large for perfect drainage, but if sepsis be present, one must be on the lookout that the jugular bulb is not infected, and if it be, nothing less than the radical operation will suffice. If one is able to secure smoothness of the floor, then the daily or bi-daily cleansing and packing lightly with sterilized gauze till the necrotic area is healed, may result in a cure. If the perforation be at the anterior margin, the anterior wall is probably necrotic and the curette may be used, but also with great caution, because of the close proximity of the carotid artery. Curette is usually performed under local anesthesia.

3. *Ossiculectomy.* When the perforation is just above the short process of the hammer, the head of this bone is most probably necrosed, and the hammer should be removed. If the perforation be at the upper margin, involving Sharpnell's membrane and edge of canal, the inner wall of the canal, as well as some portion of the ossicular chain, is probably necrosed. In these cases, curettage will accomplish little or nothing, but the ultra-conservative aurist may try ossiculectomy, and oftentimes with gratifying results. However, since 1893 when MacEwen presented his historic work on "Pyogenic Diseases of the Brain and Spinal Cord," this operation has almost fallen into disuse.

Ossiculectomy may be performed under local anesthesia, but with it the pain is very severe; probably the best local anesthetic is a mixture of equal parts of cocain, carbolic acid and menthol. The drum head swabbed with this mixture becomes tolerably well anesthetized in from fifteen to twenty minutes. General anesthesia is usually necessary in order to do the operation carefully and thoroughly. The auricle and external meatus should be scrubbed with liquid soap and warm water, followed by an alcoholic bath. The incision is probably best begun at the center of the anterior margin, continued upward to the malleus and then along down the handle to the umbo, then upwards along its posterior border, then backward to the posterior border of the membrane, leaving a large portion of the membrane for regeneration and repair, though sometimes this may interfere with drainage and must be watched. The tensor tympani muscle is then cut with an angular knife, as well as the ligamentous attachments of the malleus to the outer wall. The malleus may then be removed with forceps or the ring knife. The incus is best detached with the incus hook, and the bleeding, which is frequently very troublesome, may be controlled by a hot 1 to 2000 bichlorid of mercury solution, after which it is dressed with a strip of sterile gauze, loosely packed and sealed with collodion.

The object of operative procedures by way of the auditory canal is primarily to secure free drainage and to remove necrotic and carious tissue, when such is present in the tympanic cavity in limited and easily accessible areas; thus we often remove parts of the auditory conducting mechanism and at the same time carry out the well-known surgical principle of removing obstructions to the thorough evacuation of purulent collections, as previously described. By these means, provided the tympanic focus of infection is limited and available to such instrumentation, the causes which keep up the discharge are removed with the elimination of the diseased bone, and the surgical cleanliness which may then be obtained. In addition to removing the

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

necrotic tissue and carious bone, marked mastoid changes are prevented (especially when the malleus and incus are removed), because of the better drainage and facilities for getting at previously inaccessible parts above and behind.

In selected cases of chronic suppuration, persisting in spite of ordinary non-operative measures, intra-tympanic operation is undoubtedly most promising and is also remarkably free from risk to the life of the patient.

While it must be borne in mind that in practically all cases of long standing diseased bone is almost always present, yet when the carious areas are confined to the two larger ossicles, or, to parts of the tympanic walls accessible through the canal, excision and curettage present an almost ideal form of operation, as its performance is comparatively simple and safe, and in a large percentage of these cases a permanent cure may be confidently expected. And it has the advantage of not requiring an external wound, nor keeping the patient incapacitated for any considerable length of time; but, if *hearing* is of the first importance to the patient, it is well to avoid ossiculectomy, provided the hearing approaches normal, as the operation impairs the hearing in probably fifty per cent of the cases operated upon.

The final results, in so far as amelioration or cure are concerned, are usually most gratifying, especially if the accessory cavities or walls are not too extensively involved.

In some cases, the suppurating ceases within a few weeks with but little after treatment; in other cases, it may require as many months, with extreme care as to details; while in those cases which do not yield, a radical mastoid may still be necessary.

Oppenheimer says: "In all cases of chronic otitis media conservatism should demand ossiculectomy prior to the performance of the mastoid operation," and the writer is inclined to the belief that our zeal for the more radical operative procedures has, to a considerable extent, placed ossiculectomy in the background. There is no question that many cases are susceptible to cure by the performance of ossiculectomy, yet failure in no way compromises a more extensive operation, but rather is only a step towards this end, if such be necessary.

4. *The Meato-Mastoid Operation.* Chronic suppurative otitis media with a central perforation frequently only means a simple infection of the mucous membrane of the middle ear, and therefore quite often responds to local treatment, but if suppuration persists, after the adenoid tissue has been removed, the Eustachian canal has been treated, and the middle ear itself thoroughly taken care of for several weeks, and if there be no necrosis of the bony walls or ossicles, then the meato-mastoid operation may be performed.

The technic varies but little from that of the radical operation. The antrum is opened and the mastoid cells cleaned out, then the posterior wall of the external auditory canal is cut away, down to the annulus tympanicus, neither the drumhead nor the ossicles being disturbed. All of the posterior wall of the external auditory canal that can with safety be removed is taken away in order that drainage may be as little impeded as possible, and that the after dressing may be made without too much distress to the patient. The operation and the dressings are essentially the same as in the radical operation.

5. *The Radical Mastoid Operation.* At the present time, probably the most difficult problem in chronic suppurative otitis media is to know when to open the mastoid in the absence of any well-marked symptoms pointing to its involvement, and while general indications may be formulated, the question as regards the individual case must be solved by the particular conditions present in that case. Politzer gives the following indications:

(a) *Subjective.* 1. Persistence of pain in the ear or over the mastoid process. 2. Permanent or intermittent attacks of vertigo, due to erosion of the external semi-circular canal. 3. Marked cerebral disturbances.

(b) *Objective.* 1. Caries of the wall of the tympanum. 2. Granulations and polypi in the vicinity of the aditus and recurring quickly after removal. 3. Fistulous openings in the cortex. 4. Cholesteatoma. 5. Hyperostotic stricture of the external auditory canal. 6. Facial paralysis or paresis. 7. Painful swelling of the mastoid. 8. Prolonged fetid suppuration, resisting treatment, especially if the upper posterior region of the membrana tympani is perforated and its remnants are adherent to the internal wall of the drum cavity, and more so, if pus and epithelial masses can be drawn from the region of the aditus by aspiration. 9. Symptoms of tuberculosis occurring in a case of chronic suppuration (aural suppuration in a case of pulmonary tuberculosis being a contra-indication for operation on the mastoid). 10. Evidences of intra-cranial or sinus involvement. He further believes that when the objective signs are accompanied by some of the more serious subjective symptoms, operation becomes imperative, but as clinical symptoms and pathological findings do not always correspond, it is impossible to lay down strict rules to indicate when the mastoid operation should be performed. (Oppenheimer.)

A radical mastoid is indicated when, during the course of a middle ear suppuration, general symptoms of septic absorption, otherwise unaccounted for, make their appearance. (Kopetzky.)

Unless bone necrosis is very extensive, local measures, tympanic curettement and ossiculectomy should first be employed. If they fail to afford relief, proceed to the radical mastoid operation.

Discussion.

Doctor D. H. Trowbridge, Fresno: I think a good deal of our chronic suppuration is due to neglect of treatment at the time. This is due to the fact that very few of these cases come into our hands just before or shortly after the membrane has ruptured and very few of these cases continue very long with a suppuration. I fail to remember over a period of time, any of these cases that I would not have been able to clear up the discharge, unless they had gone on to more serious complication of the mastoid cells, and of course have required an operation for acute mastoiditis. I think that our treatment of these cases should be a little more radical than it has been in the past. We should keep up

the free drainage and not hesitate to make an early paracentesis, and after that if the opening tends to close and drainage does not appear to be established, we should make repeated enlargements of the opening and usually under anesthesia. I find, as a rule, I am not able to make a second opening of the drum membrane under cocain or local anesthesia, as the patient will involuntarily jerk away. Consequently a little gas or ether is better in making a thorough opening and enlarging it along the posterior auditory canal, especially in those cases where the discharge has a tendency to continue and where there is more or less tenderness over the mastoid. As far as radical treatment is concerned, I do not believe I will give my opinion. There are many others here who have operated more than I have. There is no question that a great many of these cases which go on and we are unable to clear up with local treatment, should be operated on. I know of three cases in my neighborhood which have died in the last year from brain abscesses undoubtedly due to suppuration of the middle ear, which were not operated upon.

Doctor Hill Hastings, Los Angeles: In opening the discussion on the indications for operation for chronic ear discharge, I should like to bring up for discussion some contra-indications. In doing so I do not wish to take an opposing view to Dr. Sewall, for I strongly believe in the opinions expressed by him so clearly. But it is likely time limit forbids his detailing certain points on the other side of the question. It is no good argument to say that some radical operations are needlessly done, however true it may be; for in the hands of an experienced man in the long run he will prevent many deaths that would have resulted from ultra-conservatism. Nevertheless, the radical operation is in itself not free from danger. It is an operation that should never be done, in my opinion, without the most searching diagnostic examination, without thorough preliminary treatment, and then only by one who has good operative training. There are some particular points I should like to bring up for discussion. I am assuming that we are to discuss the radical operation done solely to stop a chronic ear discharge and the dangers that might result therefrom; and not that mastoid suppuration is already evident. 1st. As to the patient's general condition. I think we should most painstakingly search into his previous history and present general condition, and that operation is contra-indicated until we have made the search. The two main points in the general history are the presence of tuberculosis and the presence of diabetes. In the former disease it is my experience that a radical operation is rarely necessary; dangerous secondary infections rarely occur, also that the repair after mastoid excavation in tubercular patients is slow and often incomplete. In diabetes, on the other hand, dangerous secondary infections are apt to occur and mastoids so infected run a bad course; nevertheless, the danger of the radical operation is heightened by this same lack of resistance. If the discharge becomes profuse and persistent one is justified in performing the radical operation, even though no mastoid pain or tenderness, fever or other acute symptoms have arisen. I have seen in diabetic patients extensive epidural abscesses form; and in one case rapidly developing meningitis resulted fatally, without warning, other than the persistent discharge. The medical consultant stood out for delay on account of diabetes. As to the radical operation in children, I feel it should rarely be done, except for two conditions, cholesteatoma, and signs of internal ear involvement. In other conditions I am inclined towards the meato-mastoid operation, which secures evacuation of any lurking mastoid disease, secures the best possible middle ear drainage and still leaves untouched the tympanum and its hearing function. Any one who has seen a hundred or more radicals and done the after treatment can not fail to be impressed with the large numbers of failures, in children, to stop the discharge. And to stop the discharge is what the parents seek. In children, especially, treatment of the nose and naso-pharynx, removal of adenoids, etc., should be most thoroughly tried before operating. A long period of local ear treatment should be insisted upon. It is interesting to note the trend of the discussion at the 1908 German Otological Society meeting, where so many ear men laid stress on the value of the old treatment by cleansing, drying and insufflation of boric acid powder. As to cholesteatoma, when its presence is determined, I think we should rarely hesitate to urge radical operation.

A word as to signs of internal ear suppuration, as indications for the radical operation. The material progress in otology in the last year or two has been along the lines of diagnosis of suppuration of the middle ear. It has taught us much and we can look back on cases where death resulted from meningitis where no mastoid suppuration had existed and where we felt at a loss to account for the fatal issue. Suppose a child or adult begins to have nausea and vomiting and a little dizziness—symptoms referable to the stomach—a little fever begins, increases, meningitis develops and death results; it is not inconceivable that neither the patient nor the family physician paid much attention to an old ear process which was not causing any mastoid swelling and no pain or tenderness. The valuable work of Barony, Von Stein, Alexander and others now teaches us how to search out the signs of internal ear suppuration. It is well to remember that in children the communications between the brain cavity, particularly the posterior fossa, and the internal ear are quite large and permit infections to spread in either direction more easily than in adults. I think the radical operation is contra indicated in every case until we determine as nearly as possible the condition of the internal ear, the static as well as the auditory parts of the internal ear.

Doctor Redmond Payne, San Francisco: I was very glad to hear Dr. Ellis include in his operations for chronic suppuration of the middle ear, not alone operations directed to the middle ear itself and the mastoid, but also take into account the nose and throat, and condition of the tubes. I think I quite agree with Doctors Sewall and Ellis with regard to treating these cases along milder lines, and very thoroughly, before resorting to the radical operation. I do not think that complete treatment of a suppurative middle ear has been given until thorough treatment of the nose and naso-pharynx is considered in connection with it, particularly with regard to the patulousness of the Eustachian tube. Dr. Ellis spoke about the turbinates and adenoids, the condition of the naso-pharynx and the dilation of the Eustachian tube, the last an exceedingly important matter in carrying out the complete mild treatment, or non-operative treatment of the middle ear, the object being to secure thorough drainage of the contents of the middle ear. It seems to me that the whole ear apparatus should be considered, the nose and throat, the Eustachian tube and the middle ear, and the antrum of the mastoid—all should be taken into account when we consider the treatment of the middle ear. It should be considered as a whole and every part looked into carefully before operation is determined upon. The detail of the treatment of the middle ear is of tremendous importance. A small opening in a drum should always be enlarged so that the middle ear can be gotten at thoroughly, and the middle ear end of the Eustachian tube looked after. A method of treatment which I have found successful, after attending to the nose and throat and the naso-pharynx, and the tube has been dilated, is to inject 10% argyrol into the middle ear through that part of the tube where infection is so frequently retained. It seems to me from what I have observed lately in the cases

of Doctor Ballinger in Chicago and Jansen in Berlin, that the modified radical operation is being adopted by many, and is giving better results for hearing as well as getting rid of the disease quite as certainly. I refer to the Heath operation, and I believe that is the one Doctor Ellis means in the term meato-mastoid. When the radical operation is indicated I believe that better results will be gotten by this modified radical operation in all cases except cholesteatoma and where there is suppuration or infection of the labyrinth.

Doctor Kaspar Pischel, San Francisco: It has been mentioned that even after a successful mastoid operation, patients often come back to the doctor with a running ear. Such occurrences are a great disappointment to the patients or their parents; they think that the old trouble has come back again, while we know that it is usually an eczematous condition, a breaking down of the thin covering of the bone. In order to prevent that we should try to cover it with a good healthy skin. In 1901 I recommended the use of a skinflap for immediate closure of the mastoid wound which has served me well. (Archives of Otology, Vol. XXX, 1901.)

Doctor R. D. Cohn, San Francisco: I think the crucial point in this entire discussion is: should every case of chronic middle ear suppuration be operated upon or not? Doctor Welty thinks it should. This is a standpoint against which, in common with Doctor Sewall, I protest. I believe Doctor Welty is virtually alone in his extreme view, according to which every case of ear suppuration which does not heal in from six to eight weeks should be operated upon. There would be some justification for this standpoint only if every person with chronic middle ear suppuration who went along without operation were lost if once complications developed. This, however, is very far from being the case. The removal of the tympanum and of the ossicles is not a matter of indifference to the patient, since the faculty of hearing depends in great measure upon the integrity of these structures. Therefore, to ream out the tympanic cavity in every case of chronic suppuration is a reprehensible procedure unless the life of the patient is in jeopardy. In the absence of fever, the absence of positive involvement of the mastoid cells, the absence of cerebral symptoms, the operation should not be done at all. With these conditions present, or with undoubted evidence of cholesteatoma, the antrum and the other mastoid cells should be opened. When the radical operation proves injudicious, the Schwartze procedure as improved by Staeke is without doubt the method of election.

Doctor W. E. Briggs, Sacramento: The important question brought out by the discussion this afternoon is as to the time to operate in chronic middle ear trouble, and whether all cases should be radically operated upon. Like many others of this Association I have changed my views on that question at different periods of my work. I remember one time a good many years ago, after spending some months with Doctor Jansen in Berlin, I came home with a good deal of enthusiasm, and thought that every case of middle ear suppuration should be operated. In Paris I had learned that every case of chronic ear suppuration ought to be operated if not cured after four weeks. In the hands of men who have less experience than Doctor Jansen, I have concluded that it is not good advice to give generally. I have had a great many good results. I have had some cases of extensive operation, healed in less than two weeks, but on the other hand I have had others that have done as badly as any one's. Gradually I think I have become a little more conservative than I have been at some periods of my practice, and I think that the tendency will be to be a little more conservative. I do not believe that the danger is so great. I see a great many of these cases cured after careful treatment and after you have taught your patient or the friends to give the patient the very best possible attention, I think you will find a very large percentage relieved of all danger and be in a much safer condition than if they had a hasty operation or a radical operation. At the present I think I stand very much as Doctor Sewall has expressed himself.

Doctor J. D. Arnold, San Francisco: A symposium upon chronic suppurative middle ear disease always develops into a question as to the advisability of operation upon the mastoid. I am very prone to lay very much more stress than even Doctor Sewall did upon the real condition of the tympanic cavity before any question of operation arises. As to the operation itself, many of us will remember that it is only twenty years ago that the operation really attained anything like a competent technic. The mastoid operation before the time of Schwartze was an alternative to rapid death. We can remember very well when no mastoid operation was done, particularly not the radical operation, unless cerebral symptoms were present. Schwartze taught us that there were indications for operation even in the absence of cerebral symptoms. Without again going over the history of the measure, this much may be said as to the indications. It is certainly not judicious to operate upon every case of chronic suppuration of the middle ear in the absence of cerebral complications, merely because the suppuration has lasted two or even ten weeks; but just as soon as symptoms point to an inflammation of the mastoid cells then operation comes into question. When a discharge from the middle ear is accompanied with a rise of temperature, then you have an indication for opening the antrum and mastoid cells. The question as to whether an operation shall be radical will depend entirely upon the condition of the parts found at the time.

Doctor G. P. Wintermute, Oakland: Where the mastoid cells are involved, if the drainage is good, there is no mastoid abscess, but the mastoid cells are involved in every case of otitis media. If the case does not get well after six weeks' irrigation, there is bony destruction there probably, and while I have no objection to an ossiculectomy being done previously, still you must remember that the tympanum is only a small portion of the diseased area. It may be the only portion in which there is bone necrosis, and in such an event it will be successful, but as it is a small portion of the pathological area, it will not be followed by good results. I do not believe in operating on tubercular cases, and I think these should be excluded. I think it is simply a case of having diseased bone, and conservative treatment allows it to run and trusts to Providence, so to speak. You do not get any further even with an attic cannula than the antrum. It seems to me the logical procedure is to go in and clean out your diseased bone when you can exclude tuberculosis.

Doctor W. M. Fredrick, San Francisco: I have very little to add to my paper, inasmuch as all the other readers of papers, and those who have discussed them, have supported me in maintaining the contention that we are to-day far more conservative in regard to the treatment of the middle ear than we were formerly, and are becoming more and more so every day. There is only one point I would like to make here. The speakers have mentioned suppuration as having existed for so many weeks, etc. We cannot say that a suppuration has existed for so many weeks unless it has really been treated, and in the majority of cases it has not been treated at all. We cannot call the visits of the patient to the office, treatment. We should spend a great deal more time than we do in seeing that the patients are properly treated at home, and we should teach them how to wash the tympanic cavity out properly. If we watch the majority of laymen trying to wash the ear we will see that they wash the canal and that the tympanic cavity receives no treatment whatever.

We should insist that the treatment should be done as we want it done, and not in a careless, slipshod way. I have seen marked changes take place in the conditions when the home treatment has been carried out as it should be. Von Ruppert has shown what can be done in treating these patients correctly, and he has obtained what he concludes to be complete cures. Of course the surgical treatment of these patients is a more brilliant one and perhaps more impressive, but the results should make us hesitate to undertake it. As Doctor Pischel has said, the patients and parents are so often thoroughly disappointed when, after undergoing all the dangers and expense of a mastoid operation, they find that the discharge will return at intervals. This is a matter of great disappointment and sometimes the patient will consider that the work was not done at all when told that he will have to remain under observation. On the other hand, if we can put a stop to the suppuration, and obtain a healing over of the perforation, the patient is liable to an acute suppuration of the middle ear, in a somewhat greater degree than if his ear were quite normal; but the danger of the suppuration returning is far less than in those cases where the natural protector of the tympanic cavity, the drum, has been removed. Personally I know of cases in which the suppuration has not returned in thirty-five years and over.

Doctor H. Bert. Ellis, Los Angeles: I must say that I have become much more conservative in my views on radical operation than I was five years ago. In the absence of definite symptoms for radical operation in cases of chronic suppurative otitis media, I hardly believe we are justified in doing the operation until we have tried removing all necrotic tissue which we can reach through the canal and have put the tube in a patulous condition. When we have done this and the suppuration continues and the hearing is badly involved and the patient is suffering from the discharge and the sense of its unpleasant effect, then we may be persuaded to do the radical operation. If we have definite symptoms, such as brain symptoms and cholesteatoma, then we are perfectly justified in operating.

MOMBERG'S TUBING APPLIED AS A TOURNIQUET FOR BLOODLESS SURGERY OF THE PELVIS.

By GEORGE K. HERZOG, M. D., San Francisco.

The compression of the abdominal aorta as a method of arresting hemorrhage is not new or untried. The great difficulty heretofore has been the method. The most common employed has been pressure made by hand with or without a pad over the aorta which has always proven to be tiring to the operator and usually unsatisfactory. The other method, known as Dupuytren's, consisted of a semicircle of metal with a pad at one end which when fastened made a tight band. This was also unsatisfactory as the metal cut and the distribution of pressure was irregular.

Momberg's tubing is now adopted among our German colleagues as efficient, safe and rational. It consists of ordinary rubber tubing about ½-inch in thickness and about 5 feet in length, the plain stomach tube minus the bulb makes an admirable tourniquet for this purpose. This tubing is placed twice around the abdomen a little below the umbilicus and tension is then made until the femoral ceases to pulsate. The tube is then held by the hands and hemorrhage from below is completely under control. No method of holding the two ends other than by the hands has been found to be feasible. At first this procedure seems dangerous and crude but observation has taught me that it is perfectly safe and the results surprising. A few cases that I observed in Bumms' Clinic in the Charité Hospital of Berlin will be herein recorded, also one by Bier and one by Hobauer. This method has been used by Sigwart and Roeck, Bumms' assistants, with splendid results. Its adoption in post partem hemorrhage is ideal and greatly to be recommended. The fear of tying off the whole lower half of the body by actual experience has proven to be groundless. I saw Doderlein in his clinic in Munich demonstrate the Momberg on a puerperal patient without an anaesthetic. The tubing was held for ten minutes without complaint. In most cases anaesthetics are used but usually for the accompanying treatment, not on account of the tourniquet. Momberg put this method into application following experiments on animals. As soon as one is convinced that the results are so gratifying, one forgets the impression of the amount of force that is used.

Bier in a case of sarcoma of the hip used the Momberg in amputating the part under spinal anaesthesia. The man did not complain and did not lose but little blood; the operation was performed with the patient

in the Trendelenberg position. The usual shock following this operation was absent and Bier recommends the Momberg in all larger pelvic cases. He says that the Momberg is pretty and simple in results. This case lasted 45 minutes.

Hofbauer reports a case of a large myoma, the size of a man's head which he removed per vaginae with the aid of the Momberg. He reports the operation as being absolutely bloodless and lasting 75 minutes. No disturbance followed.

The first case that came under my observation was a woman of 31, multipara, normal pelvis, 8 months pregnant, comatose, edema of extremities, albumen and casts in urine. Diagnosis, puerperal eclampsia. Cervix dilated with Champetier De Ribes balloon and in one hour expelled; immediately following I did a version and a normal child of seven pounds was delivered. Following the birth, the patient bled profusely and the Momberg was applied; no further hemorrhage. Examination showed 2 extensive tears of the servix, one extending through the inner os, also a laceration of the clitoris and perineum. These injuries were repaired, placenta removed by Crede's

method, uterine douche of a 50% alcoholic solution given and the body having contracted nicely, the tubing was removed, patient put back to bed and no further trouble.

The second case, also reported by Sigwart. Woman of 24, primipara, normal pelvis, 9th month pregnant. Waters ruptured Jan. 14, 1909. Pains during next two days and on Jan. 16th child born at 9 p. m., delivery normal, weight 7½ pounds. Very small hemorrhage, no after pains. Uterus massaged but placenta was not expelled. Patient put to bed, ice bag over pubes. Waited until next morning when a slow hemorrhage appeared, bright red, but which did not require immediate interference. After 13 hours from time of delivery, attempt was made to expel placenta by Créde, first without and then with an anaesthetic; no result, but hemorrhage continued. The bag of waters having been ruptured now 3 days, it was decided to remove the placenta by manual tension. Placenta was resting in right cornu firmly adherent. A terrific flood of blood followed the removal, ergotin was injected subcutaneously, large alcoholic douches given and massage constantly kept up, no results. The Momberg was then quickly applied and hemorrhage instantly controlled. First a few drops continued and finally ceased entirely. After a few moments a large clot was expelled, uterus contracted nicely and then another clot followed. The uterus now having become stone hard, the tubing was removed, patient put back to bed with an ice bag and no further trouble was met with. In this case tube was on 18 minutes only and while on the pulse became stronger, breathing was not interfered with, there was no after vomiting, stools and urine normal.

There is little danger of injuring the bowels of a puerpera by the Momberg as the main part of the bowels are high up and out of the way at this stage.

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" " " " " No. 41.
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FINAL REPORT OF A CASE OF BONE TRANSFERENCE.*

By DR. T. W. HUNTINGTON, San Francisco.

This case was presented to the Society after its completion some years ago, and was published in the "*Annals of Surgery*," volume 1, page 249, 1905. The purpose of this report is to show the final end result after a lapse of six years. The history of the case is briefly as follows:

In May, 1902, the boy, then six years of age, was treated at the City and County Hospital for acute infection, osteomylitis of the tibia. The middle portion of the shaft of the tibia was completely destroyed. A strenuous effort was made toward reproduction of bone by leaving such shreds of the periosteum as could be identified at that time. Eight months later, the wound having healed, there was no evidence of bone regeneration. The leg hung flail-like and useless below the knee. After careful deliberation, I determined to supply the tibial defect

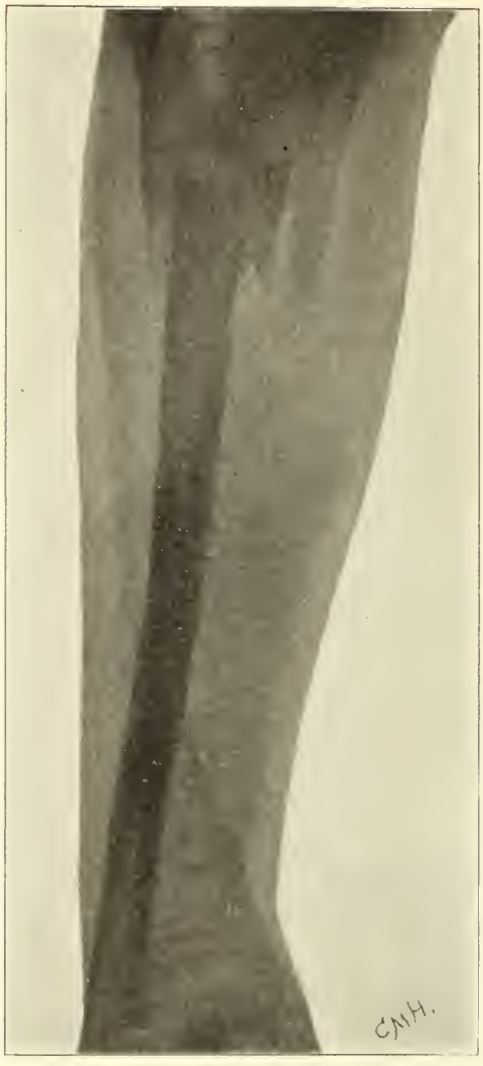

Fig. I. One-half life size.
Status eight months after first operation.

by carrying the divided end of the middle portion of the fibula across to the tibia, countersinking it in the upper remaining fragment of the tibia, thereby securing union.

The theory underlying this procedure was based upon the idea that with preservation of the normal nutrient supply of the fibular shaft, plus the exaggerated nutrition derived from the tibia, would result in rapid hypertrophy of the fibula in its new relation.

The result of the first operation was highly satisfactory and the patient was allowed to walk bearing his weight upon the lower end of the fibula in its normal position. At this time, there was manifest hypertrophy of the shaft of the fibula. (See plate 1). Very soon, however, it was noted that there was a decided lateral bowing of the foot upon the fibula causing a deformity. Accordingly, six months after the first operation, the fibula was again divided at a point opposite the upper end of the lower segment of the tibia. With little difficulty, the transference was completed (See plate 2). Again the wound healed kindly and rapid union was obtained.

* Read before the San Francisco County Medical Society, July 13, 1909.

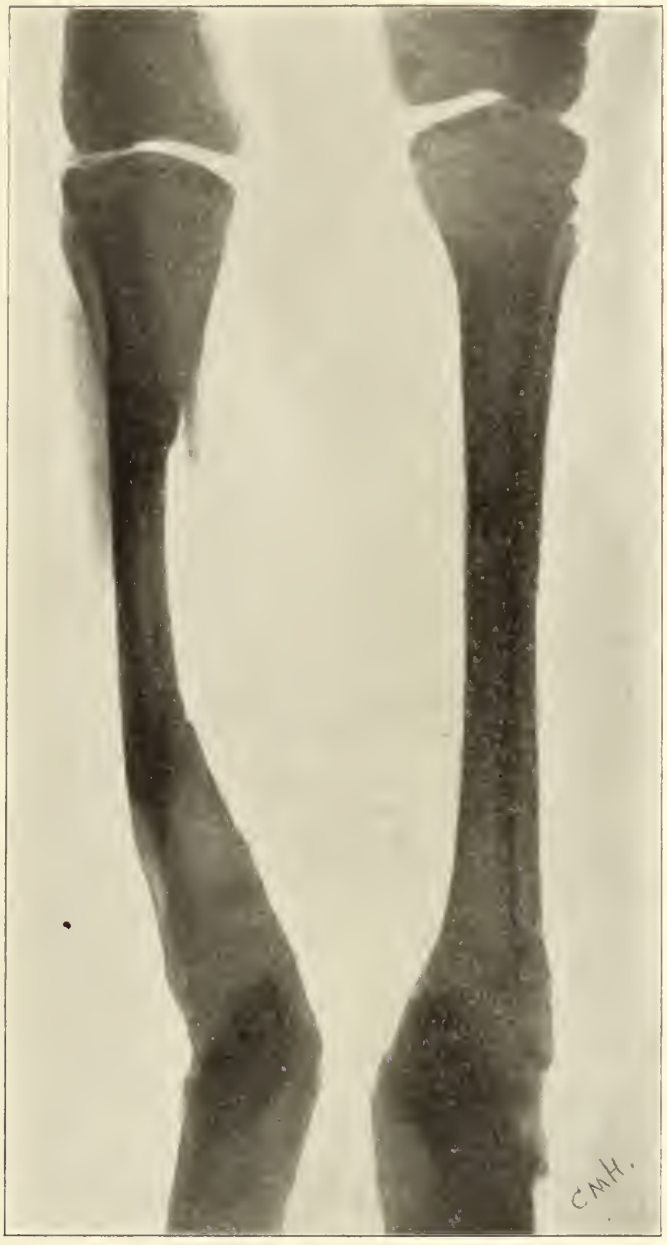

Fig. II. One-half life size.
Status thirteen months after first and five months after second operation.

Fig. III. One-half life size.
Status six and one-half years after first operation.

In six weeks, the child began to walk with little, if any, limp and in this respect, the patient's condition has improved, until, at the present time, he walks without a limp; runs as other boys do, plays baseball, football and in fact is walking upon a leg which is comparatively as useful as the other.

The accompanying radiogram (See plate 3) demonstrates that the theory underlying the procedure was rational, the transferred portion of the fibula now having assumed the dimensions of the normal tibia. Joint function at both knee and ankle remain perfect and there is but slight, if any, limitation of leg rotation.

In the *"Annals of Surgery,"* volume 46, page 648, 1907, Dr. J. S. Stone reports a similar case in a boy of five years. He varied the operation by splitting the lower portion of the fibula at a point corresponding to the upper end of the lower tibial fragment. The inner slip of the fibula was carried across and anchored to the tibia and a satisfactory result was thus accomplished.

At the outset, there seemed to be reasonable doubt as to whether this procedure would be available for adults as it was for children. Dr. E. A. Codman, however, in the *"Annals of Surgery,"* June, 1909, publishes the report of a case, the patient being thirty-two years of age. After three years, the radiogram shows marked enlargement of the fibula which may increase with the passage of time. Dr. Codman, however, transferred only the upper end of

the fibula and the patient maintains good weight bearing and locomotion conditions. It seems probable that if double transference had been done, as in the case above reported, the hypertrophy of the fibula segment would have been more rapid.

The foregoing cases, as far as has been ascertained, are the only ones that have been carried out upon this plan. It is to be hoped that others will report results of similar efforts.

Without personal experience, there comes to me the suggestion that bone transference, as herein described, would probably be available in the treatment of certain cases of long standing pseudarthrosis following tibial fracture, associated as is usual with eburnation of ends of fragments.

A CASE OF COMBINED TYPHOID AND MALARIAL INJECTION.

By H. SPIRO, M. D., San Francisco.

Mr. Smith, age 30, residence San Francisco. Complaint—Chills, sweats, fever. Family history negative. Past history, never sick, with the exception of several attacks of chills and fever in past three years.

He contracted the malaria while working in the swampy districts of Louisiana. He had taken several courses of quinin with good results, but after a time the quinin lost its effect on him, and seemed to make him worse, so in later attacks he has not used quinin. His habits are moderate, he denies all venereal diseases.

Present Illness:—Four weeks ago left Louisiana for this city; since leaving the south he has not felt right, although his appetite has been good and his bowels regular, still he felt listless and had repeatedly attacks of chills, sweats and fever; as he was getting weaker all the time, he finally sent for me.

I found the patient well developed, well nourished, intellect slightly dulled, reflexes normal, skin clear, spleen easily palpable, enlarged two finger breadths below the margin of the ribs, pulse 84, markedly dicrotic, temperature by mouth, 105, tongue slightly coated, otherwise findings were negative. The patient complained of pains in head and legs and begged me not to give him quinin. I diagnosed the case as malaria and ordered a calomel purge, also 20 grains of quinin every six hours; the next day temperature was 101. He had a drenching sweat the night previous, his bowels had moved several times and he felt better. I now ordered quinin 5 grains T. I. D., also Donovan's solution, 5 gtts. T. I. D. I did not see the patient for four days; in the meantime he had no sweats nor chills, but was constipated and had severe headaches, his temperature was 103½, a distinct papular, pale red rash was scattered over chest and abdomen, his urine showed a positive diazo reaction; the Board of Health report on the blood was Widal positive; the diagnosis was now changed to that of typhoid fever, with the possibility of malaria also being present. He was removed to the St. Winifred Hospital.

The temperature curve showed the case to be in the fourth week of the fever. No more quinin was given, as the temperature gradually dropped he had several mild sweats but never any chills. At the end of the second week in the hospital, as the temperature, seemed to be a little out of the ordinary the blood was examined and the Tertian malarial parasite found.

VACCINES.*

By PAULINE NUSBAUMER, M. D., Oakland.

This résumé is in part an answer to many inquiries made to Dr. Archibald and myself concerning the nature of the cases for which we have made vaccines and the results obtained.

To date we have made 95 vaccines; upon 39 of these it is too early to report; upon 14 we have no data—in several cases patients never returned, in some they died before the vaccine could be administered, etc.

This leaves 52 cases to be considered.

Organisms from which vaccines were made include B. Coli. Comunis, B. Typhosus, B. Pyocyaneus, Micro Strepto- and Staphylococcus and Gonococcus, either in pure or mixed cultures. In some of the sputum cases there were organisms not identified.

Case I. Coli infection—cystitis; much tenesmus in patient 72 years of age. After second injection, tenesmus relieved and marked improvement. A similar attack some time previous lasted much longer.

Case II. Pyelitis with colon infection, severe headaches and other symptoms, all of which promptly disappeared.

Case III. Patient 85 years of age; long standing nephritis and cystitis. Great alleviation of symptoms and pain after first injection; seven injections were given, covering period of two months. Patient died at 86 years of age.

Case IV. Cystitis, colon infection, requiring lavage several times a day with usual medication to make patient comfortable. Improvement immediate. After first injection, lavage unnecessary. Recovery.

Case V. Chronic cystitis. Colon infection yielded to none of the usual medicament; all symptoms relieved by vaccine, but it took a long time to clean up pus and colon bacilli.

Case VI. This case is unusually interesting. Man about 30 years of age; occupation demands that he be on his feet constantly. Some eighteen months ago he had an attack simulating appendicitis, and never quite well again. Later on had another attack, after which he had pain in back and right hypochondrum, frequent urination especially during the night, interfering greatly with his rest. Urine loaded with pus and gave a pure culture of B. Coli Com. Improvement after first injection of Colon Vaccine. Soon after returned to his work and reports himself well. He had about 12-16 injections.

Case VII. Perinephritic abscess, pus in urine, Case of long standing; by that I mean there was pus in urine long before abscess was found. Just what was found at operation I am not prepared to say, but after second operation wound did not heal well; culture from both wound and urine showed B. Coli. Improvement in this case was slow, but continued, and at last accounts I understand the patient reports himself well.

* Read before the Alameda County Medical Society.

Case VIII. Girl about 7-8 years of age. Pyelitis with colon infection of long standing, at one time desperately ill; finally, however, yielding to usual medicament; pus continuing in the urine and loss of control of urinary sphincter led to making a vaccine. No improvement, unless it be in the general health of the child.

Case IX. Chronic cystitis of long standing with colon infection. Symptoms yielded promptly to vaccine therapy, but as in Case V it took a long time to clean up the urine. Toward the last, injections were given one in two weeks. We have not heard from the case in months.

Cases of staphylococcus infections include furunculosis 2, endocarditis 1, infection of frontal sinus 3, wounds not healing well 7, acute infection 2, middle ear trouble 1, and a number complicating pulmonary tuberculosis.

First case of furunculosis was of some three months' standing. The physician in the case dismissed my inquiry with "Oh! that got well promptly."

On the second case we have but little data other than that the patient was doing splendidly.

The endocarditis case was a desperate one from the beginning, being complicated by the blood culturing being refused until too late, if that were possible. However, decrease of symptoms was so marked after each infection, that the patient was eager for the next one. In all, some 12 injections were given before the death of patient.

Of the three cases of infection of the frontal sinus, one, a man of some 50 years of age, had this trouble since boyhood, the discharge being so profuse that the handkerchief was needed every half hour; culture from discharge showed staphylococci. He began to improve after first injection, and now after some 16 reports himself well.

The second case was also a chronic one, accompanied by nasal discharge and constant severe headache. A nasal operation relieved the headache, but the discharge continued. Culture showed staphylococci. First injection of vaccine changed character of discharge and considerable improvement was noticed. The case coming to a standstill, another culture was made, this time giving both strepto. and staphy. Now, after about 12 injections in all, the discharge has ceased almost entirely.

The third case of infection of frontal sinus has had two vaccines made, but with negative results.

Case I of wounds not healing—a child supposed to be tubercular, this is of long standing—there were many wounds absolutely refusing to heal. The child was anaemic and bedridden. Swab gave staphylococci; a vaccine from same produced improvement after first few injections. And now, after some 12-16 injections, the child is up and around the ward, all wounds healed, good appetite, and as the nurses say, "Getting mischievous."

Case II. Man about 30. Sinus following operation; absolutely no benefit; patient gradually failing at last report. This was a T. B. case with staph albus and aureus.

Case III. Man shot in knee last November; wound infected. Three amputations followed by an operation to give better drainage when wound finally seemed to be healing. Patient was then sent away to convalesce, but the wound broke down again. The surgeon here had to operate to secure drainage; discharged, examined, and vaccine made. Patient has received some 10 injections, and with usual surgical care has made a complete recovery.

Of the phthysical cases complicated with staphylococcus we can report on only 11. Of these 7 are markedly improved, 2 some improvement, 1 slightly, and 1 not at all. In one of the 7 cases a young girl, the cough was greatly diminished after first injection and the amount of sputum much lessened.

Of the 5 acute cases 1 has done well, 2 improved, 1 has gotten worse.

The case of middle ear trouble made a rapid recovery, receiving only two injections.

The third patient, also chronic, had two vaccines made with negative results. He had the benefit of drainage as well.

Of the three pyocyaneus cases we have data on two only. One a diabetes patient with an infected arm, which refused to heal with the usual surgical care, improved with the vaccine.

Another infected arm, following an accident, made a splendid recovery. One, if not both of these cases, received the Bier treatment in connection with the vaccine.

A streptococci infection complicating pulmonary tuberculosis showed a marked improvement.

Another case of streptococci infection was in an arm of a patient who three months before had had empyema. This infection was extensive, but responded promptly to the Bier treatment and vaccine.

An infected hand did well; here drainage and vaccine only were used.

An infected finger in a syphilitic patient yielded to streptococci vaccine. Of course, these cases all received the usual surgical care, but the recovery was prompt; in some, if not all the cases, the surgeons felt that the vaccines played a large part in the good results obtained.

A case of infected hematoma in gluteal region gave a pure culture of streptococci. The case being a desperate one, antistreptococci serum was administered while vaccine was being prepared; the vaccine brought temperature down each time it was given, and unquestionably was a prominent factor in aiding recovery. A second culture showed staphylococci also, from which a second vaccine was made. The wound is still not closed, owing to the fact that it is healing by granulation. The destruction of tissue in this case was tremendous; there is an endocarditis as a sequelae. This case, like the others, received all surgical care.

All of our cultures of gonococci were contaminated with staphylococci.

In two of the chronic stubborn variety some improvement was noticed, but it is a question whether it was due to the vaccine or local treatment. One case has not improved at all, though it has hardly

had a fair trial since the vaccine was given irregularly.

One case of gonorrheal rheumatism has done well, as has a case where the specimen for culture was obtained from wound following prostatectomy. This culture contained gonococci.

An acute case of gonorrhoeal rheumatism has also done well. So far we have only made one vaccine for the acute condition.

CRITICAL REVIEW.

Momburg's Method of Producing Ischemia of the Lower Limbs and Pelvis.

Hemostasis, by compression of the aorta, has long been known to accoucheurs, and ancient works on military surgery contain illustrations of the garotte with an abdominal pad. To Momburg, however (June, 1908), is due the credit of having simplified and made apparently safe a plan of rendering bloodless the lower half of the body, especially in view of operations on or near the hip joint and rectum.

The technic of Momburg's procedure is as follows: a rubber tube, two meters in length, and about one cm. in diameter, is wound around the body just below the costal arch. The femoral pulse should be tested at each turn of the belt, and just as this pulse disappears the ends of the tube are tied and held securely by means of a clamp. Habitually two turns will suffice to shut off the circulation in the femorals; additional turns may sometimes be required. Ischemia of the pelvis is obtained as follows: Esmarch bandages are first placed on the lower limbs, winding upwards from the toes; then the Momburg tube is applied and the Esmarch bandages are removed and the limbs lowered, thus causing the blood to flow from the pelvis into the limbs where it is retained by the reapplication of the Esmarch bandages placed high on the thighs. Under these circumstances the pelvis is practically exsanguinated. In normal individuals the application of the rubber tube for five or even ten minutes produces no discomfort.

August, 1909, Momburg found 34 reported instances of the use of his procedure; to these the reviewer can add ten additional cases (Wilhelms, Verhoogen, Riche, Faure, Lambotte), making a total of 44 cases up to September 15th, 1909. These cases comprise a variety of interventions—hip disarticulations and resections, thigh amputations, Kraske's operations, hysterectomies, etc. The average duration of the constriction was 32 minutes, the shortest 5 minutes, the longest 2 hours and 30 minutes. None of the patients complained of the constriction; some referred to the pinching of the skin of the abdominal wall.

Whilst the hemostasis was extremely satisfactory in all of the reported cases, it was absolute only at the beginning of the operation; within 10 minutes after the application of the rubber cord, some oozing and occasionally a small bleeding artery was seen, either anteriorly or in the gluteal region. This paradoxical hemorrhage is probably due to the collateral circulation through the mammary epigastric under the rectus and the iliolumbar, iliac-circonflex bordering the psoas muscle.

The study of the 44 known cases of Momburg's procedure brings out some very interesting observations, especially in relation to the evidence of compression of the abdominal aorta. All operators observed some transient circulatory disturbance at the time of applying the constriction. At first, the radical pulse becomes small, frequent (90 to 110) and sometimes irregular; after two or three mintues it almost always increases in tension and becomes regular. Upon removing the rubber tube the pulse again becomes irregular, more frequent and sometimes dicrotic. Within one minute or two, however, all is again normal.[1]

The use of Momburg's hemostasis has never caused any motor, sensory, intestinal or urinary disturbances.[2] Unfortunately, the same can not be said in regard to the cardio-vascular system. In one case of Wilhelms, blood-stained expectoration was noticed, recalling a similar condition found in violent abdominal and thoracic compression (Perthes) and also in litgation of the thoracic aorta (Guinard, 1909, Katzenstein, 1905, Offergeld, 1907). Rimann and Wolff, assistants in Trendelenburg's clinic, recently reported two cases in which Momburg's procedure was the cause of exceedingly grave complications. In the first case, a Kraske's operation in an arterio sclerotic patient of 70 years, evidence of collapse appeared within a minute and a half after the application of the rubber tube, the pulse being imperceptible 3 minutes later. Pulsations returned, however, upon removing the band and the operation was completed without further trouble. In the second case, a patient free from cardiac lesions, application of the rubber tube was almost immediately followed by a fall in blood pressure (115 to 85); 2 minutes later the Riva-Rocci apparatus marked zero. Upon removing the tube the pressure rose to 80 and finally to 100 at the completion of the operation. In this instance, the patient remained three weeks in a serious condition of collapse, recovering with indisputable evidence of mitral insufficiency which could only be attributed to the use of Momburg's method of hemostasis.

The pathogenesis of the foregoing cardio-vascular complications has been considerably elucidated by experimentation. Hasenfeld and Romberg, in a series of experimental ligations of the aorta and vena cava, demonstrated the increase in blood pressure and the consequent faulty coronary circulation and even the possibility of paralysis of the heart. Rimann and Wolff, working on cadavers, showed that the Momburg tube compresses, at a point between the third and fourth lumbar vertebra, the aorta, the inferior vena cava, the inferior mesenteric artery and incompletely the inferior mesenteric vein, and the superior mesenteric artery and vein. Experiments with Momburg's tube on rabbits showed a sudden, variable increase in blood pressure, the maximum being obatined in about 25 seconds, the normal 6 or 7 minutes after the removal of the tube. Repeating the foregoing experiments on laparotomized rabbits, Rimann and Wolff found that compression of the aorta and inferior cava alone for a period of two minutes did not cause an increase in blood pressure, whereas if in addition to compressing these two vessels compression was made on the superior mesenteric artery and vein the marked blood-pressure phenomena noted in the previous experiments invariably occurred.

It would seem in conclusion that both clinical and experimental experience demand that the condition of the heart and blood vessels be most carefully scrutinized prior to resorting to Momburg's procedure. With this caution, there is sufficient reason for giving the procedure in question a more extensive trial. Its practical value in surgery and gynecology can only be determined by numerous additional observations at the hands of competent men. D. T.

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1 In view of avoiding circulatory disturbances Momburg advises elevating the lower limbs at the time of removing the rubber cord or gradually loosening the cord after having placed the Esmarch bandages on the lower limbs and loosening these slowly.

2 There is apparently no relation between the urinary and rectal complications and the mode of hemostasis resorted to in Pagenstacher's case (Archiv. f. klin. Chir., Aug. 1909).

MIXED INFECTIONS IN PULMONARY TUBERCULOSIS; THEIR VACCINE THERAPY.

By G. MARTYN, M. D., Los Angeles.

There never was a period when we could see so minutely into disease as we can now, and as time advances our vision will become more penetrating. One great fact is apparent to all clinical teachers, viz., the seriousness of a mixed infection, and in no domain of medicine is this more apparent than in pulmonary T. B.

Gorgo gives his opinion that cases of true mixed infection are those from the sputum of which a pure culture of T. B. cannot be attained; that is to say, the various organisms are inseparably associated. He regards those cases having various organisms in the sputum but from which true T. B. cultures can be obtained, as not true mixed infection, but rather incidental from bacteria in the air passages or from parts of lung not tubercular.

A case whilst in the early deposit stage of tuberculosis has few terrors, the lung shows little or no tendency to break down, but graft on to the initial infection one of streptococci and at once serious clinical symptoms supervene, high temperature and an evidence of breaking down lung tissue. I have confirmed Budder's experiment and found that cavity formation does not take place in a guinea pig's lung without it be inoculated with streptococci secondarily. It is a well-known fact that man and monkey are the only animals showing cavity formation in tuberculosis, the other animals showing a marked freedom from secondary infection, witness caseous rather than suppurative tuberculous foci in the cow.

Medicine to-day is an applied science, and through successful application of this science, has given us within the last few years a knowledge of the method by which invading bacteria affect the host and has developed principles of wide application in their treatment.

The process followed by nature in the cure of an infectious disease stands now to some extent revealed. It has been held that the study of clinical tuberculosis is essentially a study of the mixed infections, that in itself the T. B. is incapable of causing the symptom-complex of tuberculosis as we know it, and that cavity formation in particular is due to the action of the secondary infection.

In all cases of mixed infection the symptoms of toxæmia are very noticeable, especially if there is streptococci infection.

The periphery of a tuberculous area is, practically speaking, embryonal fibrous tissue. The function of these cells is to wall off the diseased area. Where there is a break in this wall of defensive tissue, the decomposition products and toxins gain entrance to the general blood current. Cornet found streptococci as far advanced in peripheral area of disease as T. B., and Ortner even further than T. B. in healthy tissue.

The flora of cavities consist of many variations of bacteria, pathogenic and saprophytic; of the pathogenic forms the different strains of streptococci are most important, and in my experience the presence of these organisms is of serious prognostic import; as a rule they are accompanied by high variations in temperature and rapidly breaking down lung. In two cases under my care quite lately in rapidly spreading miliary tuberculosis of the lung with massive involvement on both sides, this organism was found in the blood as well as in the sputum, cultures from the blood and from the sputum giving practically pure cultures, and I believe that all cases of miliary T. B. are accompanied by secondary infection. Kossel and Cornet have demonstrated them in miliary tubercles widely separated from the original forms, apparently showing that they entered the blood at the same time as the T. B., their progressively fatal course being due to this fact. One of these cases is interesting from the fact that this patient presented a clinical picture of uncomplicated T. B. on the right side. May, 1908, she had an attack of erysipelas of the face, starting from carious teeth. She recovered from this, but three weeks afterwards her temperature began to show great variations, varying from 100 to 103, with night sweats and chills; the sputum increased rapidly to a fatal termination. Streptococci are essentially organisms of decomposition, their soluble toxins producing the hectic symptoms.

Pneumococcus. This is a frequent secondary infection, far more dangerous in childhood than in adult life when complicating T. B. It is not of serious prognostic value in adults if present in small numbers. Cases complicated with pneumococci display a great tendency to develop pneumonic areas of consolidation very suddenly, with a high temperature and great discomfort. The clearest examples of this tendency I have seen in a case I have in care now; both apices are affected; his sputum generally contains a few pneumococci and T. B. in small numbers. He has improved under tuberculin immensely, but every now and again, generally through indiscretion, he gets a chill, and within forty-eight hours pneumococci increase at an enormous rate in his sputum, an area of consolidation appears of varying size, sometimes in one lung, sometimes in both. Evidence of this and inflammatory change remains for some weeks, and then he recovers his normal condition, clinical evidence of consolidation disappearing. One practical point apart from specific treatment, bearing this in mind, is to guard patients you know have this secondary infection very closely from sudden changes of heat and cold affecting profoundly as these do the vasomotor centers. It is interesting in connection with this organism to consider its frequency in pleurisy and empyema complicating T. B. The organisms most commonly setting up these conditions are streptococcus, the pneumococcus and the T. B. Other organisms, such as staphylococcus, are quite rare. The relative frequency of these organisms differs very materially in children and adults. Sir Watson Cheyne's statistics show sixty per cent due to this complication in childhood and only twenty-five per cent in adults; indeed, empyema after T. B. pleurisy is four and five times as frequent in chil-

dren as in older patients. This seems to point to the fact that children's power of resistance is very low to pneumococcus, and indeed its frequent invasion of other parts of the body in childhood would seem to point to the same reasoning—witness peritonitis.

Staphylococci are frequently present, but seem to have little pathogenic significance, almost always of the albus type; they vary greatly in their morphology and bio-clinical reactions.

Micrococcus Catarrhalis — a large diplococcus. This in my experience is the commonest secondary infection and one productive of profound changes and clinical symptoms. Forty-three per cent of my records in mixed infection in T. B. are due to it, and this frequency is not to be wondered at when we consider that its habitat in health is the mucous membrane of the throat, and that it flourishes there, ever waiting if from any cause the body's material power of resistance be lowered, to become pathogenic. Ninety per cent of so-called influenza attacks are due to it, and the common cold is a result of its invasion more frequently than not. The toxins excreted by it are extremely virulent and soluble in the blood. I had the most convincing proof of this in my own person, having in error injected myself with an overdose during a cold; it produced the most profound collapse and my cardiac center remained irritable for a considerable time. Cases of secondary infection due to it have some special points of interest; the temperature ranges higher than with other organisms, a temperature of 103 being quite common. The sputum has a tendency to become very purulent and free, and on improvement it rapidly becomes mucoid. Chills and night sweats are frequent during the course of an attack. A typical case, well known to some present, showed all these points. When I first saw her the temperature was very high, around 103-104, profuse purulent expectoration, constant cough, great emaciation, both lungs heavily involved with large cavity in right; the micrococcus was the secondary organism, to which her opsonic index showed least resistance, and under vaccine treatment her temperature was reduced to around 99 within six weeks. Tuberculin was then commenced, and to-day she enjoys some measure of health and is able to enjoy many pleasures in life. The case was exceptional in the readiness it yielded to specific treatment.

Bacilli are of rare occurrence as a secondary infection.

B. Pyocyaneus. I have seen three cases in which this organism was a secondary and serious complication to T. B. Its presence is prognostically serious, its vitality being great, and the toxin produced by it is extremely toxic and soluble and so powerful. Two of these cases improved after a long tedious treatment, the third displayed no resistance (nor could I produce any artificial resistance) and became progressively worse.

Other more rare infections which I have only time to name, are B. Influenza, B. Diphtheria, Pneumobacillus and the large group of saprophytic organisms distinguished by their large size and tendency to foetor. I have seen one typical case of the latter. The patient was a pig and cattle herder. Expectoration was profuse, the foetor being so marked that it hung to room and clothes. This case grew rapidly worse. Whether his occupation had any connection with the infection I am unable to say, but it is a fact that a majority of his pigs in Imperial Valley were dying of an ulcerative condition of ears and head.

You will naturally inquire as to means of differential diagnosis in cases where many of these secondary organisms occur in the same sputum. I am an ardent follower of Sir Abmroth Wright and his teaching. In my own hands the results have been eminently satisfactory and it has certainly given me a certainty in work I never felt before. I use the opsonic index entirely as a means of differential diagnosis, and my clinical results attest its value.

Sir A. Wright, in sending me his book "Studies on Immunization," just published, lays stress on the important significance of mixed infections in almost every field of infection and the immense help vaccine therapy has been. His results are the latest word, and in speaking of tuberculosis he says:

"Be it acceptable or unacceptable, there is no escape from the fact that practically every case of suppurating lupus is complicated by staphylococcus infection, and that the majority of aggravated cases of lupus are complicated by a streptococcus infection.

"What holds true of lupus holds true of the majority of tubercular sinuses."

Probuschky insists that in all cases of mixed infection the best results will be obtained from treating the secondary infection first before dealing with the T. B., and I think too much stress cannot be laid on this. Every day it is becoming easier to use exact laboratory methods, so do we get nearer to nature's own working.

No practice can be more superficial than the effort to lower temperature by drugs; nay, rather is it not becoming clear that high temperature is nature's protection against the activity of bacterial life. Pyexia is, indeed, a normal reaction to toxic invasion, and a rise of temperature is as proper to certain diseases as a normal temperature is to health.

I would that I could go more fully into treatment, but time presses.

Shortly I use vaccine therapy almost wholly, growing the various organisms from blood and sputum in our own laboratory, and making homologous vaccines for each and every case. As a guide to dosage I mainly use the Index, but in some cases clinical symptoms are sufficient after initial finding. It may be of interest to you to know that work on precisely the same lines is being carried on at King Edward VII's Sanatorium, England, and in a letter I have just received from Dr. Bardswell, he speaks of the encouraging results they have had. At present it is the best and most scientific guide we have. In a field of such unusual difficulty as the pulmonary infections, even if one can only give some relief and comfort, that is something to have attained—at all events, the old feeling of impotence to aid is gone and in its place Hope shines.

SOCIETY REPORTS

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, January 26, 1909.

On the Injection of a Paste Containing Bismuth Sub-nitrate for the Cure of Tuberculous Sinuses and Cavities.

By SAMUEL J. HUNKIN, M. D., San Francisco.

Last February my attention was called in a private letter to an experiment of Beck of Chicago, who in an attempt to picture the ramifications of sinuses around an old tuberculosis joint, injected a paste of bismuth and vaseline and found to his surprise that the sinus closed on the filling. Some two weeks later Ridlon and Blanchard tried a series of experiments with the paste at the Home for Destitute Crippled Children and soon found that the experiments of Dr. Beck, while succeeding accidentally, was not an accidental success. Full details of experiments of Drs. Ridlon and Blanchard can be found in the American Orthopedic Journal for August. Two formulas have been used, the original one, known as No. I, consisting of bismuth sub-nit. one part and vaseline two parts, and used now only to determine the extent and capacity of the sinuses and cavities by a radiogram and paste No. II, with a formula of:

Bismuth Sub-nitrate	6 parts.
White Wax	1 part.
Soft Parrafin	1 part.
Vaseline	12 parts.

Each paste is mixed while boiling, solidifies upon cooling and is to be warmed when required. We have found that after it is heated several times, it separates or becomes granular, so it is convenient to heat for each seance only the required amount. It was the idea of Dr. Beck that some if not all of the success of the method was due to the radio-activity of the bismuth after exposure to the X-rays.

In the early part of March we began trying the paste in selected cases, and my first success was in an old osteomyelitis sinus, which after discharging for five years was closed by one injection. A similar experience has been since obtained in two other sinuses from old osteomyelitis. We did not have so decided a success in four tuberculous sinuses although in each instance the discharge was definitely lessened. I was at this time very careful of the kind of cases I tried it in and was timid about the force of injection. Upon the publication of the paper mentioned earlier, we began to use it more liberally, with more precision and in a class of cases which in the months before we had not thought of. Up to the present we have used it in eighteen cases with the following results. In all the discharge has at once markedly lessened; in the large majority practically disappeared. Temperature when present, has at once almost, if not entirely, remained normal, and this in cases where there had been a temperature ranging from 38° to 40°. In three instances of old osteomyelitis sinuses healing was prompt after one injection. We have had two healings in tuberculous cases after three and five injections, and in several others, one or more sinuses have closed, although others remain with slight discharge. All of the cases except one have made a marked gain in appetite, color and weight. In one case an amyloid liver which reached down into the pelvis has now diminished until its lower border is two finger breadths above the umbilicus. We have injected it in cases where ʒi filled the cavity and have pressed in ʒviii before the proper tension was felt. Points learned with reference to the technic of the paste injections: 1st, white wax and soft parraffin are apparently not definite in character and consequently make a paste which varies in consistency and in solidifying point, the variation generally being a paste too soft and not getting hard enough at body temperature and consequently having a tendency to exude from the sinus. To remedy this at times we have had to increase the wax and diminish the vaseline. 2nd, it is advisable to use a blunt nosed syringe and inject steadily until some tension is felt. When other sinuses co-exist and communicate it is wise to watch the other openings until the paste appears and then plug them with a piece of gauze and continue the pressure until the desired tension is obtained so that all interstices are filled. Then remove syringe and clap a pad over sinus and then apply bandage, not attempting to clean away the reflex. 3rd, at second or any subsequent dressing if wound appears closed, it is wise to tease open the thin film covering and see that nothing is pent up under pressure. We had a small abscess once in the scar by neglecting this. 4th, it may be safely used with these precautions when the sinuses are multiple, secondarily infected and giving a septic temperature. 5th, it is of value in the desperate cases even when the patient has amyloid degeneration by lessening number of dressings, preventing pain and controlling discharge and increasing appetite. 6th, it is of as much use in other sinuses as in those from tuberculous joints and judging from our experience is especially well adapted to sinuses in osteomyelitis.

We do not use the X-ray after the paste injection having at present no faith in the theory of Dr. Beck that the result is due to the radio-activity of the bismuth, after the absorption of X-rays. We admit however, that we have no evidence to combat the theory, save that our cases are doing well. So great proportion of our cases, however, have not healed in so short a time as in the list of Ridlon and Blanchard, but most of our cases were pretty bad and riddled with sinuses. We have substituted zinc oxide for the bismuth and find it has about the same appearance and apparently has a similar value. We believe its value is mechanical, supporting, filling and closing the spaces.

In this connection it may be of interest to call your attention to some work done by Dr. Sherman of this city some fifteen years ago when I had the honor of working with and under him. He devised a plan of filling the osteo-poratic tuberculous bone, the diseased joints, and the surrounding tissues with a paste or emulsion, having iodoform as the ingredient instead of bismuth, practically the chief differ-

ence being that no attempt was made at that time to get a material which was solid at the body temperature. I shall be interested to find now if prepared with the wax and paraffin if it will not subserve so useful a purpose.

To show the character of the cases treated would like to call attention to the following:

M. K.—Girl about six years old. Bad hip riddled with sinuses, septic, bad odor, abundant discharge, outlook bad. For six months has been running high temperature, average daily 38.4°, although on numerous occasions she has had temperature of over 40°. Injected first early part of November. Since that time once only has her temperature gone over 37.3°. Discharge has practically stopped, odor has disappeared. She has no pain. Appetite has increased and she has gained four pounds. All her sinuses are still open but only a few drops of serum exude and she is dressed only when we want to re-inject.

H. E.—Boy about ten years. Four sinuses around hip with profuse discharge. Amyloid liver reaching into pelvis, has been running a moderate temperature for over a year 37.5° to 38.3°. Has been having injections since early part of November. Has had no temperature rise since first injection—discharge at once practically stopped—certainly no less than 5% of what it was before. He developed a ravenous appetite, has good color and has gained two pounds.

I. D.—Girl ten years of age. Spinal case with large psoas abscess with profuse discharge, soaking pads every day. Child in good condition and running no temperature. Injected Dec. 1st. It took ʒviii of paste before proper tension was secured. Discharge practically abolished. Dressing only when bi weekly injection is made and then a few drops of sero purulent fluid with some paste reflux is found on the pad.

In office and clinic work the cases are of course not so bad but the results are similar. I think a remedy has been found which will shorten the convalescence of patients with diseases of bones and joints and I think the many children who run a profuse discharge and develop amyloid degenerations will be rare in the years to come.

DISCUSSION.

Dr King (Marine Hospital): I have one or two cases of interest under my care at the present time. One is a case of tuberculous wrist. At the time I took charge of the ward he was receiving every week one injection of bismuth paste in vaseline, softened by heat at the time of injection. It did not harden much when it became cold and prior to the next injection it was as much as possible squeezed out, and fresh applied. I could see no results from it after a time, so switched the treatment to some other preparations and finally to injections of iodin and glycerin. The case now has no marked suppuration, there being a slight serous discharge. The next point is that a few days ago the patient called my attention to a fresh sinus breaking out on the back of his hand and with a little pressure the patient pressed out quite a little quantity of bismuth paste which had been in there for some months, acting as a foreign body and sloughing out. The sinus has since healed. In this case we did not get the pressure of which Dr. Hunkin spoke. Another thing in regard to the use of bismuth in large quantities is the danger of poisoning. I have always considered bismuth as perfectly innocuous but I have seen reported a case in which the large colon was injected with a large quantity of bismuth for X-ray pictures and acute poisoning followed.

Dr. Harold Brunn: I wish to ask if Dr. Hunkin has observed bismuth poisoning in any of his cases as a result of the injection of large quantities of this substance. Bismuth subnitrate I know may show toxic effects when applied to raw surfaces. I recall a case seen six years ago, a woman with at least half the body burned on whom a bismuth and castor oil paste was used, she developed symptoms of bismuth poisoning, one of its characteristics being a distinct blueish line on the gums similar to lead poisoning. Cases of poisoning have been reported also by the use of bismuth subnitrate in X-ray work when large doses of an emulsion are given to outline the stomach or the large bowels. It seems that in these latter cases, especially injections into the bowels, poisoning is apt to occur.

Dr. Hunkin: In using these injections I have found it necessary to make a certain amount of tension in the sinuses so that all spaces leading from them shall be completely filled. Where there is a multiplicity of sinuses as there so often is, especially around the hip, if the fluid paste is allowed to run freely out of one sinus as it goes in another, no tension is produced and many spaces must remain free from the paste and often trouble results. So we watch the openings of the sinuses not being injected and as soon as the material shows we plug up that opening with a piece of cotton, repeating the process until all sinuses and spaces are full. When this is accomplished we get a definite feeling of tension in the syringe. We then wait, holding each opening plugged until the paste has solidified, some two or three minutes. It remains cold. When we re-inject these sinuses we do not try to press out any of the old material, in fact it is our endeavor to keep it in there. We re-inject the patients every four or five days and just inject enough until we feel the tension again. Once in a while one of the plugs will shoot out of a sinus on account of the tension while re-injecting, but we look upon it as an accident. What becomes of the bismuth paste I do not know. It probably remains as a supporting body and nature will take it up and carry it away. It is very much like putting in a silver suture or a nail into the bone. It does not matter to me what becomes of it so long as it heals up and stays in and does not have to be opened and taken out again. I do not think that it does anything beyond mechanically supporting the tissue. I do not think that tuberculous granulomatous tissue possesses much power for absorption. In quite a number of cases we have found that it has been necessary to add a little more wax than the formula calls for as the paste is a little too soft.

Plaster Models and Their Value in Clinical Pathology.

Dr. A. W. Lee, San Francisco, exhibited some plaster models of different forms of skin diseases, which he had made and colored. He urged the advantage of the more general use of such a method of preserving and recording the exact condition of skin lesions at different periods in their course. In this country especially, there is a great lack of this kind of work, while in Europe and particularly in Germany the method is much used and the records thus preserved are of untold value in reporting former cases and for use by students. The technique for making the mould is not difficult. Plaster of Paris moistened to the proper consistency is spread upon a cloth, then inverted over the lesion and allowed to harden. When hard and dry the mould is varnished. The positive is then made by filling the mould with plaster and turning it out when hard. Dr. Lee states that even these uncolored moulds preserve in a remarkably clear way the anatomical characteristics of the lesions.

Ankylosis of Elbow Treated by Murphy's Transplantation Method.

Dr. Emmet Rixford: The case is one of ankylosis of the elbow operated upon by Murphy's scheme by

transplantation between the bones of a flap of fatty tissue. The patient is a young man about eighteen years of age who had an infective arthritis of the elbow which after discharging for a good while finally healed up and resulted in complete bony ankylosis. When the boy came to me it was three years after the infection and the X-ray showed an absolutely complete bony ankylosis. There was no movement possible and furthermore at the time of operation it was not possible for me, although I tried, to determine where the humerus left off and the ulna began; the radius was also adherent though the union between the radius and the humerus was not complete. There was a little film of cartilage in between. There was the least suggestion of rotation. The operation was performed through a posterior incision a little to the radial side. Section was made of the olecranon with a thin chisel, carving out the lower end of the humerus and taking away enough bone to leave room for a pad of tissue about ¼" thick without the tension of the structures leading from the arm to the forearm making great pressure on it. Then the olecranon was wired in place and the wire was left in. This operation was performed on the fourteenth of November, 1905, complete primary union resulted and the plaster splint was removed after ten days. Active and passive motion was kept up without particular pain. The result at the end of a year is shown by the accompanying photograph, there being two exposures on the same plate. I got this little scheme of taking the two exposures on the same plate from Stimson, but found that by fixing the humerus on the table a much more accurate estimate of the angle of mobility is obtained than when the arm is simply held at the side as in Stimson case the forearm moving in front of the body. The rotation is about two-thirds of the normal. I got a letter from the young man some three years after the operation and he said that this arm is as good as the other arm for all purposes for which he needs it and he is a blacksmith. There are various operations for ankylosis of joints which are legitimate. Resection is the classical operation and gives excellent range of flexion and extension but the power in extension is deficient so that the patient cannot raise his hand above his head. I had one man who had had both elbows resected for tuberculosis who earned his living driving a milk wagon. The operation of resection can be greatly improved by thinning down the lower end of the humerus and putting around it a flap of the anterior capsule of the joint. In this way you can even get a good deal more power of extension as a result of this resection of the elbow. A flap of soft parts laid on the end of a bone seems to prevent the bones growing. I think this operation of Murphy's is much more satisfactory in that it appears to give a much better arm.

Discussion.

Dr. F. Dudley Tait: I would like to ask why Dr. Rixford refers to the interposition of muscular or fatty tissue in a joint as Murphy's operation. This was written of extensively by the Germans five years before Murphy; and two and a half years later Nelaton reported his operative findings, giving full credit to the Germans. About five years ago I saw two of these cases and conversed with Nelaton about his results. Nelaton never got more than 35 to 40 degrees of improvement in his cases and this case which Dr. Rixford has presented shows about 90 degrees. It is an excellent result.

Dr. Raymond Russ: I have performed this operation on two ankylosed elbow joints, both tubercular. In my first case I found the bones so brittle that it was handled with great difficulty and my patient was not materially benefited by the operation. In my second case conditions were more favorable and I succeeded in improving considerably the function of the joint. I have examined quite a number of patients on whom this operation has been performed but have never seen such an excellent result as Dr. Rixford presents to us to-night.

PROCEEDINGS OF THE ALUMNI ASSOCIATION OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF CALIFORNIA, FEBRUARY 15, 1909.

Dr. L. S. Schmitt gave an interesting talk on the History of the Epidemic of Bubonic Plague in San Francisco with the presentation of excellent lantern slides.

Dr. Raymond Russ reported two cases simulating carcinoma of the stomach.

Report of a Case of Melanotic Sarcoma of the Toe.

By Douglass W. Montgomery, M. D., and H. M. Sherman, M. D. Demonstrated at the meeting of the Alumni of the Medical Department of the University of California, Feb. 15, 1909.

Dr. Montgomery's remarks: A woman, thirty-six years of age, consulted me December 2d, 1908, on account of a growth on the under surface of the third toe of the left foot, that she, because of its dark blue color, had considered a dilated vein. As a dark spot had existed there from childhood she had got used to its presence, but, nevertheless, during the past year it had decidedly enlarged, and finally she had determined to seek advice. This enlargement consisted in a superposition, that looked like an additional story on top of the original elevation.

The tumor was the size of a large pea, very prominent, lobulated, smooth and of a striking dark bluish color. It was soft, evidently incorporated in the skin, and freely movable on the subjacent tissues. There was no pain or other subjective symptoms. Near the tumor there was a speck in the skin, of the same color as the large tumor, and resembling a tattoo mark. This, the patient said, she first noticed about a year previously. The appearance of this satellite growth, for it was such, and the above noted increase in size of the original tumor, had occurred about coincidently. The affection was evidently a melanotic sarcoma, that had developed out of a naevus; its color, its rounded shape, its increase in size, its throwing out of a satellite, and its situation on the planter surface all agreed exactly with what is known of such growths. The left groin and the neighborhood of the left saphenous opening were carefully palpated, for enlarged lymphatic nodules, but none was found. The estimate of the nature of the tumor being made an immediate amputation of the toe was advised.

After amputation of the toe, Dr. Geo. D. Culver and Dr. H. E. Alderson studied the tumor from the point of view of its microscopical anatomy. It is a spindle celled melanotic sarcoma. Such tumors when occurring in the skin almost always develop from naevi, and this accords with the patient's statement that she had a dark spot in this situation from childhood. This fact together with their painlessness and the slowness of their development in their early stages, is full of fate for the patient, for long association deadens vigilance, and there is at first no pain to urge the necessity for action, so that the stealthy onset of these tumors is unnoticed or unheeded. An exception to this rule is melano-sarcoma of the choroid, for it early disturbs vision by interference with the delicate structures in the eyeball, causing blindness. These patients early seek advice, and prompt enucleation of the eyeball gives

a remarkably clean extirpation of the tumor, with a correspondingly good prognosis.

It has been proposed to group all the pigment bearing tumors whether sarcomas or epitheliomas into one class called the melanometa. Such a course has very little in its favor. The classification of tumors according to the fundamental tissue of which they are composed is more in accord with their natural history and tends to keep our ideas of them clear and sharp cut. Furthermore, although the formation of melanin is so strikingly a feature clinically, yet on narrowly examining such tumors it will be seen to be wholly subsidiary. In this tumor, for instance, and it is a good example of its class, only a very few of its cells are associated with the formation of melanin. Almost all the cells are colorless, having no coloring matter either in or around them. The metastatic growths, also, from such neoplasms are sometimes entirely white, and sometimes entirely black, and sometimes particolored, white and black. In the same organ one can find all three kinds of metastatic tumors, white, black and particolored. The fact is that the pigment in these cases is formed in the connective tissue cells that are called chromatophores. Chromatophores are connective tissue cells that lie just below the epithelial layers of the skin or retina, and have the property of elaborating black or brown pigment. They send out long processes from their cell body along which the pigment is carried. These pigment bearing processes then extend up between the basal epithelial cells, depositing the pigment in and between them.

The chromatophores in the skin lie well up in the upper layers of the corium and in the papillary layer, where they can most readily supply pigment to the epidermis. In accordance with this, we see in this tumor, most of the black cells in this situation, but in far greater abundance than normal. Curiously enough, however, although a superabundance of pigment is found in the tumor itself, no pigment is present in or between the epithelial cells lying over the tumor, where we would expect to see it in the natural course of its evolution. This absence of pigment in the epidermis may be due to the foot being covered, and as the stimulus of light is absent, no pigment is attracted into the epithelial cells; or it may be that although pigment is formed in abundance, it is not physicologically perfect, and therefore not fitted to finding its way to the epithelial cells. This last would be perfectly in accord with what we know of tumor cells; they divide and multiply with great rapidity, but physiologically they are incapable of performing their appointed work.

It is therefore found that in this tumor as in most melanotic sarcomas, the neoplasm springs from an organ in which chromatophores are normally present, and that these chromatophores participate in the growth of the tumor giving it a peculiarly striking appearance, but not really constituting the majority of its cells. As therefore the tumor is not formed either wholly or for the most part of chromatophores it is inexpedient to give it a name, such as melanoma or chromatophorma, that indicates that it is wholly or preponderately composed of chromatophores.

Dr. H. M. Sherman's remarks: In removing the tumor which Doctor Montgomery has described, the question arose as to how wide a removal of tissue was necessary—a priori the patient's expectation of non-recurrence or of no metastases would be the greater the more of the possibly implicated tissues were removed. Of course the whole toe should be removed, but should the foot be sacrificed? If this be answered in the affirmative, would one not have to decide the same as regards the leg or the thigh? Really an amputation planned to be at a higher point than the most traveled migrating cell, **must** be at the highest point at which an amputation can be done. As a hip joint amputation could not offer absolute immunity from secondary tumors the subject was never broached, nor was anything ever said about thigh, leg or foot amputations and for the same reasons. The toe was taken off and with it its metatarsal bone and a long narrow wedge of integument and soft tissues on the dorsal and plantar aspects. This was as far as I decided to go.

The removal of regional glands was considered and decided against. The regional glands in this instance were in the groin. If they were implicated, so must be all the tissues between the toe and the groin, and the removal of the glands would be unnecessary or useless. If they were not implicated there could be no point in removing them. I felt for them carefully and also examined the pelvis contents while the patient was anesthetized, but could detect no sign of glandular enlargement.

SAN FRANCISCO POLYCLINIC GATHERING.

Regular Meeting, June 9th, 1909.

A Case of Hodgkin's Disease.

By Dr. E. Schmoll, San Francisco.

The patient's age is 29. She entered the clinic two months ago with the following history: She had been a waitress in dance halls and had been drinking heavily. She denies any specific or gonococcus infection. About a year ago she had an attack of delirium tremens and when she came out of the attack she noticed that above the clavicle she had a gland that was enlarged. This is the place where the first glands are usually seen. This gland increased very rapidly in size and at the same time she began to feel the glands in her axilla. The principal growth has been on the neck and the glands have reached a tremendous size. When admitted to the hospital she was in very bad shape. She had involvement of the mediastinum. There was edema of the hands, more on the left side than on the right and she had considerable difficulty in breathing. She had stridor with respiration, the respiration increasing to 30 and 35. Physical examination found all the glands of the body swollen, principally those which you see at present and the glands under the axilla and the inguinal glands. The spleen was enlarged sufficiently so as to be just palpable. The blood examination showed rather strange conditions. There was not very much anaemia, the hemoglobin was 85 at the time of the blood count, there was a leucocytosis of 18,800 and a differential count which is different from the usual counts. In the majority of these cases we have a leukopenia between 4000 and 6000 with a relative lymphocytosis. In this case we had a leucocytosis amounting to 89% polynuclears and mononuclears amounting only to 10%. These cases belong to the type of lymphosarcoma,—the malignant form of Hodgkin's disease where the capsule of the gland has been broken through. The glands in the neck are adherent as well to the skin as to the underlying tissues and the glands can be palpated singly or found in the form of large packages. The patient improved at the beginning under treatment of injections of atoxyl and the mediastinal pressure evidently retroceded, the anaemia disappeared, the dyspnoea decreased and there was no further increase in the size of the glands. X-ray treatment was taken up but was not continued because of the difficulty in getting the patient to the place of X-ray treatment. The symptoms have increased, the pressure on the trachea has increased and the patient has been very miserable. Doctor Gibbons has written an extensive article, a valuable controbution to

our knowledge of this subject, and he has consented to demonstrate some slides this evening and to say a few words on the pathology of Hodgkin's disease.

DISCUSSION.

Doctor H. W. Gibbons, San Francisco: This case is most interesting to me particularly from the point of view of classification. Clinically the tumor of the neck presents some aspects of malignancy, that is: the apparent solidity of the mass and involvement of adjacent structures. Also histologically there are aspects of malignancy. Therefore is Hodgkin's disease malignant in its nature? Reed in 1903 in an extensive study of seven cases came to the conclusion that Hodgkin's disease is an inflammatory process producing lesions analagous to the granulomata. His work was seconded by Longcope and Simmons. In a pathological study of nine cases which I made about this time the conclusion was reached that Hodgkin's disease should be classed with malignant tumors. W. B. Coley from his clinical studies supports this view. Adami in his textbook admits of no grounds for classing this disease with tumors, and Longcope in his article in Osler's system adheres to the view that the disease is of an inflammatory nature. We have in Hodgkin's disease an affection principally of the lymph glands which may involve in other organs. The glands first show a proliferation of the lymph cells at the centers of the follicles. The anatomical structure of the gland is early lost and the resulting picture is one of a mass of large lymphocytes of the character of those found at the germinal centers. At the same time there is a proliferation of the endothelial cells which line the lymph follicles which lie along the trabecular and under the capsule. These endothelial cells produce large cells of epithelial character which may leave from one to ten or more nuclei. These constitute the giant cells first described by Virchow, and which Reid determined to be characteristic of Hodgkin's disease. She traced their development from the endothelial cells lining the sinuses. This picture constitutes the soft variety of Hodgkin's disease. The hard variety shows a picture quite different although it is only a stage of the same process produced principally by the development of fibrous tissue at the expense of the cellular elements. Sections prepared from a cervical gland removed from this case show a typical picture of Hodgkin's disease of the hard variety. The structure of the gland is entire destroyed, there is a marked proliferation of the endothelial cells with the formation of the characteristic giant cells, there are many eosinophiles and there is a marked increase in the connective tissue of the capsule, trabecular and reticular. In places the thickened capsule shows invasion with tissue of the same appearance as that of the interior of the gland. The lymphocytes are scarce. Mytotic figures may be seen in the endothelial cells, in the giant cells and connective tissue cells but none in the lymphocytes. No author to my knowledge has found them in the lymphocytes so that the process seems to be confined to the fixed tissue cells and not in the wandering cells as one would expect in an inflammatory condition. On the whole the histological picture at least is very suggestive of malignancy and I think in time it will be shown that Hodgkin's disease is related to the sarcomas perhaps through that little understood group of tumors, the endothelioma. Doctor Brunn has asked whether I find different types or different pictures from different parts of the same tumor or whether one is likely to find the same histological picture right through in different pieces from different parts. This is an important question. In an inflammatory disease advancing by progressively affecting different glands or organs, one would expect to find in the older lesions a fibrous type and in the newer lesions a more cellular type. Most authors describe this progression and believe the lesions in the internal organs to be growths arising from lymphoid tissue, previously existing in these organs, and not in the nature of true metastases. Ribert, however, believes them to be metastases caused by growth or transmission along the lymph channel. In the cases I have studied, the uniformity of the lesions from different parts of the body in the same case, was quite striking. A lymph gland will show a certain type and the metastases in the liver, spleen, lung will show the same type even in the small, apparently young, nodules. This is much the same in the glands from different parts of the body, and even the small glands at the periphery of mass of enlarged glands presents at a very early stage of its involvement a picture of similar type to that of the mass itself. As far as one tumor mass is concerned, one finds areas which are more cellular and areas where there is a great predominance of connective tissue but a general type prevails so that there is more difference than one sees in various parts of certain sarcoma.

Bullet Wound of Head.

Doctor Barrett, San Francisco: We had hoped to have had radiographs of this case to show you the error that can be made in the diagnosis. This patient is 35 years old, family history negative, about 3½ weeks ago had been attending some of the dance halls and while intoxicated was robbed of all his money and clothing. He became despondent and shot himself with a revolver. He brought it, he says, pretty close to his temple with the muzzle directed well forward. This must have been true for he was not at any time unconscious and was able to walk half a block, although he was bleeding considerably. Because of the loss of blood, slight pain, and his hysterical condition he cried out for help and the officers who found him sent an ambulance for him. He was taken to the Emergency Hospital and the wound probed; he was examined carefully, the history taken and two sutures put in the wound of entrance with a small drain. There was no wound of exit. He was then sent to one of the hospitals in the city where three radiographs were taken, and it was decided from the radiographs that the bullet was somewhere in the frontal lobe. The patient had experienced no pain except on the second day when there was a feeling as of a hard lump on the forehead and some tenderness upon pressure over it. There was a large hematoma extending well up on the scalp, in the center of which examination showed a harder area which was thought to be bone. After being in the hospital for some time and showing no symptoms except an alleged loss of vision in the right eye and discharge from the right ear the patient was transferred to the City and County Hospital. Doctor Callnow, our interne, made an incision under local anesthesia and extracted the bullet from the frontal bone where it was imbedded. It is presumed from the history which we read at the hospital where he had been that the presence of the hematoma or the focus being incorrect caused the error in the diagnosis because it certainly looked as if the bullet was behind the bone. The patient says his vision is worse in the morning and improves in the afternoon. We were unable to determine any definite disturbance of vision. The bullet had been thought by two or three who examined him to be a piece of bone rather than the bullet itself and even when cut down upon it was so flattened as to resemble bone.

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, June 29, 1909.

Reports of Two Cases of Head Injury Followed by Mental Disturbances.

By PHILIP KING BROWN, M. D., San Francisco.

The first case illustrates more pointedly the change in disposition in a man whose frontal lobe had an injury and secondly the influence upon this man of a moderate use of alcohol. The history was as follows:

Patient male, 42 years of age, engineer. Had had an injury to the head after which the wife noted mental disturbance. At the time of the injury in a train wreck eight years before the skull was fractured, both legs broken and the arm taken off. He was ill in the hospital nine months and delirious for four months. The injury was on the forehead over the left eye and discharged for four months. The wife states that there is a loss of memory, an incoherence of activities, amnesia, irritability, insomnia, nervousness, jerkings in sleep and loss of weight. Prior to the accident patient had always enjoyed good health. Patient complains of no headache although his wife says that he rubs the left side of his head sometimes. His mental condition had always been extremely good, patient never drank nor smoked prior to accident. Occasionally had taken whisky but without any effect whatever on the mental condition. While the patient was in the hospital after the injury and during delirium he broke out of the window and was only brought back with difficulty; it is not known what precipitated this special outbreak. The wife states that he has shown signs of forgetfulness to an increasing degree since he left the hospital. He would start to go down town but could not recall afterwards what he went for and where he was going and on going out of a building did not know which way to go home. He began to be less tidy in appearance, to swear, to drink and to show signs of increasing irritability, a single glass of beer would increase these symptoms so much that he would not know where he was for a day nor could he remember anything he did. He has been recently confined for three months in an asylum and while there has been violent at times. This followed an excess of alcohol. There never have been any convulsions. During the past eight years he has complained a good deal of insomnia. His eyes were examined by Doctor Redmond Payne who found nothing. Doctor Payne suggested that the frontal sinus had been infected, and he advised a radiogram which, however, showed nothing. The patient was operated upon by Doctor Walter B. Coffey and spicules of bone ½″ long, almost all around the scar, and projecting into the brain were removed. Ten days after the operation patient stated that his mind was more clear than at any time for years, that formerly where he had remembered nothing and would do things without remembering them afterwards he was now perfectly clear as to his actions. He stated that some change had occurred in his brain to make his life seem like starting anew.

Case No. 2—This case illustrates the uselessness of operation after lapse of too much time and onset of indications of permanent brain change (epilepsy). Patient, male, age 33. He complains of a dazed condition of his mind. Has had four generalized epileptic convulsions. Some eight years ago had an injury to the head since when he is indifferent to his work and has a happy go lucky air which he says is not normal to him. Is easily affected by alcohol and for that reason has not taken anything for years, although he has the appearance of one who drinks. Patient has always enjoyed good health up to the accident to his head; this occurred by being hit on the head by a flat car from which a 4x4 beam projected; at the time he says he was not badly hurt, but his wife noticed that his speech was wandering. One year ago patient had a severe general epileptiform seizure without warning. Since then he has had three or four others. Since the first seizure the mental condition has grown worse. Examination reveals a scar over his right forehead and evident depression of the outer plate of the skull. Tenderness over the left parietal region near arm center, twitching of thumb and index finger of right hand. There were no eye symptoms and no involvement of the cranial nerves, he has a silly smile and the manner of a man under the influence of alcohol, but what was striking was the serious desire of the patient for relief and the evident recognition of all his failings. Doctor Coffey performed the operation for relief of the probable depressed fracture over the frontal lobe. There was no relief and he became so foul in his talk and so profane that he had to be sent to the Detention Hospital. From there he was removed to the City and County Hospital where the motor area on the other side was trephined and a thickening on the dura removed by Doctor Terry. Surgically he made a good recovery but his mental condition grew worse and he became violent and a few weeks later he was sent to the Mendocino State Hospital where he was fed with a stomach tube as he refused food and medicine. Three months later he died without having improved.

Report of a Case of Fracture of the Sixth Spinal Vertebra, Treated by Suture of the Cord. Death on the Sixty-seventh Day.

By T. W. HUNTINGTON, M. D., San Francisco.

My interest has centered, during the past few weeks, on a case of fracture of the sixth spinal vertebra which came under my care April 24th, 1909.

The patient was a robust man, age forty-four, living in a remote part of the state. Family history and past history, negative. He had been actively engaged in business life and was an unusually strong man.

On April 24th, 1909, he was rolled beneath a wagon in such a way that his forehead struck the ground, his body being forced backward over his head. Fifteen minutes later, he was picked up by friends. He realized from the outset that the lower portion of his body was paralyzed. The local doctor found total paralysis of the body from a point two inches above the nipple line. The paralysis involved the anterior muscles of the arm and forearm, there being slight movement of the deltoid and posterior muscles of the forearm. The intercostals were paralyzed and respiration depended upon the diaphragm. Sense of heat and cold were absent throughout the affected area.

I saw him first on the 26th of April and verified the above observations. At this time, his muscles were uniformly flaccid, although the sphincters were not relaxed. There was inability to evacuate the bowels and bladder. Pupils were normal in size but entirely stationary. The head was freely movable in all directions by voluntary effort including rotation. Patient resented any effort at traction of the head upon the spine. The following reflexes were manifest at this time, the patellar, cremasteric and ankle clonus. A Babinsky was manifest bilaterally. The patient was placed upon a rubber water mattress and was left in charge of Dr. T. G. Russell, who preceded me to the case. The conditions remained stationary for one week, when he was brought to this city after a three day's journey, arriving on the 5th of May, 1909.

Upon his arrival, he was seen by Drs. Kerr, Newmark, Terry, Russell, Cooper and myself. An X-ray

taken by Dr. Cooper showed a double fracture of the body of the sixth vertebra. There was no evidence of fracture of the spinous process or of the laminae, nor could any deformity be discovered by palpation at this point. During the following five days, the case was carefully gone over from every point of view and the possibility of total division of the cord or of compression was fully discussed. My own feeling was that the patient had sustained a complete division of the cord at the time of injury, but there was disagreement upon this point.

An operation, for the relief of possible pressure, was undertaken on May 13th, 1909, in which I was assisted by Drs. Terry and Russell. Full ether anesthesia was well borne throughout. A vertical incision over the spinous process of the sixth cervical vertebra was made and the cord was easily exposed by a double laminectomy. On opening the spinal column, the first thing that attracted my attention was a transverse, slightly lacerated tear through the dura. Through this opening, a probe dropped readily to the bony structure behind and when moved laterally, met with no resistance until the lateral pillars of the dura were encountered. Dr. Terry thought that possibly some portions of the lateral columns of the cord remained intact, but I had no evidence of it. The cord was then sutured with two very fine chromocised catgut mattress sutures. These were passed directly through the dura, posteriorly and anteriorly to the cord and through the cord itself. When the sutures were tied, the approximation of the cord and dura seemed almost perfect. Wound closure was by the tier method and resulted in rapid, ideal healing. For the next week or ten days, the patient remained apparently as he had been prior to operation. At the end of two weeks, there was evidence of failure which was continuous to the time of his death on June 30th, 1909.

The first thing that attracted our attention after the operation was the exaggeration of some of the reflexes, notably, the patellar reflexes. The Babinsky was again manifest bilaterally. Nearly all the skeletal muscles were susceptible to the influence of irritation, and there was scarcely a single reflex in the lower part of the body which could not be elicited. There was, however, no suggestion of nerve regeneration over the paralyzed area. The presence of reflexes suggested to several of those who observed the patient the possibility that total division of the cord did not exist.

Upon this point, the findings of Goltz who, in 1896, published the results of extensive experimentation upon dogs are of peculiar interest. Goltz found that total division of the cord above the fifth cervical vertebra resulted in almost immediate death.

He, however, determined absolutely the viability of dogs from whom had been removed the entire spinal cord up to the sixth cervical vertebra. In some instances, dogs were kept living for some time after total destruction of segments of the spinal cord with a blunt instrument, the detritus being left in situ, but comparatively soon after such a procedure, toxic effects proceeding from the detritus, produced death; hence, it was found necessary to remove all the injured tissue and close the wound.

Under such a procedure, it was found that life could be maintained indefinitely. He found that the removal of the spinal cord was best done by a series of operations. In some cases, the spinal cord was simply transected as high as the sixth cervical, but the procedure was less dangerous when the transection was at a point further back. When done at the third thoracic, the animals survived uniformly. Careful precautions were taken to secure absolute, complete section. This was done by lifting the cord out of the canal and dividing it in full view. The second step was taken after the wound had completely healed and the animal had regained strength. The vertebral arches were then removed from a definite area and the cord exposed. The proximal end of the cord was seized with forceps and the spinal end roots cut away to the lower point of section. Here, another cross section was made and the segment removed. Some weeks after complete healing of the second operation, another segment was dealt with in a similar manner until, finally, complete removal of the cord was effected.

After the last operation, the usual trophic disturbance occurred such as skin ulcers and blisters. Ultimately, these lesions healed kindly after extreme precautions.

Goltz's conclusions are briefly as follows:

First—Much greater danger to the life of the animal lies in the lowering of the blood temperature than in disturbances of nutrition; in fact, cutting of the *cervical* cord is always likely to be fatal when the body temperature is not maintained. For this reason, the animal was kept, after operation, in a sheet-iron warm-water jacket, whereby normal temperature was preserved temporarily until later, when heat control was regained by the animal.

Second—After section of the cervical cord, the eyeballs sank deeply into the orbits, lids almost closed, pupils not much narrowed but were unresponsive to light. Voice, strongly changed, deep baying being replaced by weak, very high pitched tones. When taken from the water jacket for cleansing purposes, some of the animals were found to perspire freely, but this continued for only five or six days. Sweating was thought not to be due to super-heating for the head showed no trace of perspiration and breathing and circulation were normal. There was no lolling of the tongue and no dilatation of vessels of mouth and eyes.

A number of illustrations of the heightened reflex irritability of the spinal cord, after total division, are given as follows:

First—After extirpation of the whole cord, the reflexes were maintained temporarily. But the irritability of the skeletal muscles entirely disappears after some time has elapsed. The muscles lose their elasticity, become soft and flabby and finally, are transformed into strings of connective tissue.

The external sphincter ani regains its tone and does not degenerate, and the inference is drawn that in some circuitous fashion, the external sphincter is connected through the sympathetic and the central nervous system which is uninjured.

Second—The urine remained clear, free from sugar and albumen. At first, the bladder would become immensely distended without being subject to reflex evacuation. Gradually, this condition im-

proved. After some months, the bladder contracted spontaneously when stimulated by a certain accumulated pressure. The placing of a thermometer in the anus would cause bladder evacuation, but stimulus from a greater distance, as tickling of the foot, produced no effect.

Third—The cord, having been removed from a pregnant female, she brought forth normal young at full term; secreted milk normally at proper time.

Fourth—Vaso-motor changes could not be brought about by distant stimuli, but considerable adjustment to local temperature changes as shown by skin conditions, color, hyperemia, etc., was observed.

Several points in the history of the foregoing case of fracture of the spine with total division of the cord are interesting in connection with Goltz's experimental work. It will be remembered that the reflexes over the paralyzed area, though slight at first, assumed almost exaggerated activity during the two weeks following operation, but disappeared completely during the later days of the patient's life.

Sweating was noticed at the beginning, fixation of the pupils was constant throughout. The bladder and bowel conditions which followed were almost identically in line with Goltz's findings. Furthermore, there was rapid muscular degeneration after the first ten days. At varying intervals, there was a rising temperature to 102 to 105. Such an exacerbation occurred during the last two days of the patient's life. This can be explained upon no other ground than a toxemia proceeding from the spinal cord detritus at point of injury. Toxemia, as an almost inevitable factor in the conduct of cases where extensive lesion to the cord has been sustained, seemed strongly to negative the possibility of successful cord suture, because of the fact that death will probably ensue from this cause before a regenerative process can be established. This is particularly true where total division of the cord can be demonstrated.

Taking all the evidence bearing upon cord suture, it seems highly improbable that such a procedure can possibly be of any value. Operations for conditions depending wholly upon compression of the cord, however, seem to offer sufficient encouragement to warrant further effort along this line.

Discussion.

Dr. Harry M. Sherman, San Francisco: The interest in these cases seems to me to center a great deal upon the diagnosis that is made before operation is undertaken and it is made more acute by the contention of late years that concussion of the cord does not occur. An injury occurring with no obvious upsetting of the line of spinous processes being present a diagnosis could be made of concussion of the cord and then operation done at a later time if the concussion symptoms do not clear up. But operation early or late discloses some things that seem to indicate that concussion of the cord must occur in some instances. I recall a patient who fell backward over a little walk in a garden to a path beneath, a few feet below, landing upon the back of his neck. He had at once complete paralysis below the level of the fifth cervical vertebra. A few days later I was told that the paralysis had cleared up somewhat and then had supervened again and at that stage I saw him. It seemed to me that he was having probably some hemorrhage producing pressure upon his cord and that the hemorrhage was extending up so that the pressure was getting very close to the respiratory center. I advised that the spinal canal be opened. We did this but the man died upon the operating table. I went on and removed that portion of the cord which was supposed to be implicated in the crushing and found that it had been a perfectly good spinal cord, there was no evidence of any injury to it, there had been no pressure upon it and the whole picture had to be changed in my mind. He must have had a concussion of his cord for while there was fracture through the body of a vertebra there was no displacement and no fracture of the laminae; as further evidence that he must have had concussion of his cord is the fact that the concussion symptoms were abating, sensation was returning and he had regained some power of movement. The symptoms which I thought were those due to the hemorrhage and secondary pressure were undoubtedly symptoms of an ascending paralysis and the man was in articulo mortis and he would have died just the same without intervention. This experience is not unique for I have heard and read reports of other cases in which laminectomies have been done on a diagnosis of a crushing of the cord and at operation the cord has been found to have been untouched. I think there is much testimony to offset the claims of those who say that concussion of the spinal cord is practically never seen.

Another case which was watched by Doctor Newmark and myself was that of a young man riding on a lumber wagon. He fell from the wagon and was caught on the back of his neck by the axle as he sat upon the road and forcibly flexed. He remembered very distinctly that after having been left he stretched his feet out and then all power of motion disappeared. He was in St. Luke's Hospital when Dr. Newmark saw him with me and upon that one symptom we held our hands and did nothing in the way of operation. The symptoms were those of complete separation of the cord in the mid dorsal region and he had a slight kyphosis but because he had been able to move after the accident we let him wait. He was ill for a number of weeks and had bed sores and all the symptoms going with section of the cord, but he recovered perfectly. Two years after I saw him racing after my carriage to stop me on the street and tell me how he was.

CONTRA COSTA COUNTY.

The Contra Costa Medical Society met at Dr. W. S. George's office in Antioch on July 11th, 1909. After the routine business was finished, Dr. George F. Hanson addressed the meeting on "Some Thoughts in Therapeutics," it being the custom of the society for two years past to get some man of note to address them, which they have found very beneficial, both in the way of acquiring knowledge and in getting the members out.

The following resolutions were unanimously passed:

"First, Resolved, That it is the sense of this society that we shall add the feature of Medical Defense to the advantages of membership in the State Society;

"Second, Resolved, That we pledge ourselves in the writing of our prescriptions to conform as nearly as possible to the United States Pharmacopoea and the National Formulary."

The next meeting will be held at Dr. Rattan's office in Martinez, September 12th, 1909.

FRANK RATTAN, Secretary.

NAPA COUNTY.

There was a meeting of the Napa County Medical Society on July 11th, at 2 P. M., at the Veterans' Home. Papers were read by Drs. T. W. Huntington, on "Intussusception"; R. Langley Porter, on "Valuable Therapeutic Measures Often Neglected When Dealing With Sick Children," and Emile Schmoll on "The Indications and Contraindications of the Use of Digitalis."

Dr. Huntington exhibited a femur, which had been fractured at the upper third of the shaft and had united by bony union. This specimen was of interest, as it showed the common displacement of the fragments. A case of abdominal aneurism in a man of 88 years of age was presented by Drs. Bulson and Reinstein.

Letters from Drs. H. Bert Ellis on "Ophthalmia Neonatorum," relating to a meeting to be devoted to the consideration of the same, and Philip Mills Jones on the "Matter of Undertaking the Defense of Our Members in Malpractice Suits." A motion was made and seconded that we obtain further information on this subject of "Malpractice Suits" from the secretary of the State Society.

Dr. Frank Farnum Abbott was elected a member of the County Society.

This was the first meeting of the County Society since January 7th, 1909.

ARTHUR HENRY REINSTEIN, Secretary.

SONOMA COUNTY.

The Sonoma County Society met in regular session on August 6th, at Dr. G. W. Mallory's office, Santa Rosa. There were only a few of the members present, who remained till 12:10 A. M. discussing medicine.

By motion it was agreed that the "delegates" had done a noble thing for the members of the Medical Society of the State of California in bringing to their attention the subject, "Physician's Defense," and that beginning January 1, 1910, the members of Sonoma County Society are willing to pay an extra dollar for the defense fund. There are four good reasons why the Medical Society of the State of California should establish a defense fund, namely:

First—It will unite the members and get them closer together.

Second—This defense clause will bring many able men into the County and State Societies. Thus all improve intellectually, numerically, morally and spiritually—medically.

Third—The plan not to pay judgments, but to employ counsel (the best) is a better method than that employed by some of the companies—defense—who agree to pay claims or judgments to certain amounts —$1000 to $25,000 for from $10 to $100 annually.

If a juror knows that a corporation will have to pay the damage he will be more likely to find the M. D. guilty; for the average juror has not much love for corporations, thus injuring the whole profession by holding one of its members a malfactor.

Fourth—Truth is the foundation of every virtue. Medicine is founded on truth. We should be willing, if we, through lack of the truth, the knowledge, make a mistake which interferes with the lifework of a patient to pay for this lack. There's no excuse, for information may be had if we put our shoulders to the wheel and study and think—think.

This defense clause will give us the perfect ideal, as it were; each M. D. will have to answer for his own acts. The Sonoma County Medical Society is in favor of the defense clause being added to our State constitution. Our next meeting will be held at Eldridge, and Dr. W. J. G. Dawson will give us one of the best clinics our society has ever had. The train will leave Santa Rosa at 2:45 P. M., and return at 7:10 P. M., September 3rd, 1909.

Dr. R. A. Forrest presented a paper, "A Month's Work in the Country." He detailed many cases like but very different from the following:

"Removal of piece of fine sewing needle in the ball of the foot in a woman 35 years old. Constructing bandage placed about instep and ankle to control blood circulation. Local anesthesia produced by hypodermic injection of 2 5th gr. cocain, at 3 or 4 points about seat of operation. Incision 5/8th inch long, 1/3 inch deep by side of point of greatest discomfort. Foreign body invisible to high magnifier. Body removed by curetting thoroughly its supposed location. Although this alleged foreign body was never found, the proof of its removal could not be denied, from the fact that the operation maneuver employed gave perfect satisfaction to the patient. The result was a speedy relief of all symptoms. This mode of procedure was deemed preferable to the 'do nothing' treatment, which at times would be justified in cases where an operator would be working in the dark in dangerous locations, without the aid of the Roentgen Ray. The X-Ray in this case would be useful as a last resort. But in patients whose means are somewhat limited, we are bound to see that they are saved as much expenditure of time and money as possible. A piece of steel, if allowed to remain in the tissues, may do great harm; it may get entangled in fascia or tendons in the neighborhood of joints or it may become the center of suppuration ending in its expulsion. It may cause general infection or tetanus."

Dr. Forrest said in treating a case of diphtheria that he gave anti-toxin to patients in 5000 units 12 hr. after he had given 3000 and the 17-year-old girl recovered in a few days. He also gave immunizing doses of 500 to the attendants.

Dr. R. Bonar on discussion thought that owing to the idiosyncrasies that are found, have been found, he would rather take the chances of the other children getting diphtheria than to give them the immunizing dose of anti toxin and run the risk of spasms, etc.

Adjourned at 12 o'clock.

G. W. MALLORY, Secretary.

BOOK REVIEWS

Review of Some of the Recent Advances in Tropical Medicine, Hygiene and Tropical Veterinary Science. Supplement to the Third Report of the Welcome Research Laboratories at the Gordon Memorial College, Khartoum.—Balfour and Archibald.

Attempting to review a review is a good deal like trying to make a word picture of a dictionary. The careful work of Balfour and Archibald in thus collecting between two covers the gist of the more recent advances in Tropical Medicine, Hygiene and Tropical Veterinary Science comes as a pleasant relief in these days of medical tautology and reiteration. Although written "with special reference to medical sanitary and veterinary work in the Anglo-Egyptian Soudan," the work contains much of interest to sanitarians, both of the tropical and temperate zones. The reviews of the recent literature on dysentery, enteric fever, paratyphoid fever and plague will especially commend themselves to the medical profession in California. The book is well bound and is printed in clear type on good paper. There is a surprisingly small number of typographical errors. Great judgment has been shown in the collection of sound practical papers so as to present in small compass the most important recent discoveries in the subjects treated. R. B.

Righthandedness and Lefthandedness, with Chapters Treating on the Writing Posture, the Rule of the Road, etc. By George M. Gould, M. D. 1908. J. B. Lippincott Co.

In this book Dr. Gould has collected a number of articles which he had contributed to various journals, and has provided the collection with an introduction. The title will, no doubt, attract readers and purchasers, for some degree of curiosity must be general about what will appear to most people as a mystery. Gould quotes Carlyle as saying that the question of the origin of righthandedness is "not to be settled and not worth asking except as a kind of riddle," and he dissents from Carlyle both as to the importance of the question and as to the possibility of answering it satisfactorily.

The author enumerates nine theories of others and dismisses them with scant courtesy. His own theory is that "righthandedness originates in righteyedness." Movements are performed under ocular control. "Physiologically, therefore, the reason why an infant puts forth the right hand to grasp objects is because the right eye is the one which is nearest perfect visually, anatomically, or optically. . . . Heredity has place in the creation of the more nearly perfect right eye. . . . If the left eye of the infant is the better seeing eye it will grasp at objects with the left hand and become left-handed."

This statement of his theory is preceded on another page by references to the repetition of the phylogeny in the ontogeny, to habits and customs of savage men in warfare and barter. "All that is needed to explain righthandedness in 94 per cent of children is some ancestral savage custom, habit, or necessity, widely prevalent, which inclined to the use of the right hand and eye for one or two exceptionally intellectual tasks. The inheritance of aptitude, the force of custom and the necessity of the struggle for existence would certainly fix the persistence of the peculiar excellence."

In another place we are informed that "heredity has directly nothing whatever to do with the existence of the 94 per cent of righthanded and 6 per cent of lefthanded." If we understand Dr. Gould, he says that although "sign-language, warfare, etc., first originated the habit of righteyedness and so of its resultant, righthandedness, and this necessitated the location of the speech-center in the left half-brain," yet if a certain child's left eye happens to be superior to its right eye it will become lefthanded regardless of the "ancestral savage custom, habit or necessity," which is all that is needed to explain righthandedness in 94 per cent of children. Some testimony is presented relating to the general superiority of the right eye, but what is evidently needed to support the theory of lefthandedness is some facts concerning vision in the lefthanded. This seems to be an instance in which proving the cause of the exception would serve to explain the rule.

Speculation on such subjects readily provokes controversy, but controversy with Dr. Gould, a man terribly in earnest, would bring down much verbal violence on the head of his opponent. Dr. Gould disapproves of endeavors to cultivate ambidexterity and calls those who favor such endeavors "cranks," "sillies," "the most blunderful of stupid persons," and "deserving of more severe punishment than any other of our many criminally insane!" It is perhaps too much to expect him to be calm in the face of a world (or at least a profession) that contemplates with indifference or only more or less curiosity the phenomena of righthandedness and lefthandedness when Dr. Gould tells us they "are the most serious of practical concerns, the source of infinite suffering, of innumerable tragedies and even suicides." One is reminded of Colonel Sellers in "The Gilded Age," who enforces his arguments with statistics on sore eyes in China, when Dr. Gould musters "20,000,000 patients with lateral curvature of the spine," "products of morbid visual function," "begotten by the schools." "In every school room of fifty pupils ten are scoliotics and at least twenty are also suffering from terrible and life-wrecking diseases caused by eye-strain." Whence is help to come in this dire need? "In Germany there is no scientific correction of ametropia. With one splendid exception our American students of the subject have usually adopted the European blunder," etc.

The world is out of joint. Oh, dreadful spite that none will learn from Gould to set it right. A book written by a man of temperament (and of temper), such as Dr. Gould seems to be, is not likely to be a dull one; and whatever fault may be found with the work before us dullness can not fairly be charged against it. L. N.

Genito-Urinary Diseases and Syphilis. By E. G. Ballenger, M. D. Publishers, E. W. Allen & Co., Atlanta, Ga.

As stated in the preface of this book of 276 pages, the author has endeavored "to present fundamental principles, and to enter at the same time, into sufficient detail when considering matter of prime importance." The text is well arranged and the black and white illustrations, with few exceptions, are quite good. The latter are taken mostly from other works—for which due credit is given. The author, in addition to giving personal views based on experience, has also made a close study of recent literature from which he has drawn freely in his effort to bring the little book up to date. His conservatism is shown in his attitude toward bacteriotherapy. The efficacy of bacterins is affirmed and proper emphasis is placed on the fact that they are useful as adjuncts and cannot supplant other means of treatment. The chapter in which the spirochaeta pallida is described, is concise, and the best methods of staining smears are briefly given with three good illustrations showing the organism. It might be said that the book is too brief—but in this age of almost countless exhaustive publications this would be considered a virtue by the busy general practitioner or the harassed student. This work will prove of interest and value to both. H. E. A.

Practical Obstetrics. By Grandin, Jarman and Marx. Fourth edition. F. A. Davis Company.

That four editions should be needed of this work on Obstetrics to meet the demand during the past fourteen years stamps it with approval as far as the general practitioner is concerned. The fact that more accurate, more extensive, more standard text books on obstetrics have been written during this period by more eminent American obstetricians than Grandin, Jarman or Marx, makes one wonder wherein lies the secret of their success.

The scientific foundation of the book is very weak, being entirely lacking in original work, and the ideas expressed, based as they are on the work of other men, are faulty in the extreme and lag far behind the modern point of view.

The book is profusely illustrated and contains many fine photographs of clinical obstetrics. Some could well be omitted, particularly the photographs of Grandin, with his fingers in the rectum of the

patient, "shelling out" the head over the perineum just prior to tying the infant's cord. The book is full of suggestions to the general practitioner which are probably of marked clinical value, but which often had better be taken cum grano salis.

While the book is not one to be recommended to students it can always be read by the practitioner with profit and often with amusement.

A. B. S.

Radiant Light and Heat and Convective Heat. By W. B. Snow. Scientific Authors' Publishing Co., New York.

Dr. Snow states in his preface:

"It has been the writer's purpose in the preparation of this little volume, as far as possible, to make it a practical aid to beginners in an important department of physical therapeutics, in which, if he has succeeded, he will be rewarded for his efforts."

Dr. Snow has undoubtedly succeeded in his purpose; his book is concise, complete and not too technical and, as he states in the preface, suitable for beginners.

His clinical reports are not highly exaggerated, as we often find in books of this character, and the small details of the methods of treatment are particularly well given.

In short, the work is a good epitome of the subject and well worth the perusal of any one interested in this line of work. D. F.

The Principles of Pathology. By J. George Adami, M. A., M. D., LL. D., F. R. S., Professor of Pathology in McGill University and Pathologist to the Royal Victoria Hospital, Montreal; Late Fellow of Jesus College, Cambridge, England. Volume 1: General Pathology. Illustrated. Lea & Febiger, Philadelphia and New York, 1908.

From the publication of Virchow's great work on Cellular Pathology until very recently morphological studies have dominated pathological investigation almost to the exclusion of all other methods. For years pathologists concerned themselves with the discovery of new lesions, and in giving precision to the morphology of old ones; in gathering statistics, exploiting organs of exaggerated size, and in general as Prudden has remarked, celebrating the monstrous and the strange. Fruitful as have been many of these researches the investigator of to-day, however, counts them "as but glimpses on the threshhold of a domain in which his problems demand a recognition of the dominion in his own fields of universal physical and chemical laws, of the doctrine of evolution, and of the potency in single cells and in cell communities of hereditary traits and tendencies." Thus, in the added light of biology, physiology, chemistry, physics, anatomy, and of all the sciences ancillary to medicine the study of morbid proeesses has assumed to-day a significance impossible with the older methods of approach.

While this broader conception is manifest in much of the recent literature relating to pathology, textbooks on the subject have almost invariably disregarded it, so much so that they are little more than records of more or less crude morphological observations. The time has passed, however, when morbid anatomy and morbid histology may be regarded as the sum and substance of pathological teaching, and when to name the tools is all that is to be demanded of the student. Although a knowledge of structural alterations is essential to a clear comprehension of some of the effects of altered function, in the future greater emphasis will have to be laid on the causes of disease and mechanism by which structural and functional changes are produced as well as upon the biological and physiological significance of the cellular reactions, if we are to impart to the student a knowledge which he can intelligently apply to his later clinical experience.

Noteworthy among those who have taken this position is Professor Adami, the author of the present System of Pathology. In that masterly article on inflammation, which appeared several years ago in Allbutt's System of Medicine, he clearly indicated one of the viewpoints at least from which pathology may and should be presented. With the same philosophical conception he has attempted to present in this first volume the broad prineiples which underlie not only pathology but physiology as well. It is chiefly in this respect that the present volume differs from its numerous predecessors; instead of a mere account of various lesions, especially from the morphologieal side, Professor Adami gives in an orderly manner an analysis of the phenomena of disease.

Since the author, like the great master, Virchow, was forced to recognize the cell and the changes undergone by it as the basis of all pathological study he begins his book with a description of the cell from histological, physiological and chemical standpoints. This phase of the subject is very properly dwelt upon at considerable length while the biophoric theory receives adequate recognition in the discussion of inheritanee in so far as it bears on pathology. The second section of the work contains a satisfactory, although in some aspects a rather summary account of the cause of disease, while the third and last section deals with Morbid and Reaetive Processes, such as Inflammation, Immunization and Immunity, Regeneration, Neoplasms and Regressive Tissue Changes.

In a medical journal of this character it seems scarcely necessary to analyze the work in greater detail. Although some of the views advanced by the author are at least debatable, we have no hesitancy in expressing the opinion that this is the most logical presentation of general pathology which has ever appeared in any language. We suspect, however, that the treatment is somewhat too comprehensive for the average medical student of the present day; but as a work of reference it will unquestionably render signal service. A. J. L.

The Principles of Bacteriology: A Practical Manual for Students and Physieians. By A. C. Abbott, M. D., Professor of Hygiene and Bacteriology and Director of the laboratory of Hygiene, University of Pennsylvania. Eighth edition. Thoroughly revised.

It has been some little time since the issue of the last edition of this always excellent book. There have been many new steps taken along this part of medicine. The author has taken up the most important and tried of these new advances, and brought his book up to date. He has also eliminated some of that which is of less importance. In this he is right, as this is one of the most important branches of preventive medicine as well as the one most subject to changes due to research and advancement. In other words, he aims straight at the useful and eliminates the others. The book is beautifully arranged, printed and bound. H. R. O.

BOARD OF EXAMINERS, AUGUST SESSION.

Passed.

School of Medicine.	Date of Graduation.	Percentage.
Coll. of P. & S., Los Angeles, Cal	6, 26, 08	77.2*
Coll. of P. & S., S. F., Cal	6, 6, 07	83.6
Coll. of P. & S., S. F., Cal	5, 19, 09	83.2
Coll. of P. & S., S. F., Cal	5, 14, 08	78.2
Coll. of P. & S., S. F., Cal	5, 21, 04	76.5
Coll. of P. & S., S. F., Cal	5, 19, 09	75.7
Cooper Med. Coll., S. F., Cal	5, 6, 09	89.1
Cooper Med. Coll., S. F., Cal	5, 6, 09	87.2
Cooper Med. Coll., S. F., Cal	5, 6, 09	85.8
Cooper Med. Coll., S. F., Cal	5, 5, 09	85.2
Cooper Med. Coll., S. F., Cal	6, 6, 09	85.1
Cooper Med. Coll., S. F., Cal	5, 6, 09	84.8
Cooper Med. Coll., S. F., Cal	5, 6, 09	84.4
Cooper Med. Coll., S. F., Cal	5, 6, 09	84.3
Cooper Med. Coll., S. F., Cal	5, 6, 09	81.2
Cooper Med. Coll., S. F., Cal	5, 6, 09	80.1
Cooper Med. Coll., S. F., Cal	5, 6, 09	79.5
Cooper Med. Coll., S. F., Cal	5, 6, 09	79.3
Cooper Med. Coll., S. F., Cal	5, 6, 09	79.2
Cooper Med. Coll., S. F., Cal	5, 6, 09	77.4
Cooper Med. Coll., S. F., Cal	5, 6, 09	76.9
Cooper Med. Coll., S. F., Cal	5, 6, 09	76.4
Cooper Med. Coll., S. F., Cal	5, 6, 09	75.8
Cooper Med. Coll., S. F., Cal	5, 6, 08	75.0
Hahnemann Med. Coll. of the Pac., Cal	5, 27, 09	81.0
Hahnemann Med. Coll. of the Pac., Cal	5, –, 08	77.7
Hahnemann Med. Coll. of the Pac., Cal	5, 21, 08	77.0
Hahnemann Med. Coll. of the Pac., Cal	5, 27, 09	76.3
Oakland Coll. of Med. & Surg., Cal	5, 27, 09	87.6
Oakland Coll. of Med. & Surg., Cal	5, 27, 09	82.0
Oakland Coll. of Med. & Surg., Cal	5, 27, 09	80.2
Univ. of Cal., S. F., Cal	5, 11, 09	86.3
Univ. of Cal., S. F., Cal	5, 11, 09	84.0
Univ. of Cal., S. F., Cal	5, –, 09	83.4
Univ. of Cal., S. F., Cal	5, 11, 09	83.2
Univ. of Cal., S. F., Cal	5, 11, 09	79.7
Univ. of So. Cal., L. A., Cal	6, 18, 08	86.5
Univ. of So. Cal., L. A., Cal	6, 17, 09	85.5
Univ. of So. Cal., L. A., Cal	6, 17, 09	83.6
Univ. of So. Cal., L. A., Cal	6, 17, 09	83.2
Univ. of So. Cal., L. A., Cal	6, 17, 09	82.5†
Univ. of So. Cal., L. A., Cal	6, 17, 09	81.5
Univ. of So. Cal., L. A., Cal	6, 17, 09	81.4
Univ. of So. Cal., L. A., Cal	6, 17, 09	81.3
Univ. of So. Cal., L. A., Cal	6, 18, 08	80.5
Univ. of So. Cal., L. A., Cal	6, 18, 08	80.0
Univ. of So. Cal., L. A., Cal	6, 17, 09	79.6
Univ. of So. Cal., L. A., Cal	6, 17, 09	78.4
Univ. of So. Cal., L. A., Cal	6, 19, 05	75.3**
American Med. Missionary Coll., Ill	6, 16, 02	78.7
Baltimore Med. Coll., Md	5, 21, 07	77.5
Barnes Med. Coll., Mo	5, 14, 09	77.0
Cornell Univ. Med. Coll., N. Y	6, 13, 06	83.1
Creighton Med. Coll., Nebr	5, 3, 04	79.8*
Dartmouth Med. Coll., N. H	2, 28, 99	88.0
Denver & Gross Coll. of Med., Colo	5, –, 08	84.0
Denver & Gross Coll. of Med., Colo	5, –, 09	79.7
Harvard Med. School, Mass	6, 24, 08	82.5
Harvard Med. School, Mass	6, –, 94	83.1
Harvey Med. Coll., Ill	6, 25, 04	75.4
Jefferson Med. Coll., Pa	6, 7, 09	81.3
Jefferson Med. Coll., Pa	5, 15, 01	75.7
Johns Hopkins Univ. Med. Sch., Md	6, 11, 07	81.5
Louisville Med. Coll., Ky	7, 30, 08	80.0†
McGill Univ., Canada	6, 9, 05	84.9
McGill Univ., Canada	6, 12, 08	75.9
N. W. Univ. Med. Sch., Ill	6, 4, 08	85.6
N. W. Univ. Med. Sch., Ill	6, 14, 00	83.8
N. W. Univ. Med. Sch., Ill	6, –, 09	83.0
Rush Med. Coll., Ill	6, 1, 09	86.6
Rush Med. Coll., Ill	12, 20, 06	83.5
State Univ. of Colorado	4, 3, 08	81.3

Univ. of Bonn on the Rhine, Germany	4, 29, 09	80.3
Univ. of Buffalo, N. Y.	5, 3, 96	80.9
Univ. of Ill.	6, 9, 08	82.2
Univ. of Ill.	4, 19, 98	81.7
Univ. of Iowa	4, 3, 01	83.1
Univ. Med. Coll., Mo.	5, 16, 09	77.0
Univ. of Penn., Med. Coll., Pa.	6, 19, 07	85.6
Univ. of Penn., Med. Coll., Pa.	–, –, 02	82.4
Univ. of Penn., Med. Coll., Pa.	6, 16, 08	79.1
Washington Univ., Med. Dept., Mo.	5, 2, 01	82.1*

Failed.

Cal. Eclec. Med. Coll., L. A., Cal.	5, 21, 09	72.3
Coll. of P. & S., S. F., Cal.	6, 25, 02	73.0
Coll. of P. & S., S. F., Cal.	5, –, 06	72.8**
Coll. of P. & S., S. F., Cal.	6, 6, 07	69.2*
Coll. of P. & S., S. F., Cal.	5, 22, 06	63.8*
Coll. of P. & S., S. F., Cal.	6, 6, 07	62.5****
Coll. of P. & S., S. F., Cal.	6, 25, 02	58.1
Cooper Med. Coll., S. F., Cal.	11, 5, 08	69.2
Cooper Med. Coll., S. F., Cal.	4, 28, 03	68.1****
Hahn. Med. Coll. of the Pac., Cal.	5, 27, 09	72.2
Hahn. Med. Coll. of the Pac., Cal.	5, 21, 08	71.8
Hahn. Med. Coll. of the Pac., Cal.	5, 21, 08	70.9**
Hahn. Med. Coll. of the Pac., Cal.	5, 27, 09	62.8
Hahn. Med. Coll. of the Pac., Cal.	5, 27, 09	56.5
Univ. of So. Cal., L. A., Cal.	6, 17, 09	73.6
Univ. of So. Cal., L. A., Cal.	6, 13, 05	72.8
Univ. of So. Cal., L. A., Cal.	6, 17, 09	70.8
Univ. of So. Cal., L. A., Cal.	–, –, –	60.6
Hahn. Med. Coll. & Hosp. of Phila., Pa.	6, 2, 09	67.5
Hahn. Med. Coll. & Hosp., Ill.	4, 13, 90	60.5
Harvard Med. School, Mass.	6, 29, 98	70.7*
Jefferson Med. Coll., Pa.	3, 14, 92	72.4**
Jefferson Med. Coll., Pa.	5, 2, 93	67.9**
Jefferson Med. Coll., Pa.	5, 15, 95	49.8
Medico-Chirurgical Coll., Pa.	–, –, 01	71.1
N. Y. Homeo. Med. Coll. & Hosp., N. Y.	5, –, 05	53.0
N. W. Univ. Med. Sch., Ill.	6, 16, 98	76.4
Rush Med. Coll., Ill.	2, 19, 89	67.3*
Rush Med. Coll., Ill.	2, 27, 85	64.5
State Univ. of Iowa	3, 5, 85	82.1*
State Univ. of Iowa	3, 12, 90	68.8**
Tokyo Charity Med. Coll., Japan	7, 31, 07	56.3
Trinity Coll., Dublin, Ireland	11, –, 63	91.2
Tufts Med. Coll., Mass.	6, 12, 07	61.5
Univ. of Ga., Med. Dept.	3, 3, 83	65.4
Univ. of Ill., Coll. of Med.	6, 5, 09	71.8
Univ. of Maryland	–, –, 03	69.6
Univ. of Mich., Homeo. Med. Coll.	6, –, 08	72.7
Univ. of Mich., Homeo. Med. Coll.	6, 25, 91	63.1
Univ. of Minn.	6, 11, 08	68.3
Univ. of Vermont	6, 22, 08	71.3
Vanderbilt Univ., Tenn.	5, 3, 09	69.0

Osteopathy—Passed.

American Sch. of Osteop., Mo.	6, 1, 09	85.8
L. A. Coll. of Osteop., Cal.	6, 3, 09	80.6
L. A. Coll. of Osteop., Cal.	6, 3, 09	78.0
L. A. Coll. of Osteop., Cal.	6, 3, 09	76.8
L. A. Coll. of Osteop., Cal.	6, 3, 09	76.0
L. A. Coll. of Osteop., Cal.	1, 28, 09	75.6
Pac. Coll. of Osteop., Cal.	6, 23, 09	82.1
Pac. Coll. of Osteop., Cal.	6, 23, 09	81.7
Pac. Coll. of Osteop., Cal.	6, 23, 09	80.1
Pac. Coll. of Osteop., Cal.	2, 4, 09	75.7*

Osteopathy—Failed.

L. A. Coll. of Osteop., Cal.	6, 3, 09	69.3
L. A. Coll. of Osteop., Cal.	6, 3, 09	69.1
L. A. Coll. of Osteop., Cal.	6, 3, 09	65.1
Pac. Coll. of Osteop., L. A., Cal.	6, 23, 09	72.6
Pac. Coll. of Osteop., L. A., Cal.	2, 4, 09	72.2
Pac. Coll. of Osteop., L. A., Cal.	6, 23, 09	70.8
Pac. Coll. of Osteop., L. A., Cal.	6, 23, 09	69.9

* Taken before.

† Subject to presenting evidence regarding college term and Latin.

NEW LICENTIATES.

Beach, E. C.; Beatty, J. D.; Boardman, W. W.; Bowles, F. H.; Boxmeyer, C. H.; Brinckerhoff, E. E.; Brostrom, E. E.; Brownlie, J. W.; Burtt, L. W.; Butt, E. G.; Cahen, C. G.; Carpenter, H. C.; Cohn, H. J.; Colloran, J. E.; Cope, J. H.; Cowan, J. R.; Crane, H. W.; Criley, C. H.; Cunningham, R. L.; Daggett, E. H.; Dakin, W. B.; Derham, V. C.; Drucks, E. S.; Duncan, R. D.; Ellis, M.; Fraser, D.; Glover, E. P.; Gowan, C. H.; Green, A. S.; Green, L. D.; Haight, L. L.; Hall, G. P.; Hamilton, G. Van T.; Hemphill, E. B.; Hill, W. B.; Hollister, J. C.; Jones, A. H.; Jorgensen, N.; Kaufman, B.; Kergan, J. F. C.; Kimbley, H. G.; Lawson, F. M.; Lord, C. E. D.; Lueschen, A. G.; McDonnell, C. H.; McKevitt, E. M.; McLeod, P. DeM.; McVey, C. L.; Magee, A. C.; Manatt, A. P.; Marsh, O. G.; Meyers, W. L.; Millar, P. A.; Morton, L. B.; Naffziger, H. C.; Nittler, A. N.; Nussbaum, A.; Parker, C. H.; Pearson, R. G.; Petch, P. H.; Plumb, C. B.; Prusch, N. H.; Reeng, J. D.; Reis, H. W.; Remington, L. D.; Rinker, C. L. A.; Rowland, P. D.; Sampson, W. A.; Savage, W. W.; Sawyer, E. H.; Scott, A. J., Jr.; Shade, M. A.; Shaul, J. W.; Shelley, H. H.; Slater, J. H.; Stewart, B. R.; Toogood, J. E.; Townsend, V. R.; Truman, A. W.; Van Allen, L. W.; Van Kaathoven, J. J. A.; Wallace, C. T.; Walsh, J. F.; Weeks, R. F.; White, M.; White, P. G.; Wolfe, H. H.; Wright, C. I.; Wrinkle, G. S.; Young, T. C.

In Error.

Dr. H. B. Reynolds' correct address is 627 University ave., Palo Alto, and not Redwood City, as published in September issue of the Journal.

CHANGE OF ADDRESS.

Briggs, L. H., from Fabiola Hosp., to Central Bank Bldg., Oakland.

Banks, W. H., from Stirling City (Butte County), to 4402 California st. (Richmond Dist.).

Preston, R. W., from San Francisco, to Mendocino City, Cal.

Riehl, F. W. F., from Alameda, to East Cambridge, Boston, Mass.

Delamere, H. S., from Ferndale, to South Berkeley Bank Bldg., Berkeley, Cal.

Hess, H. A., from Shreve Bldg., to 126 Stockton st., San Francisco.

Bennett, Laura B., from Los Angeles, to 977 Fell st., San Francisco.

Duncan, F. T., from Oakland, to 166 Geary st., San Francisco.

Pollard, Frank, from Caspar, Cal., to Garberville, Cal.

Haderle, J. A., from 628 Hayes st., to 297 Devisadero st., San Francisco.

Sawyer, W. A., from 2345 Telegraph ave., to 2434 Durant ave., Berkeley.

Newman, Alfred, from 1316 Sutter st., to 126 Stockton st., San Francisco.

Kellogg, W. H., from 924 Geary st., to 135 Stockton st., care Dr. G. L. Painter.

White, Carlos M., from Lindsay, to Visalia, Cal.

Lichau, Ernst, from 1456 Sutter st., to 345 Stockton st., San Francisco.

Possey, Addison, from San Jose, to ——?

Sheaff, P. A., from Santa Barbara, to 511 41st st., Philadelphia, Pa.

de Marville, H. B., from San Francisco, to 4 Rue Leonce, Reynaud, Paris, France.

Cohn, Robt. D., from 1316 Sutter st., to 126 Stockton st. (City of Paris Bldg.), San Francisco.

Keenan, A. S., from 24th and Mission sts., to Angelo Bldg., 16th and Mission sts., San Francisco.

Frick, D. J., from Delta Bldg., to Wright & Callender Bldg., Los Angeles.

Nelson, Lois, from 1836 Cedar st., to 1908 Virginia st., Berkeley.

Williams, Annie W., from P. O. Box. No. 13, to D and Spring sts., Hayward, Cal.

de Faria, J. B., from San Francisco, to 1304 8th st., Oakland.

Noble, J. Albert, from Oakland, to Elkan Gunst Bldg., San Francisco.

Reynolds, H. B., 627 University ave., Palo Alto.

Campiche, Paul, from 1705 Powell st., to 916 Kearny st. (Sentinel Bldg.), San Francisco.

Garceau, A. E., from 1380 Sutter st., to Shreve Bldg., San Francisco.

Conner, Ada Scott, from Santa Clara, to Garden City Bank Bldg., San Jose.

Wise, Philip L., from Los Angeles, to Ryland Bldg., San Jose.

Conner, A. W., from Santa Clara, to Garden City Bank Bldg., San Jose.

Heffernan, W. T., from Calexico (Imperial Co.), to ——?

Smith Q. C., correct address is 4148 Center st., San Diego, Cal.

Taylor, A. H., 135 Stockton st., San Francisco.

New Members.

Pauson, Chas. A., San Francisco.
Vanderpool, Mary F., Hayward.
Bullock, N. H., San Jose.
Peek, Allan H., Palo Alto.
Richards, C. M., San Jose.
Sampson, Jas. H., San Jose.
Conner, Ada Scott, San Jose.
Conner, A. W., San Jose.
Wise, Philip L., San Jose.

Deaths.

Johnston, J. L., Los Angeles.
Coil, Mary F., Woodland, Cal.
McCollough, A. M. F., Los Angeles.
Wells, W. H., Sacramento.

California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

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VOL. VII NOVEMBER, 1909. No. 11

EDITORIAL NOTES.

THE STATE BOARD OF HEALTH

It is difficult to measure the good which an energetic campaign along any line of preventive medicine may accomplish. Once the public is aroused against the spread of tuberculosis or the eradication of plague, its interest does not stop here; to start the ball rolling is the hardest thing of all, but when it is fairly on its way it moves with a momentum all its own and the directing hand only is needed. This is particularly exemplified in the many calls which are being made upon the State Board of Health from every quarter. There is already a strong tendency to submit to expert opinion questions of sanitation as they affect the individual community. This must be a source of great satisfaction to Dr. Martin Regensburger, who has long been president of the board, and the late secretary, Dr. N. K. Foster, for they have labored indefatigably for this result.

A large number of the inquiries which are daily received pertain to the simplest matters and have emphasized the fact that the education of the public, not only in the necessity of sanitation, but in the principles of the science as well, is absolutely essential. This work the present secretary, Dr. William F. Snow, has launched and he has started at the very foundation. A large part of his time is now being spent in first interesting the teachers in our public schools, and, secondly, in their instruction in the elements of the subject. From the public schools the campaign will be carried to municipal bodies, large corporations, chambers of commerce and all those factors which are potent in shaping the public destiny. The way has been prepared for such work and the time is now ripe for its accomplishment. In the past boards of health have been compelled to act largely as censors, pointing out mistakes to the public after they had been committed; this position has not assisted in increasing their popularity. There is no doubt that a great number of these mistakes have arisen from ignorance and their cure is to be found in a better conception of the principles of sanitation. When town governments come to a full understanding of these principles, when corporations learn that their fulfillment is an economic investment, when boards of trade realize that the health of their community is their best card, we can expect results which will be little short of marvelous. In this work the State Board expects the help of every physician; a strong, active support, not a passive sympathy. It is often the case that the individual physician does not realize what a power he can exert in his own community and his influence is never greater than when it concerns questions of the public health.

REGISTER DIRECTORY.

For a good many years the State Society, either directly or through its members of the Board of Examiners, has published an annual directory of physicians. Before the fire the Society had a regular advertising agent who was paid a commission on the advertisements secured for the Register, the Society receiving all returns from advertising and paying all expenses of publication. In 1906, after the fire, everything was at sixes and sevens; the advertising agent, Mr. Henry Kaplan, suggested that he be allowed to publish the Register, get all he could out of the advertising, supply a copy to each member of the Society and release the Society from all financial responsibility. That proposition was accepted; it was again renewed in 1907, a regular contract being drawn between the Society and Mr. Kaplan, which was renewed in 1908 and again in 1909. Early in 1909 Mr. Kaplan requested permission to publish the Register and directory as a part of a quarterly medical journal. This was not approved by the Council and again not approved by the House of Delegates at the last annual meeting. In spite of this denial, Mr. Kaplan did just as he chose and used the quasi endorsement secured by publishing the Register as a part of the "Practitioners' Digest," to boost into circulation a medical journal owned exclusively by himself. The resulting tangle has been referred to the attorney for the Society. Please understand clearly that there is absolutely no connection between the State Society and Mr. Kaplan, nor the "Kaplan Medical Publishing Co.," which is the same thing. Hereafter the Society will, as formerly, issue its own Register and directory and each member will receive a copy next year as in previous years.

TUBERCLE BACILLI IN BLOOD.

In a paper published by Rosenberger in the early part of this year (American Journal of Medical Sciences, Feb., 1909), the somewhat startling statement is made that tubercle bacilli may be demonstrated in the systemic blood of most if not all tuberculous patients. The author based this assertion on the results of cover-slip examinations of the blood of 125 tuberculous individuals, some of which were affected with incipient forms of the disease. Not only does he claim to have demonstrated their presence in most of the cases examined but states that the tubercle bacilli were present "mostly in large numbers and clumps of 30 to 40 bacilli were not unusual, especially in cases of acute miliary tuberculosis." Astounding and incredible as these observations appear, especially in view of the contrary experience of older investigators who have gone over the ground with a technique not greatly differing from that employed by Rosenberger, his conclusions have been uncritically accepted and used by a group of writers to further their own immatured arguments.

That tubercle bacilli occasionally float in the general blood stream has long been known. The occurrence of secondary tuberculous lesions in regions remote from the original focus of infection, and a widespread scattering of tubercles of approximately if not precisely the same age and stage of development, has usually been explained on the grounds of systemic blood invasion, but, heretofore no reliable observer has contended that the ordinary clinical forms of tuberculosis are to be regarded as bacteraemias in the usual sense of that term, notwithstanding Rosenberger's contention to the contrary. Since the publication of his paper the results of several studies on this subject have appeared, which not only disprove the correctness of the Philadelphian's observations, but show more than ever before that there is no valid reason for changing our views on this matter.

Schroeder and Cotton (Archives of Internal Medicine, August 15th, 1909), and Ravenel and Smith (Jour. Amer. Med. Assoc., August 21st, 1909), have recently restudied the question with results fully in accord with previous experience. The first named observers from an investigation, by the microscopic method as employed by Rosenberger, of the blood of 42 tuberculous cattle, mild and severe forms of the disease, not only failed to find tubercle bacilli, but guinea pig inoculations likewise were negative. Investigating the subject from the human side Revenel and Smith also reached the same conclusion. Unusually interesting in connection with the work of Rosenberger is the paper just published by Brem (Jour. Amer. Med. Assoc., Sept. 18th, 1909), on the contamination of water, even distilled water, with acid-fast bacilli having the morphological characteristics of the tubercle bacillus. In the light of these observations it is quite possible that here we may find an explanation of the extraordinary results of Rosenberger's work. However that may be, it is obvious that his method is valueless so far as its employment for diagnostic purposes is concerned.

EXPLANATION AND THANKS.

Since July the editor has been unable to do any work on the JOURNAL. In that month he met with an accident which resulted in a fractured skull and strict orders not to attempt to do any work for at least two or three months. As he has led a rather active—if not at times strenuous—life for some years, this enforced idleness was decidedly irksome. Nevertheless, it was quite evident that nature would enforce the orders of the surgeons, and so he has not attempted to do very much. But misfortune is not always unmixed with compensations. Friends appeared at once, and they were of the real sort. The publication committee, largely through the very kindly offices of Dr. Lartigau, took entire charge of the JOURNAL and they have done everything in the matter of preparing copy, editorials, etc., and seeing that the JOURNAL was properly made up each month. To these gentlemen the editor wishes to extend his most sincere thanks and appreciation for their generous work and for their active friendship in running and in improving the JOURNAL. Many excellent changes and improvements have been made under their direction, and it is with a feeling of great relief that the editor realizes that the JOURNAL is in and will remain in such good hands until such time as he can once more take over the major portion of the work. It is indeed good to realize that, at the crucial moment, one has such stanch friends.

EARLY DIAGNOSIS OF PERTUSSIS.

The importance, especially from the standpoint of preventive medicine, of establishing the diagnosis of pertussis in the early period of the disease before the characteristic 'whoop' appears has been universally recognized, but the means by which this may be accomplished has been much less clear. In

the absence of distinctive bedside manifestations in the catarrhal stage clinicians naturally turned to the laboratory for assistance and to bacteriology particularly did they look for interesting revelations of a practical nature similar to those brought forward as a result of researches on tuberculosis, diphtheria, and other specific infectious diseases. The earlier investigations along these lines by Spengler, Jochmann and Krause, and others were interesting but inconclusive; on the other hand the work of Berdet and Gengou published in 1906 is more significant but as will be seen has not yet yielded results which may readily and easily be applied to ordinary practical medicine. As is well known these observers found a short, oval, Gram-negative bacillus in the bronchial exudate from early as well as late cases of pertussis. They were able to cultivate the organism on a special medium consisting of 1 per cent glycerin agar or broth made with macerated potato and added to an equal volume of human or rabbit blood. Cover-slip examinations are, however, so unreliable and the cultural verification necessitates so much purely technical manipulation that it is very questionable if these results of their study will be utilized under ordinary circumstances. Another course suggested by the research of Bodet and Gengou lies in the use of serum reactions for they have shown that the serum of convalescents from pertussis contains substances but this deviation of complement reaction likewise presents difficulties not easily overcome by the clinician although we hope that municipal laboratories will in the near future make their services available to the practitioner for diseases the diagnosis of which involves procedures of this kind.

Although the bacteriological criterion should and will eventually be employed in routine work for the early diagnosis of pertussis it is obvious that the majority of practitioners will look for this purpose to some more facile even if not so accurate a method. It is therefore likely that most of them will follow with greater interest the results of ordinary morphological blood examinations in their diagnostic applications to this disease. It is interesting that more than ten years ago Frohlich called attention to certain changes in the blood which are now the subject of more extended study in this connection. These alterations in the cellular content of the blood have also been investigated by De Amici and Pacchioni, Muggia and Bertoletti, Crombie, and more recently by two American observers, Barach (Arch. of Internal Medicine, July 15, 1908) and Kelmer (Ibid. July 15, 1909).

From a review of their work it is evident that there is a slight leucocytosis and an absolute increased percentage of all the forms in the catarrhal stage and, indeed, to some extent, according to Kelmer, even in the precatarrhal period. The number of leucocytes steadily increases in the catarrhal stage reaching the climax in the paroxysmal, after which they gradually fall in number until the normal is attained. The lymphocytosis upon which emphasis is laid begins very early but only becomes decided in the catarrhal phase and marked in the paroxysmal stage, after which a decline is noted. The increased percentage of lymphocytes is absolute and not simply relative as is frequently found in rickets. The percentage of polymorphonuclears is in most instances actually increased but relatively they decrease as the lymphocytes go up while the eosinophiles which are usually present in normal proportions in the catarrhal period show a relative decrease in the paroxysmal after which time a mild eosinophilia sets in.

It would therefore seem that in the presence of a mild catarrhal bronchitis associated with a leucocytosis and lymphocytosis with decreasing polymorphonuclears and rising lymphocytes we may reasonably suspect if not actually diagnose pertussis. While the number of investigations covering these points is yet small it is noteworthy that all observers arrived at the same general conclusions.

THE EXTENT OF SQUIRREL PLAGUE.

Last month the JOURNAL commented upon the prevalence of plague among the ground squirrels of Contra Costa and Alameda Counties and the efforts which were being made by Dr. W. C. Rucker, of the Public Health and Marine Hospital Service, and his small corps of assistants to eradicate it. Practically all parts of this territory are infected and work has just been started in Stanislaus and San Benito Counties, where a number of plague squirrels have already been reported. About one per cent of all squirrels examined at the laboratory are infected. Dr. McCoy, who has charge of this work, believes that the disease has existed in these regions for a long period. It is problematical just how far down the coast the infection extends, although it may be added that plague squirrels have been found in all counties in which an extensive search has been made. The eradication of the disease presents one of the most serious problems which has thus far engaged the attention of our sanitary officers.

ORIGINAL ARTICLES

THE DIAGNOSIS AND TREATMENT OF URETERAL CALCULUS.*

By R. L. RIGDON, M. D., San Francisco.

The making of a diagnosis of ureteral disorders resembles in some respects the children's game of putting together the dismembered parts of a picture. Various combinations of the parts may be made that seem almost right, but still some feature of dress or figure is not filled in, or some extra part remains, and a little more study and a little more patience are needed before the correct assemblage has been obtained. So in our diagnostic problems various interpretations of symptoms and findings may be made that are in a measure satisfying but if we would be wholly correct in our conclusions much time, much patience and much readjusting may be necessary.

It has seemed to me that the real object of our meeting to-night—free discussion—could be best encouraged by the presentation of illustrative cases to which are appended a few remarks touching points of interest.

Case No. 1: Mr. R., age 24. On April 8th, 1908, he was suddenly attacked with very severe, non-radiating pain in the left loin which was only controlled after four or five hours by hypodermic injections of morphin. There was no dysuria, no pollakiuria, no hematuria. Since the onset there has been a constant, heavy, dull pain in the loin with acute exacerbations. Last night for the first time the pain was radiating in character, running down to the left testicle; this was not severe and lasted only a few minutes. The testicle was not retracted. Slight frequency of urination and a little pain with the act was also noted.

P. C.—Well nourished, medium build, lungs and heart normal. Palpation of abdomen shows left kidney tender, not palpable, tenderness extends along the course of the ureter to below the level of the umbilicus. Urine semi-transparent. Microscope shows few blood cells. No casts. Cystoscope reveals normal bladder mucosa, ureteral orifices normal, catheter into left ureter advanced about three inches but could not be passed beyond. Patient was returned to bed and kept under observation and treatment for a week. During this time the pain and tenderness were constant and there had been several attacks of ureteral colic.

April 21st: Cystoscope again used. Catheter carrying steel wire was introduced into ureter for two inches but could be advanced no further. Radiogram was taken with cystoscope and styleted catheter in place. When the plate was developed it showed a beautiful stone shadow in ureter with stylet leading up to it. The shadow showed the stone to be a small one and it seemed best to wait until nature could have time to effect its expulsion if possible; but after another week of suffering operation was decided upon. This was done on April 27th. Dr. Burroughs assisting. The extra-peritoneal route was followed and the stone was located at the bladder wall. It was removed with much difficulty through a small slit in the ureter. The ureter was sutured with catgut and the external wound closed except for a small cigarette drain which led down to the ureteral wound. Recovery was uneventful. There was practically no leakage from the ureteral wound.

The diagnosis of this case was perfectly simple and presented no difficulties, the last positive evidence being furnished by the X-ray and ureteral catheter. The removal of the stone presented considerable difficulty owing to its impacted condition in the ureteral mucous membrane and its location so low down in the ureter. In another operation in a similar case I think I should follow the technic of Gibbon and attempt to displace the stone upward by means of a finger introduced into the abdominal cavity through a small slit in the peritoneum. This operator and others testify to the great advantage of the peritoneal opening. The finger within the cavity can readily locate the stone and bring it up into the extraperitoneal wound where it can be more easily removed. By exercising a little care soiling of the peritoneal cavity is avoided. Probably a better procedure than any cutting operation would have been an attempt to dislodge the stone by the injection of liquid vaseline or oil into the ureter through a catheter.

Case No. 2: F. D., male, age 30. Gives history dating back ten years, of pain beginning in back and gradually approaching bladder. Hematuria began three years ago. No pollakiuria. Never passed gravel. At present pain is felt in bladder and radiates to glans penis.

P. C.—Abdominal palpation negative except for tenderness in left inguinal region. No tumor could be felt. Urine cloudy with pus and blood. Cystoscope shows bladder mucosa normal. Left ureteral orifice reddened and open. Catheter could be introduced but an inch. Right ureter normal and catheter readily entered. Urine from right ureter clear, normal. Urea 18. Urine from left ureter cloudy with pus and blood. Urea 7. X-ray shows shadow low down in left ureteral region.

Diagnosis: Ureteral calculus, impacted, in lower end of left ureter.

Operation: October 26th, 1907. Student assistants. Extraperitoneal route. Ureter freely exposed and stone located two and a half inches below pelvic brim. An incision was made in ureter two inches distal to the site of the stone and with a small scoop the calculus was brought up and extracted. Ureteral wound closed by catgut suture. Parietal wound closed except for small cigarette drain down to ureter. Recovery uninterrupted. After the operation the urine gradually cleared of pus and blood. Patient left the hospital in two weeks. To-day the patient is well and following his occupation, that of bootblack. He has had no return of urinary symptoms.

Except in the matter of frequency of urination this patient presented a rather typical picture of stone in the bladder and without the help of the cystoscope and X-ray a definite location of the

* Read before San Francisco County Medical Society, March 9th, 1909.

trouble might have been difficult, but with these aids a very positive diagnosis was possible.

Case No. 4: W. H., male, age 53. Personal history negative except for rheumatic tendency which has been present for years. Three years ago had attack of pain in right lower abdomen which was diagnosed as appendicitis. He was in bed three or four days and in a few days more had regained his health. There was no operation. Six months ago had severe attack of pain in left kidney region which extended along ureter to bladder. The site of pain gradually traveled to bladder and after a rather hard paroxysm suddenly ceased. A month later a small calculus was expelled per urethram. Three or four days ago he had a rather severe attack of pain in right iliac region which subsided in a short time under hot applications. During the night of December twenty-third the present attack began. While asleep he was suddenly awakened by a severe pain in the region of the appendix which within a half minute had become agonizing and was attended with nausea and vomiting. Hot applications were applied and after a short time the pain subsided and the patient was fairly comfortable. During the following day more or less soreness remained. On the evening of the twenty-fourth, another paroxysm occurred and I was called. The patient was a man of large frame and big abdomen. Weight, 270 pounds. He was in the midst of a typical attack of acute colic which had its center in the appendicular region. In a short time the acute symptoms subsided. Examination showed a rather diffuse tenderness over the abdomen with the point of acuity a little below McBurney's point. There was no decided tension of the muscles over this region but on deep pressure much soreness was complained of. The tenderness gradually disappeared as the kidney region was approached and no soreness or tumor or muscular tension could be made out over the liver area. There was no unusual distension of the bowel. The pain was not radiating in character, there was no bladder disturbance. Temperature was normal. At first glance the case appeared to be clearly one of appendicitis but the more it was considered the less certain was I that all the conditions could be explained upon that hypothesis. The history of having passed a ureteral calculus a few months before, the extreme suddenness of onset of the present attack, and the absence of rise of temperature after twenty-four hours of suffering made me suspect that there might be some other causal factor to be considered. Favoring the theory of appendicitis was the history of a previous attack and the location and character of the pain. In order to be in a position to operate quickly, should occasion demand, the patient was sent at once to Lane Hospital. Here he was seen in consultation by Dr. Edwards of Salinas and Doctor Rixford. The acute symptoms had subsided but the distress and tenderness remained. After carefully going over the case the best that we could say was that it might be appendicitis or an inflammation of the cecum, or it might be ureteral colic due to stone. The possibility of gallbladder involvement was thought of but was ruled out for lack of tenderness in that region. A possible beginning hernia was also considered but was negatived.

In the meantime uranalysis showed the urine free from pus or albumen but a few blood cells could be found in nearly all of the specimens. Only once during the attack was the blood reported absent. Pictures were made of the kidney and ureteral region but owing to the extreme thickness of the abdomen and the further fact that the abdominal tenderness was so great that good compression could not be obtained, the plates were not altogether satisfactory. However, a rather suspicious shadow showed toward the lower end of the right ureter. The patient remained in the hospital a week. During this time there was never any rise in temperature, all the symptoms gradually subsided and he was quite comfortable except for the tenderness which was still present, although less marked, and an indefinite sense of discomfort in the inguinal region. Two or three times there had been a little irritation in the bladder. The bowel discharges contained occasional mucus and blood. The latter was accounted for by a slight hemorrhoidal tendency that had been present for some time. After returning home he had another attack of acute pain which terminated suddenly with a sense of great relief. This pain he described as similar in character to that experienced some months before when the calculus was passed. About this time Doctor Cooper saw him in consultation and advanced the theory of colitis as being at least a possible contributing factor. Rectal examination with the sigmoidoscope showed the bowel mucosa reddened and oedematous and considerable mucus present. Palpation over the colon also elicited tenderness, at this time as marked on the left as on the right side. The first X-ray pictures not having been wholly satisfactory, a second set were made with the shadow casting catheter in the left ureter. These plates were good and revealed no calculus in the urinary tract. Since that time the abdominal tenderness has subsided and the sense of distress in the inguinal region has not returned. No calculus has yet passed per urethram.

The diagnosis is still lacking in definiteness but probably should be "Ureteral calculus together with a mucous colitis."

From a study of this case it would seem that more attention should be given to the exclusion in our differential diagnosis of a mucous colitis unattended by fever or diarrhoea. It would seem possible that the accumulation of gas in a limited section of the big bowel, might be the chief factor in the production of many symptoms resembling ureteral or bladder colic.

Case No. 5: Mrs. H. B., age 52. Has been more or less a sufferer from mild articular rheumatism. No kidney or bladder trouble until July 12th, 1908, when suddenly a desire to urinate came on with post mictional pain, no blood. Onset of bladder symptoms was not preceded by back pains or radiating pains. The desire to urinate was very frequent and was felt day and night. She was com-

pelled to rest for six weeks. Lower abdomen became very sore. By November first the symptoms had abated and patient felt that health was restored. Two weeks later, after considerable exercise and some dietary excesses, the urinary distress returned. With this attack was noted radiating pains from lumbar region to bladder and the back was quite sore. She was examined by her physician who found the uterus and ovaries normal. There was no leucorrhoea. He pronounced the trouble due to the acid condition of her urine.

P. C.—Fairly well nourished. Palpation of abdomen negative. Urine clear, strong acid, no pus, no albumen, no blood. The pain felt during an attack is described as being located in the meatus externus. Cystoscope showed bladder mucosa normal except a small exfolding of the membrane on the floor of the bladder and a similar condition on the anterior wall. Ureters were normal. X-ray examination was declined at this time. The patient was advised that her trouble was probably due to a tendency to heavy, acid urine. She was placed upon a course of alkaline medication, together with liver stimulation. She improved for a few weeks but the symptoms recurred, when she consented to the X-ray examination. When the plates were developed a very suspicious shadow was seen in the lower right ureteral course. The patient left the city immediately after the examination and has not returned. In order to exclude the possibility of the shadow being that of a calcified gland or a phlebolith, a second picture will be made as soon as possible with the shadow casting catheter in the ureter. From the location of the shadow it would seem that a vaginal examination should enable the operator to successfully palpate the suspicious area.

Should further examination confirm the present tentative diagnosis of ureteral calculus the question of treatment must be considered. Very probably the stone could be removed by the vaginal route but this route offers some objections which cannot be wholly overcome, perhaps the chief of which is the greater frequency with which ureteral fistula seems to follow opening the tube from this direction. The extra-peritoneal route through the inguinal region may offer some difficulties owing to the location of the stone under the broad ligament. It has been stated that in these cases the combined intra and extra-peritoneal method is of great value. Before any cutting operation is advised repeated efforts should be made to dislodge the stone by means of the ureteral catheter, the injection of liquid vaseline, etc. If the calculus can be brought to the bladder wall it may be possible to remove it by dilating the ureteral orifice and applying forceps through the operating cystoscope.

Case No. 6: T. W., male. Family and personal history negative. On January twenty-seventh, 1909, had severe cramp in left groin which later extended along the ureter. No decided urinary disturbance, no radiating pains. The attack lasted about two hours, the patient not being confined to bed, and then subsided leaving a sense of soreness which was exaggerated by exercise. On January 29th, a second attack came on which was similar in character, although not so severe, as the first but presented the added symptoms of bladder irritation and retraction of the right testicle. Duration of attack one hour and a half. There was a repetition of the symptoms on January 30th. This attack was short but more severe than the others. Consulted a near-by physician, he happened to be in the interior of the State at the time, and a diagnosis of ureteral stone was made. He came to my office February third. Abdominal palpation was negative except slight pain on deep palpitation over right kidney. The urine was cloudy with pus and phosphates. The microscope showed blood. On February sixth catheter was introduced into the kidney pelvis and a radiogram was taken. The plate when developed showed the catheter reaching to the kidney, and at the line of the fourth lumbar spine the shadow of a small calculus could be seen in contact with the catheter which had passed beyond it. The diagnosis was of course clear. He was put upon diuretics and rather large doses of glycerin. Since that date he has had one mild attack of colic during which the urine became cloudy with pus and blood. Within twenty-four hours that attack gradually subsided and the urine became perfectly clear but upon sedimentation blood corpuscles could be detected. He is still under observation. The plan of procedure as outlined is to keep watch of the urine to see that no damage is done to the kidneys; in the meantime nature is to be encouraged in effecting the expulsion of the stone. If this is not accomplished ureteral oiling will be tried, reserving a cutting operation as a last resort.*

Before concluding I wish to briefly note some points in diagnosis and treatment that are of importance.

First: The history should be carefully gone into. If because of recent advance in diagnostic technic neglect of history taking is encouraged the loss to ureteral diagnosis would be almost as great as the gain.

Second: Physical examination of the patient by the ordinary methods must be encouraged.

Third: The examination of the urine may give the key to the situation and will certainly afford much valuable information. For direct diagnostic purposes the finding of blood is of prime importance. Its continued absence after repeated microscopic search of samples taken at different times would go far toward excluding the presence of a stone.

The character of the epithelial cells and other debris should be noted. We are all familiar with the high claims that are made for the diagnostic value of the presence of certain cell types, but these claims have not as yet been fully substantiated, and while much importance may be attached to them we would probably all hesitate in making a positive diagnosis upon the microscopic findings alone. More independent work by a greater number of investigators is necessary before the last word can be said as to the value of this method.

*The calculus has since been passed. It is small, somewhat irregular in form and is probably of mixed composition.

Fourth: The cystoscope and ureteral catheter are of immense value as diagnostic agents and without them our final diagnosis may remain in doubt. It is only by their combined use, however, that decided advantage is gained for the cystoscope alone can rarely be of service except in those cases in which the calculus occupies the bladder portion of the ureter. The ureteral catheter may show the point of obstruction. Repeated attempts must be made to introduce it further for its onward progress may be hindered simply by a fold in the mucous membrane which with care can be straightened out or which will disappear at another examination. It must be remembered that the catheter may slip past a stone if the latter does not fully occlude the lumen of the tube. This was illustrated in Case No. 6. The use of the waxed catheter is well known. I have had no personal experience with it. The catheter phonendoscope of Cabot or Eaton may be of service. In several of my cases I have thought its employment would afford valuable information. The shadow casting catheter is of much value in conjunction with the X-ray. The use of the styleted catheter was more or less difficult for the stylet as a rule made the catheter too stiff for easy or safe employment. However, these objections do not obtain with the specially prepared catheter that has incorporated in its walls substances that render it impervious to the rays. This catheter can be very readily introduced and outlines perfectly the whole course of the ureter. By its use one can readily determine whether a given shadow is cast by a calculus within the ureter or is made by some substance, as a calcified gland, located near by. These extra shadows are not at all uncommon, especially in the female pelvis, and might easily mislead if not taken into account. In Case No. 5 what appears to be the shadow of a calculus in the ureter may upon examination with the catheter in place prove to be wholly without the tube. We can readily conceive that one of these shadows might be so placed as to correspond exactly with the location of the ureter. In such event it would be difficult to determine the fact before operation but by carefully examining the urine for evidences of irritation, i. e., blood, epithelial cells, by use of the waxed catheter and by the ureteral phonendoscope a differentiation is possible. Dr. Seelig has reported a very interesting case in which the shadow casting substance was in the appendix which in turn was adherent to the ureter. The symptoms in the case exactly resembled those of ureteral stone. Probably had the ureteral phonendoscope been used it would have set the diagnosis right.

Fifth: Of all our methods of diagnosis the one of most striking value is the X-ray. By its skillful use, and under circumstances not too unfavorable, nearly every stone can be located. Not only can it be located but its size and shape can be determined and much valuable information be afforded as to the line of treatment to be followed. In conjunction with the shadow casting catheter many points are made plain that heretofore could not but be obscure. So valuable is this combined method that we can almost assert that no diagnosis is complete without its employment. The more one sees of this class of work the more convinced he becomes that only men specially skilled in clinical radiography can obtain the best results.

Sixth: Three methods of treatment are open to us. 1st, we may adopt an expectant plan and by encouraging free diuresis, by the use of urinary antiseptics, by sedatives, by large doses of glycerin, etc., we may trust to the natural expulsive efforts of the ureter to carry the calculus onward into the bladder from which position it can be removed at our leisure should it remain lodged there. This waiting policy can be followed with the more assurance if the X-ray and ureteral catheter have together demonstrated that the ureter is patulous and the stone is not so large as to positively preclude the possibility of its passage.

2nd: Should the stone not descend an attempt may be made to encourage its passage by flushing the ureter through a catheter introduced for that purpose. Any bland, aseptic fluid may be used but perhaps some oily preparation would be the best.

3rd: These two methods failing we may resort to some operative procedure the nature of which will be determined by the location of the stone and the attending pathological conditions. If the stone is in the bladder portion of the ureter the intravesical route would be the one of choice. If the patient is a female and the stone is located in the lower ureter the vaginal route of approach may be selected. Some objections to this plan have been noted. For the large majority of ureteral calculi the extraperitoneal abdominal route will be the one of choice. It may be combined with the small intraperitoneal slit in some cases that present great difficulties in dislodging the stone through the extraperitoneal incision. The transperitoneal approach is not to be recommended.

Finally: One has but to refer to the literature of comparatively recent date to note how impossible it was to determine only a decade or so ago with any degree of accuracy, the presence or location of a stone in the ureter. To-day by making use of the methods that are well known as much certainty is afforded in this field of investigation as in any other in medicine and from former doubt we are now brought into a comforting conviction that is alike of value to the patient and the surgeon. That all cases can be easily diagnosed is certainly not true as was evidenced in Case No. 4 and the opportunity still remains for the employment of the most acute reasoning that we possess, but with our old and our newer methods wedded together into a useful service the doubtful cases are becoming fewer and fewer and the definite ones are assuming very large and growing proportions.

POST-OPERATIVE PHLEBITIS.*

By CHARLES G. LEVISON, M. D., San Francisco.

To have assured a patient that a proposed operation is free from danger, and then to find after its performance that the individual is invalided perhaps for months, is an experience that must cause the greatest concern to any surgeon, and yet it is an experience not infrequent when phlebitis intervenes as a complication.

In 1895 Piard [1] reported a case of post-operative phlebitis observed by Roux, and strange to say during the ten years that followed, little or nothing was published. The condition of phlebitis following surgical operations upon the gastro-intestinal tract was discussed by Gerster [2] in 1903, and by Munro [3] in 1905, but it remained for Cordier [4] to correctly classify this subject, and to place it before the profession as a definite entity.

Post-operative phlebitis of the lower extremities is a condition that has a classic history, for many of these cases are characterized by very nearly the same symptoms so that the following description will answer for almost any case reported:

A patient more often in the third or fourth decade of life, who has been in fairly good health prior to the surgical intervention, is operated upon for a simple recurrent appendicitis or a bleeding myoma of the uterus. Convalescence for the first 10 days has been without incident. The temperature and pulse have been normal and the sutures have been removed, primary union having been obtained. At this time the patient attracts attention to the left femoral region on account of discomfort and slight pains that gradually grow worse. There is an elevation of temperature to 101° or even higher. The femoral vein is not palpable but there is a marked tenderness along its course. The entire leg is at times greatly swollen. Soon the patient experiences severe pain and the leg is moved with difficulty. At this time the condition is recognized as a post operative phlebitis that usually affects the left leg irrespective of the character of the operation performed. The process may subside in a few days, or it may last for weeks, or it may never disappear entirely; in this respect its history is similar to that of "phlegmasia alba dolens."

Etiology: A thrombo-phlebitis is dependent upon the quantity and the character of the circulating blood; and the first points to be considered are the physiological and pathological conditions that cause its coagulation.

I can do no better than to quote "in extenso" Bidwell's [5] article: "The process of coagulation is due to the action of fibrin ferment upon fibrogen in the presence of calcium salts, the latter being found in normal blood. Fibrin ferment does not exist normally in the blood but is the result of the combination between calcium salts and nucleoproteid; the latter is not present in the blood under normal conditions and it is probably produced in consequence of a degeneration of the white blood corpuscles and the blood platelets.

Ordinarily a certain amount of nucleoproteid can be disposed of, probably by the action of the endothelial lining of the blood-vessels; this power is diminished however by injury or inflammation of the blood vessels or by a retardation of the blood current. As a consequence when a blood-vessel has been injured or the rapidity of the blood stream interfered with, a thrombosis results, because the blood-vessel is unable to dispose of the nucleoproteid that has been formed. Thrombus formation is also favored by sepsis, by an increase of CO_2 in the blood and by general conditions such as chlorosis and anemia, and lastly by specific fevers, more especially typhoid."

With regard to the thrombus occurring after typhoid fever, Wright [6] has shown that the blood of patients convalescing from this disease contains a large excess of calcium salts, and by neutralizing the calcium salts in such blood, its coagulability is diminished. He states that the excess of calcium salts in the blood is due to milk diet since ordinary milk contains 1 in 600 of calcium salts, so he maintains that the particular liability to thrombosis during and after typhoid fever is due to feeding patients on milk for a long time, and that this tendency can be counteracted by adding citrates to the milk. The coagulability of the blood is also increased by restricting the amount of fluids and by giving carbonate of magnesia. The tendency to coagulation is diminished by alcohol, by fluids in excess and reduction of solids, by nitric acid, rhubarb, acid fruits, wines and by tobacco.

The following classification of conditions in which thromboses occur, appears satisfactory:

First. An acute or chronic inflammatory process that involves the wall of the blood-vessel thereby injuring the endothelium;

Second. Trauma is a contributory factor and it may also be produced by operations upon blood-vessels;

Third. A slowing of the blood stream in consequence of tumors, exudates, etc., may be a cause; retardation may also result from a loss of elasticity of the wall of the blood-vessel; if attenuation of the vessel wall occurs dilatation may result;

Fourth. Marantic thrombi that are due to blood diseases, heart weakness and its resultant slowing of the blood stream;

Fifth. Infection; it is well known that infection can cause a phlebitis and its consequent thrombosis; the best example of this is shown in the surgery of blood-vessels, where the failure to carry out a perfect technic is almost invariably followed by the formation of a thrombus in the anastomosed structures, while perfect technic and careful surgery are usually followed by a complete restoration of the blood current. Another good example of infection causing thrombo-phlebitis is seen in the sinus thrombosis complicating mastoid disease. This evidence offers the strongest argument in favor of infection as being an etiological factor in the development of phlebitis. The rise of temperature is also suggestive of an infection.

In Grant's [7] report the opinion of 30 Ameri-

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

can surgeons concerning this subject has been published. In response to his inquiry that was directed for the purpose of determining the cause of post-operative phlebitis of the lower extremities, the answers received differed considerably. Some believed that bacterially infected blood was the cause of the process, despite the fact that primary union had been obtained. Others held that the recumbent posture predisposed to the development of the condition, while some contended that the anatomical situation of the vein might be a factor. The quality of the blood was also thought to play a certain role in the development of this process. The foregoing statements go to show that a consensus of opinion up to this time does not exist.

As far as I am aware examination of the thrombus or the interior of the affected vein for microorganisms has not been done, because the condition does not often result fatally, hence it has been difficult to disprove or confirm existing opinions.

The increased frequency of involvement of the left leg might be accounted for by the length of the left iliac vein, and by its being the less direct than the right; or it might be due to its anatomical position situated as it is under the right iliac artery; or the blood current might be retarded in the left iliac vein by a loaded pelvic colon. It has been claimed by some surgeons that a post-operative thrombosis may be caused by a trauma produced by the pressure of the retractors upon the edges of the abdominal wound that causes injury to the deep epigastric veins; the thrombus is supposed to form first at the seat of injury and afterwards to extend down to the femoral vein. This statement cannot be borne out by facts because the process occurs frequently following an operation for appendicitis where no pressure has been exercised upon the left epigastric vein, and notwithstanding this, the left is almost always the leg affected.

Miller [8] states that thrombi are more apt to form where carcinoma uteri or myoma uteri or large ovarian tumors have been removed. In these conditions a chronic anemia frequently exists in consequence of repeated losses of blood; or an acute anemia may be the result of hemorrhage occurring during an operation; when this takes place there is an increase in the number of leucocytes and blood platelets so that the percentage of fibrin is relatively augmented, which produces an increased tendency to coagulation on the part of the blood. This has not been my experience, however, for in my five patients chronic anemia was present but once.

Frequency: Cordier [9] has collected the reports of 14,000 abdominal operations, that show that out of this number there were 232 cases of post-operative phlebitis. Of these 69 followed hysterectomies for myomata; 27 occurred after appendectomies; 9 appeared after nephrorrhaphy and 4 followed the radical operation for hernia. This gives a percentage of 1.65. Other statistics published in America indicate that about 2% of all clean abdominal operations are followed by phlebitis. Cordier states that this condition has developed bilaterally twice in these 232 cases.

Prognosis: When the lower extremities are involved, post-operative phlebitis usually runs a benign course, and is not often followed by complications, and while it may persist for a long time and be exceedingly annoying, nevertheless the condition cannot be considered a disease that is associated with a fatal outcome; on the other hand, thrombo-phlebitis that develops in other parts of the body is often followed by the deposit of emboli in remote organs as the pulmonary artery and brain. When these structures are involved the process is, *"eo ipso"* very grave. An infarct in the lung following operation develops occasionally but it is not necessarily serious.

A thrombo-phlebitis of certain vessels is not an infrequent occurrence following splenectomy for Banti's disease. The writer [10] reported a case of this kind several years ago in which the right innominate vein was completely thrombosed. The condition was, however, followed by complete recovery. When the mesenteric veins are thrombosed as is often the case following splenectomy, the prognosis is exceedingly grave.

Prophylaxis: As has already been seen many opinions exist concerning the etiology of post-operative phlebitis; consequently the views as to the methods of prophylaxis differ widely. Ries and Boldt [11] were the first to advocate that patients that have undergone abdominal operations should be allowed to get out of bed early, that is, as soon as the first 24 hours have passed. For many years these opinions were opposed by most surgeons; but to-day the belief is rapidly gaining ground that the post-operative incidence in patients that are permitted to get out of bed soon after the operation, is followed with fewer complications than when they are treated in the usual manner.

The cause of post-operative phlebitis is obscure but statistics [12] have shown that when patients are allowed out of bed early that this condition has occurred but two or three times in the 1000 abdominal operations collected; hence it is to be assumed that early movement and early rising from the bed by accelerating the heart action and the circulation, exercise a certain prophylactic influence.

Moty [13] has shown that between the years 1890 and 1901 his results were unsatisfactory on account of the catgut that had been imperfectly sterilized. Infection was so frequent that drainage had been invariably employed. During this period there was not a single case of phlebitis encountered, but later when it became possible to sterilize the catgut properly, this condition occasionally occurred. Moty states that he has seen the process develop 5 times between the years 1904 and 1906, which represents according to his figures 1.1% of his total operations.

The hysterectomies reported have usually been abdominal. In the vaginal hysterectomies, phlebitis seldom occurs. Post-operative phlebitis does not develop often in suppurative processes that require drainage, but in the cases that have been reported, the abdomen has usually been closed without drainage, primary union having been obtained.

Kroenig[14] in a recent article published a series of 1000 obstetrical cases in which the patients were allowed out of bed 24 hours after delivery, with the result that without doing harm in any way, the morbidity has been materially diminished. These statistics show that "milk leg" does not develop with the frequency that it does when the patients are kept in bed, which might go to prove that the diminution in the morbidity is due to the effective drainage in consequence of the upright position.

Observations: In my surgical experience post-operative phlebitis has developed in five patients whose histories are as follows:

The first case occurred in a patient 25 years of age in good health at the time of the operation that was performed for a lacerated cervix. Silkworm gut was used for the suture material; the cervix was in a healthy condition at the time of the operation and after 10 days when the sutures had been removed and the patient was ready to be discharged from the hospital, the leg suddenly began to swell and a characteristic phlebitis was recognized. The condition was slow in subsiding and the patient had a leg that was more or less swollen and troublesome for several years, at which time she was lost sight of.

This patient offers an example of a refutation of the theory of drainage in preventing the development of phlebitis; at the same time it must be acknowledged that it is most unusual to have a vaginal operation complicated by a post-operative phlebitis, and when one realizes the great number of this class of operations performed, it will be conceded that this complication is uncommon.

The second case occurred in a woman 32 years of age, in good health. Her appendix had also been removed. A thrombo-phlebitis developed in the left leg about 12 days after the operation, and when seen four years later, she was more or less invalided on account of the swelling and pain in her leg that had persisted despite all treatment.

The third case occurred in a woman 45 years of age who had been exsanguinated from a bleeding myoma that had existed for seven years. The hysterectomy was performed in the usual way and the abdomen was closed without drainage. A phlebitis of the left leg supervened 10 days after the operation; the patient suffered endless inconvenience for a number of years following, on account of the swelling and pain in the leg. As a matter of fact the swelling has not completely subsided to this day which is now a matter of some six years since the operation has been performed.

The fourth case occurred in a girl 23 years of age who was enjoying fair health at the time of the operation, that was performed for a recurrent appendicitis. There was nothing unusual in the operation, and ten days after, when she was ready to leave the hospital, a phlebitis of the left leg developed that confined her to her bed for six weeks; this condition persisted for six months before it disappeared entirely.

The fifth case occurred in a man 22 years of age who was operated upon for a recurrent appendicitis. About one week following the operation, the leg became tender and swollen and a phlebitis was diagnosed. This condition ran a rapid course, convalescence having been completely established after three weeks. This case was the mildest of all.

Treatment: As a matter of fact treatment appears to be ineffective and is purely palliative. An exclusive milk diet should be avoided; free purgation should be carried out for the purpose of unloading the lower bowel, thereby minimizing the interference of the blood stream through the common iliac vein. Fluids should be given in excess and calcium salts and carbonate of magnesia should be interdicted. The patient should have plenty of fresh air and if milk is allowed citrate salts should be administered. Local applications as well as heat and cold together with elevation of the limb are indicated.

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Discussion.

Doctor A. S. Lobingier, Los Angeles: I have seven cases of post-operative phlebitis; they were all after clean operations. In but one case was there anemia. This patient was a woman of full habit in whom I had removed the tubes for hydrosalpinx. I also removed the appendix, so I could not say as to whether this phlebitis was due to the operation on the tubes or the appendix. All these cases of phlebitis were left-sided; they were all apparently in good condition and none were anemic. Two cases were hysterectomies for fibroids and were so-called intra-ligamentous tumors which required rather deep dissection. Neither was an especially bloody operation and there was no difficulty in the ligation. There was very little catgut used in any of the six cases; it was of uniform sterilization and I think it was clean. Two of the cases were simple appendix cases in the interval. So far as could be observed there was no clinical evidence of the presence of septic bacteria at the time of operation. All of my operations were done with gloves and all the assistants wore gloves sterilized under pressure by the dry method. I am of the opinion that these cases are infective. No matter how perfect our technic we know that we cannot be absolutely sterile. There is always an element of doubt. I think that traumatism may have considerable to do with this trouble, as it has in infections anywhere. There was no suppuration in any one of the six cases. They all occurred between the twelfth and sixteenth day after operation. In three of them no retractors were used at all. I very seldom use retractors. I use metal in the abdomen as little as possible and manipulate the intestines as little as possible, so I think, as far as my experience has been, very little could be laid to traumatism and still less to defect in asepsis. I have the feeling that every one of these cases is an infection of a rather low form, sufficient, however, to produce the thrombus.

Doctor James J. Hogan, Vallejo: In reference to the etiology of phlebitis, I have had experience in the investigation of four cases of phlebitis, two operative and two following ordinary diseases. In two, because of the question of diagnosis, a blood culture was made and I was able to demonstrate the invading organism. In one case following pyelitis, the colon bacillus was the organism. Another case followed an apparent typhoid and although no typhoid bacilli were found, the invading organism was staphylococcus aureus. In two other cases of nephrectomies a post-operative phlebitis following, at the end of ten days and four days respectively, the staphyloeoccus albeus was found. In those cases where a temperature is running, if the culture is taken directly from the blood you will be able, in some cases, to clear up the cause immediately. My work has been limited but in all I have been able to demonstrate the invading organisms. If we will do this blood culture work, or even open the vein at the site of the worst part of the infection, I believe it will be easy to demonstrate the infection. I believe all cases of phlebitis with temperature and other signs of general infection are produced by some micro-organism and if we resort to the above methods a diagnosis will be made in many other cases.

Doctor A. B. Spalding, San Francisco: We all know that cases of phlebitis occur occasionally in obstetrical practice and just to present to the Society some points differing with those mentioned, I would like to mention a case occurring during the last year in hospital practise, a thrombosis following fourteen days after a normal delivery. The patient was delivered by an interne and there was no temperature at any time. The patient was out of bed on the fourteenth day and shortly afterward noticed a slight tenderness in the right calf. There was a slight swelling the next day (2 cm. enlargement around the calf) and slight tenderness in the right popliteal space. There was no temperature. The blood cultures made were absolutely sterile. The patient was of the type who could not understand her condition or why she was kept in bed after having progressed so well and feeling so well. Sight tenderness in the vault of the vagina was noted but not enough to diagnose a septic condition. The leg was put at rest with a bandage. Although warned to remain absolutely quiet, she thrashed about in bed and about seven days later as a result she died from an embolus about three or four minutes after the attack began. The family refused an autopsy so that the only points to be presented are that the blood was sterile and the condition throughout afebrile. One point to be brought out is in regard to the nucleoproteids in the blood. We know that in the obstetrical patients a leukocytosis always exists after confinement and rapidly disappears which must throw a lot of nucleoproteids into the blood.

Dr. S. J. Belknap, San Jose: I have had two cases of phlebitis, one in an operative case for interstitial fibroid, following about ten days after the operation in which I removed the right ovary and the posterior bladder wall had grown right up into the wall of the tumor. The patient got along nicely, healing occurred by first intention until about the 10th day when there was a lumbar swelling and the temperature rose, the highest point being about 102°. This lasted for three weeks without further disturbance, the temperature settling down. Another case was brought under my care in the very late stages of suppurative periostitis and he was a case who had been demented and was very much emaciated. He died a very few days afterward. The swelling was very large from the foot up to the body and remained that way without relief until death. There was temperature in both cases.

Dr. H. M. Sherman, San Francisco: I think that the discussion of this subject is one which should pass from the general surgeon to the laboratory worker. The discussion would bring, as in one on intestinal obstruction, very little elucidation of the problem. It has got to go into the laboratory. I have seen seven of these cases, one after a sprained ankle, two after no possible assignable cause, two following appendectomies, one following in the right leg by the ligation of varicose veins in the left leg and one following in the right leg the excision of ulcers with skin grafting in the left leg. I cannot generalize from them and must refer the matter to the laboratory for a final complete answer.

Dr. T. W. Huntington, San Francisco: While this is certainly a laboratory problem as has been said by the reader, there is one point of the highest possible clinical significance which laboratory investigation, thus far, seems not to have explained, viz: why the trouble always exists on the left side. We can demonstrate that a thrombus of any type or character is probably septic. But I would like to know why, in most cases, we find this trouble on the left side? When this question is solved, it may happen that preventive means can be devised.

Dr. Raymond Russ, San Francisco: I think that in connection with what has been said we should remember the extensive work which has been published by A. Broca of Paris on Varicose Phlebitis. Broca lays stress on factors in the etiology which are not generally recognized. Thus he emphasizes fatigue, especially if accompanied by privation. From our point of view such a statement may seem extreme but again it is to be noted that Briquet has placed cold as an etiological factor and also believes that pressure may account for the condition. LeDentu, Thomas Browne and several others have placed contusions, although they be very slight, in the causation. These statements have been made by keen observers and men of large clinical experience. It is also to be mentioned that blood cultures have sometimes been found to be sterile in cases of post-operative phlebitis.

HEADACHE—A SYMPTOM AND ITS SIGNIFICANCE.

By FRANK W. MILLER, M. D., Los Angeles, Cal.

I am constrained to select this subject for my paper, 1st, because it is the commonest symptom that comes to our office; 2nd, it is all too often considered of small importance by the physician; 3rd, that while it concerns not necessarily the life, it affects the comfort of millions of people and renders an existence often intolerable; 4th, that it may be either the chief or an auxiliary symptom, but if it is the most prominent, it assumes great clinical importance.

The headaches that this paper deals with are not the transient, irregular kind that are due to some faulty habit of life—eating, drinking, etc.—not the headache of "the morning after the night before"—but those distressing, persistent, recurring, habitual (in a sense that they are constant) types that demand more than ordinary measures for their alleviation and cure.

Neither is it the purpose of this paper to discuss neuritis, disease of periosteum, cranial bones, etc., that simulate headache very closely, but have no place in a paper of this character, except to be mentioned as a possible cause of error in diagnosis.

I should also like to dispose of the term "neuralgia" at this time. There is a prevailing tendency among medical men to use the term "neuralgia" to

cover a vast array of assorted head pains. This is often done because the name satisfies the patient and it saves a great deal of time and effort in tracing the condition of its true origin. The term conveys nothing definite and in no way suggests its etiologic factor or its cure.

Pain and sensation require for their manifestations the proper interpretation by the central system, which in turn projects this same sensation to the periphery, and to say that a nerve trunk or its branches are capable of pain, is erroneous. Neuralgia is due to irritation of some sort, and the character of this irritation should be considered and not the pain, which is secondary to it.

It is extremely difficult to distinguish and determine when pain caused by irritation (functional) ceases and that by reason of the nerve change (organic) begins, and this fact alone is accountable for the general misunderstanding concerning neuralgia.

Unfortunately, but little is actually known of the real mechanism of headache. It is probable that no analogous condition exists in the body.

Brain substance itself appears to be insensible to ordinary tactile and painful stimuli. Disease of cerebral tissue may exist without pain (abscess, etc.), but the coverings of the brain and its vessels are liberally supplied with nervous elements from the trigeminus, four upper cervical and sensory branches of the vagus—nerves which convey sensation to the central organ. These same nerves also supply the extra cranial structures, which fact accounts for the mixed (deep and superficial) pains found in most varieties of headaches. Any sort of irritation produces results as variable as the stimuli and clinical manifestations are extremely irregular.

That headache is not alone the result of irritation, is attested by the fact that an anatomical and physiological perfection is almost an unknown quantity. Irritation of some sort is constantly present. It requires another element, viz., imbalanced and susceptible nervous system. Normal nervous systems have a marvelous power of accommodating themselves to continuous and prolonged irritation (an instance—brain tumors, abscess, etc., without symptoms). Before a seed can germinate it must fall upon congenial soil (nervous system). Stimuli must be either severe enough to break down the normal resistive power, or the nervous system must be below par either from inherited or acquired causes in order that these cephalgias may occur. Therefore, we must always bear in mind that headaches are dependable upon two general conditions, viz., the abnormal nervous state and the peripheral irritation. That the neuropathic diathesis is often aggravated by the constant irritation is granted, but the nervous stigmata is usually present a priori.

The proper correlating of cause and effect is often extremely difficult, but it is quite essential. Great and long have been the various discussions concerning this fact, and very little accomplished. The neurologist looks upon the diminished resistance and sees in it the cause. The oculist (for instance) considers only the irritation. The neurologist claims that 45 per cent of all headaches are neurasthenic; the oculist that 50 per cent are due to eye-strain. Neither is right, for each looks upon the condition from his own constricted view as a specialist, and fails to consider that his deductions are made from a class of cases referred to him for specific reasons, and not the general class that furnish the only true basis for statistics. Their point of view is different and it is but recently that any concessions have been made on either side. Each has had cures by the removal of their cause, but much more would be gained if they would meet each other half way and recognize the true state of affairs through a more liberal view of the matter.

Given this neuropathic state, the various stimuli produce symptoms directly in proportion to the susceptibility of the individual; hence, the degree of a distress is in no way commensurate with the existing cause.

Heredity is a very prominent factor in most cases of cephalgia. Not that headache can be and is inherited, but the temperament and highly organized and sensitive nervous system is usually handed down to posterity, together with many anatomical, etc., peculiarities (the asymetrical skull with its muscle imbalance and astigmatism, being a notable example), which also furnishes the irritation necessary to complete the clinical picture. The patient recognizes the fact that his "headache ancestors" have "handed it" to him and resigns himself to the idea that he was born to a heritage of pain from which it is useless to seek permanent relief.

In studying headache, the first thing required is a complete and careful history of the case—heredity, previous infections and traumas, occupation (in regard to alcohol, nicotine, sexual, business worries, etc.), nature of the pain, location, duration, what aggravates or precipitates it and what relieves it. To secure a history that will be of value, requires great tact and skill, for all of these neurotic individuals are extremely susceptible to suggestion and much care must be exercised in questioning them so as not to produce misleading answers.

In order to obtain an intelligent and accurate idea of any symptom with such multitudinous causes, it is first of all necessary that some classification be made in order that a correct interpretation and estimate of each detail can be reached.

(We, as physicians, are notoriously poor in business methods, and I believe if we would take more from the business world we would accomplish a great deal with less effort. The chief thing to be learned is "system" and the simplest system and routine is the one desired.)

The text-book teachings are extremely indefinite and possess little of value, and must always be liberally interpreted—(for instance, syphilitic headache is not always worse at night; brow pain is not always eye strain; headaches occurring monthly in women not always uterine).

In medicine, it is unfortunate, but true, that few symptoms are constant and free from exception, but of this particular one we are discussing, atypical cases are almost the rule and the value of each fac-

tor must be taken for what it is worth in determining the symptom complex.

In looking over the literature, I was struck by the fact that each author has resorted to his own arbitrary classification of headaches. Musser classifies them into two general groups (Deep and Superficial).

Also into extra cranial (1) Scalp (skin, muscle, nerves); (2) Cranium (periosteum and bone).

Extra cranial (1) Functional, (2) Organic—Acute and Chronic.

He further divides them as to their general origin.

Mayer's classification is largely as to their cause and to my mind is incomplete.

Butler places considerable emphasis on location of the pain.

Other classifications are equally unsatisfactory.

However, I shall not avail myself of the privilege and opportunity that is here afforded to make any definite classification, but in order to make clear and explain certain features of headache, it will be necessary to take up separately each general class, for the phenomena are not uniform and types have a decided tendency to become atypical and mixed.

The character of the pain, its location, duration, aggravating and relieving causes, are the only tangible factors that we have, and of these the location of the distress is perhaps the only one possessing much value.

The character of the pain (which is variously described as (a) sharp and lancinating, (b) pulsating and throbbing, (c) dull, heavy, diffuse, (d) binding, pressing, squeezing, (e) hot, burning, sore), will be given slight attention because it is of small value for diagnostic purposes, being extremely variable and inconstant (except in rare instances—clavus) and dependable largely upon the patient's power of description.

I. *Organic.* Headache under this subdivision is caused by two factors—pressure and inflammation.

As before noted, cerebral tissue itself is not sensitive, but if any lesion involves or in any way disturbs the normal state of the cerebral coverings, or its blood vessels, pain is evidenced, usually of a severe type. Abscess, cyst, tumor, hydrocephalus, etc., involving only the cerebral tissue and not creating increased intra-cranial pressure, are free from pain, and it is only when the periphery of the brain is approached or the pressure involves its membranes that it becomes apparent.

The pain occasioned by increased pressure is usually accompanied by other evidences of organic cerebral disease (optic neuritis, mental abberation, focal symptoms, vomiting, etc.), and can hardly be mistaken. Inflammatory types of organic cerebral disease are usually infective—the various forms of meningitis (both acute and chronic) furnishing the most common example. Disease of blood vessels (arteriosclerosis) and cranial bones produce severe pain but are not often encountered. Syphilis should perhaps be particularly mentioned, as it furnishes both types (pressure and inflammation) and is an extremely common factor, producing lesions that should be classed as organic rather than toxic.

Fortunately for both the physician and the patient, organic headaches constitute only a small class, but their possibility must always be borne in mind and care exercised, for a differential diagnosis between organic and functional headache is of fundamental importance since their prognosis (except in luetic cases) is extremely grave and the relief of the pain almost as impossible as the cure.

The site of the head-pain in these cases is often of little value for localizing purposes—circumscribed inflammation of the various structures furnishes well defined evidence of the lesion, but in pressure cases, or extensive inflammation, the pain is diffuse, variable and shifting, and may even be projected to the periphery. The character of the pain is of but little value and presents nothing characteristic, except that it is the most severe and persistent of all cephalgias.

II. Toxic: Headaches produced by toxemia *alone* are comparatively infrequent. They are the result of direct irritation and changes in their terminal nervous elements, produced by poisons floating in the blood stream. They are of all degrees, locations, character and duration, and have no distinguishing features.

The uraemic headache (excluding hypertension) is a typical example of this class. Gout, lithaemia, chronic malarial poisoning, lead, alcohol, mercury, tobacco, diabetes (acetonaemia) the products of faulty intestinal metabolism, etc., each contributes its peculiar irritant that makes for these headaches. In some instances, infectious processes also are responsible for the elaboration of the exciting cause.

It is exceedingly difficult to distinguish between headaches caused solely by toxaemia and those resulting from disturbances of circulation that are dependent upon it.

III. Circulatory: Headaches produced by disturbances and disorders of circulation, are the most common and are correlated very closely with practically every other type.

The condition of the vessel wall—pressure of the blood stream—the condition of the heart—the interference with the return flow from the brain—the quality of the blood and the vaso motor control of the vessels are all factors in the production of this class of headaches.

Disease of the vessel walls (venous and arterial) should perhaps be considered as organic, but their influence on the blood stream entitles them to this classification also.

Hypertension, either from peripheral contraction or increased heart action, is extremely common and the head shares with the rest of the organism its damaging effects.

Diminished pressure with stagnation due to a relaxed condition of the vessels (particularly noticeable in the aged) is a common source of distress.

These two chief forms of cerebral hyperaemia are dependable largely upon vaso motor control of the

vessels, which in turn is influenced by innumerable factors of a diversified nature.

External influences (exposure to the sun or intense heat), toxic agents, reflex irritation, etc., produce an active hyperaemia that causes the flushed face, injected eyeground, etc., together with the throbbing, bursting headache that is increased on lowering the head.

Passive congestion is rare and is caused (as before noted) by relaxed blood vessels in the aged, obstructive conditions of the neck (tumors, clothing, etc.), and by cardiac disease. Mouth breathers experience a morning headache that is due to a failure to properly aspirate the blood from the head into the chest (a true passive congestion). These headaches are diffuse and an exceedingly common accompaniment of acute infectious processes.

Cerebral anaemia may be dependent upon general anaemia, prolonged emotional excitement (vaso-motor) excesses, etc., or more rarely from aortic disease. The pain is vertical and characteristic—is not throbbing, but is described as a sensation of weight—the extremities are cold—face and eyeground pale—mind depressed and lowering of the head relieves the pain.

Circulation is a feature of all headaches and should always be considered for frequently it is its abnormal condition that is the direct causative factor, whether the chief exciting cause be organic, toxic, neuropathic or reflex.

III. Neuropathic and Psychopathic: A large number of headaches must be placed under this heading. Inherited tendencies, artificial conditions and habits of life have created a vast number of individuals who present certain illy-defined symptoms (more or less variable) that are included in the general term—neurasthenia. An exact definition of the term is hard to find, but it is sufficient to say that in its large assortment of clinical symptoms headache finds a prominent place.

These headaches are characteristic and fairly constant and are due not to any single factor as was formerly taught, but to a series of conditions that are more or less associated in each individual case, viz: vaso motor disturbances (paralysis)—auto-intoxication (hyper and sub-oxidation) cellular exhaustion (with the elaboration of a specific poison), etc.

The chief sites of the distress and pain are frontal, occipital and sub-occipital regions, although no part of the head is free from it.

These patients, with their usual well-developed powers of expression have described its character in every possible way and have compared the pain with everything disagreeable. For this reason its diagnosis must be negative and all other sources carefully excluded.

Epilepsy and exophthalmic goitre produce headaches that are extremely distressing but are not characteristic. Hysteria has for one of its varied manifestations a characteristic headache (clavus) that cannot well be mistaken.

IV. Reflex: The term "reflex" as applied to headaches is a misnomer, but for want of a better term it is used to express those cephalgias that are the result of abnormal conditions, separate and remote from the site of the distress. Their manner of production is dependent (chiefly) upon two factors, viz: (1) Irritation of some branch of the same nerve or nerves that directly supply the head (a projected and transferred sensation—not reflex). (2) A disordered state that so affects the circulatory system (through the vaso motors or otherwise) as to influence the blood supply of the head.

The former explains the pain occasioned by disturbances in contiguous parts;—the latter, those that occur from lesions remotely situated. The most marked instance of the latter type is the headache so common in women from pelvic disturbances. These headaches are usually vertical and occipital and are relieved by pressure—this fact alone demonstrating their circulatory nature.

Gastric and other visceral irritation (visceral neuralgia) is analogous to pelvic and the relief obtained by vomiting is but evidence of the removal of the exciting cause.

Each organ of the body might be taken up in detail, but the phenomena are the same and it is not necessary to go into particulars.

The intimate and elaborate nerve and blood supply of all parts of the head make it possible for any local disturbance to produce headache.

The teeth, nose, eye, etc., depend for their sensation chiefly upon one nerve and this same nerve supplies the intra as well as the extra cranial structures capable of sensation. Hence, we find as one of our most common sources of headache, local condition that in any way departs from the normal.

Carious and diseased teeth must always be considered, but it should always be borne in mind that teeth free from pain in themselves may and often do produce headaches that are extremely distressing and intractable.

We are likely to overlook in our scrutiny for the rare and unusual, the small and apparently insignificant sources of irritation.

The nose and its accessory cavities contribute to the production of headache.

Inflammation of all kinds and degrees, together with their accompanying phenomena, local irritation, pressure from turgescence, retention of secretion, diseased bones, etc., produce distress that ranges from slight and annoying to the point of intolerance.

Being an oculist, I have modestly reserved for the last the most common source of headaches that belong to this or perhaps any other class, viz: the eyes.

Eye strain is a term of much latitude and embraces every form of departure from the normal that affects the visual apparatus. Errors of this part are more manifest for the reason that a constant state of activity is maintained during all the waking hours and no opportunity for rest is afforded.

Refractive errors—muscle imbalance, sub-normal accommodation, etc., being present, the effort made to readjust the condition and maintain binocular

single vision and acuity produces a train of nervous symptoms that headache leads in point of frequency.

Ocular headaches manifest themselves in the frontal (brow and temple) and occipital (nape of neck) regions. There are very few exceptions to this rule unless the condition becomes severe and then the headache may be diffuse. (The pain due to refractive conditions usually being confined to the frontal region and muscle imblance to the occipital.) The pain of iritis and glaucoma cannot be mistaken for the accompanying eye condition is easily recognized. Eye headaches are of varying intensity and character and range from the mild brow ache to the severer type of migraine. The degree of the distress bears no relation to the nature and extent of the lesion. The cure of these headaches is obtained only by the *proper* fitting of lenses (or a change in the character of the work the eyes are called upon to perform) or the restoring of the normal balance to the eyes.

The *proper* fitting of lenses is a rare art (a recent article by an eminent authority to the contrary notwithstanding) and I believe it to be no exaggeration when I say that not more than 25% of all persons wearing glasses (not presbyopes) to-day are properly fitted.

And I would caution general practitioners not to place too much reliance on the statements of oculists and opticians (I regret to say that many physicians still refer work to them) that the eyes are normal or properly fitted, and that the headaches have another source, until firmly convinced and satisfied that such is the case. Innumerable instances of error in this regard have been productive of much chagrin and disappointment.

On the other hand, I would caution you in referring your work to the oculist, not to be too positive that the eyes are at fault, for if they are found to be normal, it reflects not only upon you, but I can assure you greatly embarrasses the oculist.

The absence of symptoms obviously referable to the eyes, does not exclude them as an etiological factor in headaches, and no study of a rebellious case of headache or obscure nervous disease should be considered complete until a careful examination of the eyes has excluded them as a possible cause—such an examination must be exhaustive and painstaking, for small errors of refraction or abnormalities of binocular balance create profound impressions on delicately poised nervous systems.

Migraine. I have given migraine a separate heading for it possesses features that are distinctive and characteristic. Strictly speaking, it should not be classed as a headache at all, for it is more than that and unlike any ordinary neuralgia.

Migraine is one of the greatest disasters that can befall an individual; it incapacitates him for work and renders his existence miserable. Its symptoms are so common and so well recognized as to need no repetition. Error, however, is frequent, for considerable variation exists in the true type and atypical cases tend to confusion with other conditions. Many headaches are classed as "migraine" which have little in common with it. Hence the endless discussion regarding it, and the hopeless confusion of it all. Gould says the term is obsolete, indefinite and should be excluded from the language—and until men are agreed as to its characteristic phenomena, no final agreement can be reached.

Dana says that migraine is a fulgurating (explosive) neurosis, with periodical discharges which has for its seat the cerebral cortex, or possibly the primary sensory centers, i. e., the root ganglia of the fifth and vagi nerves, and is not sympathetic as was formerly taught. Plavic claimed that a periodical swelling of the hypophysis was the cause. Innumerable theories might be cited, but after all has been said it is evident that its pathology at the present time remains unknown. It occupies the same position in the sensory nervous system that epilepsy does in the motor, and until its pathology is discovered and it is recognized as a complex condition, it will continue as one of our most formidable diseases.

To determine whether we have to deal with a true migraine or other conditions simulating it, is often a perplexing question, and frequently cures are reported which have for their basis the failure to distinguish this point. True migraine frequently (but not always) possesses a characteristic feature that should determine it, viz: aura. These aurae (usually sensory) are present in no other disease, and present a striking analogy to epilepsy. They consist of various sensory phenomena (numbness and tingling of the extremities, ocular disturbances, scintillating scotomata, henimopsia, visual hallucinations, etc.), and invariably disappear before the onset of pain.

Migraine is essentially a "specialist's disease"—i. e., it is ultimately referred to him.

Specialism has a tendency, unless strongly combated, to narrowness, and each variety treats from his own particular viewpoint and persistently refuses to recognize and credit other methods than his own.

That migraine is necessarily a condition that needs for its manifestation both the inherited, unbalanced, nervous organization and some peripheral irritation, must be patent to all who closely observe. Mobieus claims that 90% of all cases of migraine show the evidence of some inherited nervous stigmata (not necessarily migraine).

Neurologists consider this the chief feature and have wrought wonderous cures by correcting this tendency; on the other hand, Dr. Gould, in a personal letter assures me of the cure between five and six thousand cases of migraine (in its narrowest sense) by removing the source of the irritation, which he dogmatically asserts is always to be found in the eyes. That the eyes are frequently at fault cannot be denied, for the testimony of innumerable cases of cure by the correction of ocular anomalies, or the cessation of the attacks following loss of accommodative power (paralysis) is irrefutable.

The eyes, however, are not the only source of peripheral irritation, for the removal of other stimuli (nose, pelvis, etc.), have accomplished cures and every possible kind of irritation has been known to

precipitate attacks in individuals sufficiently susceptible. However, Dr. Gould's brilliant record is entitled to serious consideration, for there is none that in any degree compares with it, and that the large majority of cases have their exciting cause in the eyes is the consensus of opinion at the present time. Often the removal of the exciting cause alone results in a cure, and when the nervous or psychic condition is or can be rendered normal, no amount of irritation will precipitate an attack; so if both the neurologist and oculist would extend their horizons and recognize this fact, their records of cures would be markedly increased, and results accomplished that are now impossible.

Cures are not as a rule immediate, but require great patience and skill, for lifetime habits of nerves and eyes do not yield graciously to any corrective effort, and often we must be content with a mitigation of the severity and the extension of the interval.

The significance of persistent headache lies in the fact that it possesses a causative factor that is frequently of such a nature as not only to render the patient miserable, but to threaten life itself.

Headache, moreover, is often the only symptom prominent, while other morbid phenomena are obscure—it thus acquires in doubtful cases diagnostic value often of a high degree.

Again, it is a symptom of many diverse conditions—its pathology is multiform—its etiology varied and irregular. It is only a symptom and often one of many that make up the morbid complexus and its cure as a consequence is often difficult.

THE MEDICAL SIDE OF HEADACHE.*

By J. WILSON SHIELS, M. D., San Francisco.

All headaches are complex and obscure. We have little exact knowledge of the structures wherein pain is felt. We do not know what pain really is. Clinically we desire to believe that the consciousness of pain must be related to the activities of certain nerve cells in the cortex. And that these cortical cells are reached by currents of overflow from other sense centres when the violence of their inner excitement surpasses a certain pitch; and they, in their turn, are concerned in receiving impressions from nerve fibres by which the sensory impulses pass from the part or parts complained of. Indeed there is no good reason why these lower sense centres should not also be considered pain centres when they have reached a point previous to the overflow of their inner excitement.

Wise men specializing in physiological investigation refute much of this. In fact they seem to take a particular pleasure in trying to prove our clinical findings faulty, and this continual refutation leaves us in a wilderness of ignorance crying aloud "What is pain?" "What is its relation to other forms of sensation?" "Is it the product of a special sense?" The physiological echo answers "Is it?"

Again we implore "May it not be inherent to, and appear in any of the known separate senses?" Again the scientific answer, "May it not?" And so, in the effort to be of service to suffering humanity, we pin our faith to clinical observation and to pathology; stating, as we do so, that however learned the physiologist may be, he must necessarily be gravely handicapped; for he must rely upon signs born of subjective conditions rather than upon intelligent verbal communication and he will pardon us if we look for a fuller advantage from clinical pathology.

We know that moderate pressure registers touch, extreme pressure pain. The pain produced in a limb is very surely conveyed to the cortical cells related to that limb, and in the habit of receiving impressions from it. By many other familiar facts are we justified in regarding pain as an excessive stimulation, or reaction, of the tactural and other species of cutaneous sense.

Now the brain substance itself is no doubt represented by cortical cells in the same way, yet under normal conditions we know it to be destitute of sensibility; just as we know that all tissues and organs supplied by the autonomic system are not endowed with sensation in the same light with which this term is used when applied to tissues supplied by the cerebro-spinal system. But we also know that any of these organs—heart, stomach, bowels, liver, kidney,—may, when disordered, produce the very ecstasy of pain. This being the case why should it not be that any part of the brain when actively inflamed and producing intense pain, should have that pain sent by afferent fibres to those cortical cells which are in health related to, and receive impressions from it? This hypothesis we also apply to actively disordered membranes, which, by the by, seems to be the common point of attack of all reflexes, and to bone, for we know that both are possessed of sensory fibres which when irritated produce pain, referred to, and perceived by, those cortical cells receiving normal impressions from them. The clinical truth of this is seen when many a deeply centered lesion, say of the central ganglia, coming nowhere near the brain's surface, is associated with acute headache, and if further proof of this separate representation in the cortex be desired we recall the fact that sympathetic fibres follow the arteries into the brain substance; that the cortex at all times influences the state of these arteries; that this association must mean a very close relationship between the cortical cells and the vaso-motor centres, and that a hyperemia, active or passive, will, by increasing intracranial pressure, so excite them that severe pain will result. Or if you like it better, for we cannot always give the reason why the cortical cells take on an overaction during hyperemia, that they are susceptible to spontaneous overaction consequent upon increased blood supply, and that this spontaneous overaction is synonymous with pain. Daily evidence of this is given us in brain tumors where the most modest cough, or the slightest stoop will add the very extremity of pain to an already unbearable agony.

So it would seem that headache in no way differs from the production and perception of pain in other organs, or tissues. It is a reflex phenomenon the out-

* Read before the San Francisco County Medical Society, May, 1909.

come of functional or organic disorder; the seat of its origin need not be the locality where it is felt, but in the peripheral territory of the sensory fibres associated with cortical or nuclear cells acting as pain centres by virtue of their overexcitement. The various states of cerebral vascular tone producing a resultant increase or decrease of intracranial pressure becomes one of the most, if not the most, important factor in its production. If we could (by our present clinical methods) always gauge intracranial pressure from general blood pressure we would frequently be in a position to explain many a headache, toxic or otherwise, and follow that explanation by rational therapeutic measures. But we cannot do this, so after all, when all is said and done, headache remains a mystery, a poor index to the diagnosis of material and immaterial lesions or conditions of the human body.

Classification and Cause of Headache. When one realizes that any pain in the head may be called a headache, that on the one hand it may be so transient and mild, and on the other so persistent and severe, as to cause the patient either to ignore or to crave relief, one feels the hopelessness of classification. Nevertheless I have endeavored to do so, and here present you with the result of that endeavor. Kindly accept it in the spirit that it is presented. There is nothing didactic in my intention. Time is short and any one of us could dilate for an hour on a division of this arrangement. It is far from perfect and overlaps continuously, and in presenting it I find myself in great fear of being misunderstood. I mean no insult to the intelligence of this audience for without a doubt the causes of headache are well known to you all; but what to say, and what to leave unsaid, has been a continual source of worry and alarm to me. Your very learned and most capable committee have commanded me to write upon the medical side of headache and I am given twenty minutes to do it in, and in my poor effort to do the subject justice I have been forced into presenting this classification. I repeat that I am possessed with its imperfections for although it seems worthy in my mind it looks unworthy on paper. This unworthiness is accentuated by the necessity of placing certain headaches under all the headings. If it will serve as a good working basis for therapeutic considerations and as a syllabus to this paper it will have fulfilled a purpose.

CLASSIFICATION AND CAUSE OF HEADACHE.

I. FUNCTIONAL HEADACHE.

A. TOXAEMIC HEADACHES.

(1) Acute.

(1) Specific infectious (fevers) frontal or general, seldom vertical or one sided. Increased by congestion.
(2) Acute nephritis (following the above) acute uraemia.
(3) Acute composite diabetes (autointoxication with acetone bodies).
(4) Puerperal states other than nephritic failure, preseptic.
(5) Acute drug poisoning, e. g., amyl nitrite, nitroglycerin, etc.

(2) Chronic (Including products of defection metabolism).

(1) Kidney headache. From slight neuralgic type to severe with high grade arteriosclerosis. D.D. when severe with alb. neuritis from cerebral tumor.
(2) Gouty headaches. May be a severe "plus tension" headache or mild "minus tension" headache.
(3) Malarial headache, neuralgic in type, "brow ague." Short intermissions.
(4) Rheumatic headaches common in childhood and associated with "school pressure." Frontal.
(5) Syphilitic.
(6) Sluggish liver headache associated with constipation.
(7) Cirrhotic liver headache (more complicated than No. 6).
(8) Constipation headache, without liver associations. (Also reflex.)
(9) Intestinal dyspepsia headache, with or without constipation. (Also reflex.)
(10) Gastric dyspepsia. (Also reflex.)
(11) Gluttony of fats, proteids, or carbohydrates, i. e., acid products.
(12) Slow drug poisoning, e. g., arsenic, lead, etc.
(13) Noxious air, etc.

B. NEUROPATHIC.

(1) Emotions and other psychic faults. (Hyperaemic.)
(2) Migraine (typical), two types, tonic or paralytic, but generally combination.
(3) Recurrent or periodic headache without visual phenomenon.
(4) Simple neurasthenic headache. (Not sharply defined, "Cephalic sensation.")
(5) Traumatic neurasthenic headache. (Generally sharply defined.)
(6) Epileptic with or without fit.
(7) "School pressure" headache.
(8) Premenstrual headache other than migraine.

C. REFLEX.

(1) Errors and disorders of eye, ear, nose, throat and mouth. (When recurrent usually neuropathic, frontal sinus.)
(2) Gastric, including hunger and fasting, hyperaesthesic, scalp areas, temporal and parietal (D7 and D8).
(3) Thoracic and hyperaesthesic; scalp area, midorbital and fronto temporal (D4 to D7).
(4) Abdominal and hyperaesthesic skin areas, occipital, parietal, vertical and temporal (D7 to D10).
(5) Migraine (anaemic and hyperaemic).
(6) Periodic other than migrainous.

II. ORGANIC.

(1) Inflammations within:
Encephalitis, local or diffuse from any cause. (This includes many of the above.) Lepto and pachymeningitis.
(2) Inflammations without:
Sinus disease.
Bone disease (including middle ear, syphilis, etc.).
(3) Arterial degeneration (see chronic toxic headaches).
(4) Tumors (including syphilis, tubecular cysts, etc.), severe, dull or acute, constant with paroxysmal attacks. No definite position unless superficial, preventing sleep. Intracranial pressure augments, vertigo, optic neuritis, etc.
(5) Indurative (see toxic).

III. CIRCULATORY.

A. ANAEMIC, slowly produced; majority "minus tension" headaches; controlled by position and alcohol.
   (1) Systemic (convalescence).
   (2) Blood dyscrasias.
   (3) Cardiac debility.
   (4) Consequent upon pressure.
   (5) Consequent upon spasm.

B. HYPERAEMIC, majority "plus tension."
   (1) Heart hurry (exophthalmic goitre, etc.).
   (2) Cold, etc. (peripheral spasm).
   (3) Drugs, nitroglycerin, etc.
   (4) Sunstroke (excessive heat, alcohol, anger).

C. PASSIVE CONGESTION, "mechanical headaches."
   (1) Mitral and other head lesions.
   (2) Mediastinal tumor.
   (3) Persistent cough.
   (4) Faulty attitude in sleep.
   (5) Collar restrictions, etc.

Before enlarging upon this arrangement allow me a few general remarks. There are few well defined beginnings of headache. When one is searching for the indefinite one must be prepared to fail to follow and obey that very easy-to-write-book-axiom "Find the cause and remove it." We have not the same difficulty in finding the exciting cause. In headache it is the vague causative something that must be found and removed. Do not misunderstand me. The removal of the exciting cause is all important, but my personal observation has taught me to beware of the underlying nerve diathesis in all chronic recurrent headaches and to appreciate that no cure is complete without an attempt either to remove or control it. For example the correction of a visual error will banish the acuteness of the headpain like snow in summer sun, and the physician may rest content instead of continuing his treatment in the hope of alleviating the underlying neurosis and at the same time warning the patient to avoid other exciting headache causes. I have over and over again seen and known of such patients who have had a return of periodic headache with an exciting cause of intestinal origin. In other words a neuropathic diathesis underlies chronic headache whatever the exciting cause may be, and the more marked the history of this taint the less necessary or mild need be the excitement.

I do not agree with the medical men of consequence who consider a classification based upon the period of life as useful. Nor do I think it wise to arrange headaches according to the position of pain. Too many diagnostic errors are consequent upon such a method. Again I am antagonistic to the use of such terms as paroxysmal, toxic, and periodic in classification, for nearly all paroxysmal and periodic headaches are toxic in character. One hears the expressions deep and superficial applied to headaches. I object to such an arrangement. It is lop-sided. The majority of headaches are complained of as deep, whether the cause be deep or not. The only advantage gained is to emphasize those diffuse surface headaches, not reflex, where the pain and hyperesthesia do not follow any anatomical nerve area and therefore not having their origin either in the nerve or its nucleus, must rather have this in the higher centres where superficial pain is perceived. Such patients frequently use the same expression as reflex ones "When I brush my hair I can't bear the pain." The division of headaches into curable and uncurable is most fascinating and the more I live and try to learn the more I find myself drawn irresistibly towards this frank disposal of the whole subject. You will notice that in the classification that I am about to follow I have used the terms plus tension and minus tension headaches, and just so long as one does not forget the grave lesions capable of causing such pressure changes they might be used alone, arranging all headaches under one or other heading. This would lead to good therapy at least.

You will notice that the toxemic headaches are divided into two great sub-divisions, acute and chronic. Under the former are mentioned all pyrexial states and those rapid poison affairs such as diabetes of an acute composite character. This is done with intent, to mark the God sent message of warning and command to attack and control, if not abort the coma so frequently ushered in by headache in this disease. For the same reason I have mentioned the pre-septic headache in the puerperium. A slight headache and a rapid pulse in all toxemias should call for active measures. I have not placed acute alcoholic poisoning under this heading for as a rule no one so suffers. It is generally the morning after. The insidious slight headaches of chronic Bright's disease have been the cause of many a medical man's undoing. Over and over again the diagnosis has been made by the oculist after the patient has been knocked from medical-pillar to medical-post. Every one examines the urine, but the majority are after albumen and not casts or specific gravity, and they are generally satisfied with one examination. Of course they know better. We all know how frequently a urine fools us. I have seen a specimen of urine give no trace of albumen and only a stray cast here and there, two or three days before the patient entered his long last uraemic sleep. So the axiom should be, "In long continued headaches, test and retest the urine."

The headaches of gout are better known to the British gradnate than the American and I grant you that the former is obsessed with the gout diagnostic habit; but he sometimes hits the nail on the head. The malarial headache should always be kept in mind especially during influenzal epidemics. It is very neuralgic in type and is frequently overlooked. A blood examination in all neuralgic headaches may lead to a very happy result; if you don't find malaria you may find anemia, both of which amend rapidly to treatment. A rheumatic origin to the headaches of childhood should always be kept in mind. When a "school pressure headache" fails to respond to visual correction, fresh air, iron, and rest, look for a rheumatic taint.

The man who ignores a syphilitic headache, however slight, should be sued for malpractice. It is absolutely criminal on his part. Headache is the most constant premonitory sign of brain syphilis; all others pale before its importance. Although the severest forms may lead to nothing, the mildest may

herald the approach of a grave intracranial lesion. As I have told you to think of Bright's disease when confronted with a headache that has resisted treatment so I tell you to think of syphilis. Therefore the axiom would better read "In all chronic headaches test and retest the urine thinking all the while of syphilis."

One is confronted nowadays with many sluggish livers and when linked with constipation they are frequently associated with recurrent headaches wrongly diagnosed as migraine. Such cases seldom have a neurotic history, and as a rule they increase in severity as age advances. They do not complain of visual phenomena nor is the pulse of high tension, and the relief gained from chologogues and salines is vastly more immediate than from coal tar and bromide preparations.

Notice is taken of cirrhotic liver headache for the reason that I have quite recently been greatly exercised over such a case. The head distress was profound and persistent. I question the advisability of placing it under this division for I have seen many a case of cirrhotic liver without headache. In the one that I have mentioned there was quite a high blood pressure no doubt toxic in origin.

Constipation headaches are seldom missed. The average physician worships at the shrine of the old adage "keep the bowels open and the mind easy" and again the patient will diagnose this for you. I have known cases with the gift of prophesy in this regard. They could foretell the coming of their autointoxication by the odor and character of the stool. A horoscopic stool, to say the least of it, is clinically interesting.

Gastro-intestinal headaches show up painfully the fallacy of classification for although toxemia plays an important causative role, many a nerveless man, filled to overflowing with putrefactive toxins, has passed smilingly through life without suffering a headache, while your gentle temperamental neurotic responds with agony to a minimum dose. The viscero-sensory reflex is indeed a mystery. Yet it is always wise to search for indican increase in the urine of those suffering from vague headaches, the presence of which would, in a measure, justify the control of those foodstuffs calculated to bring about putrefactive change. But here again we are confronted with an old saying "One man's food is another man's poison." What a wonderful advance in therapy would result if men would stop writing diet lists, out of diet books for dietic people, and take their line of action from this old adage.

The neuropathic headaches would alone exhaust the time of this paper. I have already laid stress upon the predisposing strength of neurosis in headache and I do not intend to rehash the signs and symptoms of migraine; all I desire to say is that typical migraine is much more neuropathic than reflex. There never was a true migraine without a neurosis behind it. Hunt long enough and you will find it. If it is only asthma, it is there. Its close analogy to epilepsy is the keynote to its phophylaxsis and proper treatment. Rid an environment of epileptic excitants and you will have migrainous attacks few and far between. Make a point of having your patients write out in their own words an attack and this truth will be vividly brought home to you. Here is one taken at random from my case records:

"My first intimation of a headache is that I see only half of an object. For instance, I may be looking at a face and suddenly the right side of the face is blotted out. I focus again and the left side of the face is blotted out, the right side coming into sight. This is followed by a tightness of the head as though iron bands were arranged Greek-fashion, beginning at the hinges of my jaw and extending over my head and under my head, through the throat and ligaments of my tongue. These bands are tightened and loosened seemingly by something at the hinges of my jaw, throbbing as with the beat of the heart. Then in the cords of the back of the neck comes the worst pain of all—more like a rheumatic pain—which makes you feel that you cannot hold up your head—yet when you lay it down the throbbing of the bands becomes more intense. I have burned my neck and the back of my head severely without realizing I was so doing. My neck, cheeks and ears are very cold; I am chilly and can only find partial relief in placing two hot bottles about my head and one at my feet—then lie down, well covered, for from four to eight hours.

My first sense of relief is the relapsing of the bands—then the pain at the back of the neck becomes less and less until I only have a tired feeling there, that I have felt on some occasions for a whole day after, though really not having pain.

My father suffered from these headaches; my oldest sister developed them at the age of eighteen and sometimes has them for five days without cessation. My second sister developed hers in her thirtieth year and I had my first one in my thirty-first year. We all suffer from cold extremities."

There can be little doubt that this patient suffered a spasm of her posterior cerebral artery, causing an anemia of its territory wherein lies the ½ vision centre and producing a true visual aura; the spasm being followed by a vascular engorgement producing the headache. One must admit that many recurrent headaches are not truly migrainous but at the same time have an analogous pathology to reflex epilepsy.

I have known a patient greatly relieved by the breaking down of pelvic adhesions. The operation was not done for this; I confess that I am not heroic enough to advise such a measure, but it came along as a justifiable procedure for the cure of other conditions. All I know is that the patient's headaches were cured for a long period of time.

We have at times been deeply interested in the cephalic sensations of neurasthenia, and however glibly we may use the term we have often been diagnostically puzzled by the sharply defined vertical and superior-curved-line headaches of these unfortunate people.

The epileptic headaches are too common for words and I have already enlarged upon "school pressure" headaches.

You will notice that I have placed the pre-menstrual headaches under the neuropathic division. There are no scalp areas associated with pelvic organs and if you are not satisfied with this such headaches are more hyperemic or congestive than reflex. At the beginning of this division you will observe that I have coined the term psychic faults. By this I desire to enclose all sexual and other neurasthenias so pitifully common in our practice. A detailed account of them is at all times delicate and frequently out of place. There are no drugs of consequence to be used in such conditions. Our schools do not teach us mental therapeutics and therefore our only hope of service lies in the endeavor to build a column of moral health upon a foundation of self-respect, true love, and religion.

The organic and circulatory headaches are self-evident. We cannot give them the time they deserve. I call your attention to indurative headaches which have been lately enlarged upon. A strange word comes before our notice during our reading and from that time on we meet it daily and wonder why we have never noticed it before. So it is with new clinical entities. We should therefore make ourselves familiar with this form and we no doubt will be surprised with the amount of material we will find to add to the better appreciation of this form of interesting headache.

Diagnosis. Such a thing as a positive diagnosis of the cause of headache is impossible. We must place the word provisional before all findings upon this subject. Unless a man can see with his eyes, feel with his hands, hear with his ears he cannot make a positive diagnosis in pure internal medicine. And to make even a provisional diagnosis of headache the case must be worked out to the last ditch. Throughout the telling of your patient's story you should study his psychology keeping in mind all the time that your chronic headache person has seen many doctors and this experience had no doubt developed his imagination and his vocabulary. Should you see him during an attack you should remember that pain is a very heavy traffic on a nerve fibre and that its impressions are summed up with great ease to the very height of agony; and that the severity of this summation of stimuli should be discounted in all highly strung neurotic people. If you find him walking about remember that the greater the pain the greater the prostration. Given two men with the same amount of headache say for five hours you will find one raving around like a mad thing, the other sullen but sensible. In other words don't be misled by temperament. Try not to over—or under—estimate subjective states by objective signs.

Pay particular attention to the position of your patient. If you find him all flexed-up in bed he is suffering intensely. Remember that a sitting position creates a greater blood pressure than a standing one, and a lying down one greater than a sitting one. You will therefore generally find an anemic headache either sitting or lying down and when you ask him to stand up his pain will increase and he will immediately seek the chair or bed again. Should such a patient be in agony you will frequently find him on his hands and knees and his head buried in the pillows. On the other hand a congestive headache desires to stand supported or be propped up with pillows. Then again there are the positions of head and body in cerebral tumor all well known to you.

Don't let the books fool you. They flatter migraine when they say it is a malady of clever people; I have seen many a stupid person so suffer. Make diagnostic capital by your therapeutic mistakes. If you have given, say ergot one day and your patient returns complaining give him nitroglycerin the next. This is quite honest. No one can truly tell the intracranial pressure from the radial or other pulse. I have seen pale-faced people do better on ergot than nitrites.

Note the effect of percussion and pressure and the maximal point of both and then discount it. If you have ever suffered an acute headache you are in a position to very forcefully state your opinion of the medical man who hammers your head in the effort to diagnose your condition. Note the position of pain, whether it be vertical, frontal, parietal or what not, and then discourage the tendency to diagnose from such findings. Suppose a patient has an intra-cranial tumor and you see him comparatively well on with this lesion. He has up to the time of your examination suffered only general symptoms—headache, vomiting, vertigo, optic changes—and then appear what might be called late local signs. Realize that they may be false localizing signs on account of the relative frequency with which local signs are due to meningitis, hydrocephalus, local spreading of inflammation of the brain substance, edema, etc. Again, true localizing signs at one time present may later become concealed or undemonstrable owing to the development of other signs and therefore if a case comes under observation late however many the signs may be it becomes well nigh impossible to diagnose the site of the tumor.

Doctor Franklin no doubt considers Desdemona a fine diagnostician for she answered Othello when he said "I have a pain upon my forehead" with "Faith that's from watching."

Doctor Franklin will also tell you all about truly reflex headaches and the necessity of careful examination of all the special senses. The classic case that had here hemicrania first on one side and then on the other and was found to be possessed of a bad tooth on one side and a visual error on the other keeps me at all times alert to this necessity. When one realizes that there are cases of brain trouble on record that only showed bodily pain and no headache for example, "tearing pain of half the body with motor weakness—lesion the external nucleus of the thalamus." "Severe right sided body pain for years with right sided motor weakness with involuntary movements of right hand and leg, only slight hyperesthesia and tactural localization, temperature and muscle senses all unimpaired, lesion a pea-sized cyst middle and posterior third of left thalamus," one then knows the hopelessness of definite diagnosis in neurology. It would be utterly impossible for

any man to take up each and every disease mentioned in this paper and give each its diagnostic points.

The family history of all chronic headaches must be worked out with an ability of a Sherlock Holmes. Always start the physical examination with the system you consider most likely *not* to be at fault and you will be surprised to find how frequently you have been in error.

Be particularly careful with hyperesthetic, hyperalgesic and hyper-thermo-esthesic areas. Map them out with exactitude and refer them to their appropriate spinal segments. Use the ophthalmoscope as you would the stethoscope in carditis or the laryngoscope in laryngitis or the knife in surgery. But this must suffice.

Treatment. Remove the cause if you can. I never felt so grateful to a sentence before. It cuts the subject matter of this heading in half. Pardon me if I cut it still more with short therapeutic axioms.

1. A headache in acute composite diabetes calls for an increase in carbohydrates, huge doses of alkalies and a daily estimation of the acetone bodies and ammonia in the urine.

2. In all specific infectious fevers, increase the heat loss, diminish the heat production, and control the heat regulating center by attacking the toxemia.

3. A severe headache controls if not stops the secretion and absorption of the stomach. Therefore when magic coal tar remedies are given at the height of the pain they are of little use, and this accounts for their negative and positive action. A hypodermic of morphine is the only sure method under such circumstances.

4. As a rule all bromides are given in too small a dose.

5. The headaches of gout frequently disappear during pyrexia. The same applies frequently to tuberculosis.

6. The seton of old had its value in causing temperature and counter-irritation.

7. Nitroglycerin is useful in all plus tension headaches.

8. Ergot is useful in all congestive headaches.

9. Gouty headaches are best treated by sodium salicylate in large doses, vegetables and alkalies.

10. Aromatic spirits of ammonia is the best alkali in acid dyspepsia headaches.

11. The sipping of cold water will give transient relief in minus tension headaches. It raises the blood pressure.

12. All low pressure headaches are relieved by cardiac stimulants—caffein, aromatic spirits of ammonia, etc.

13. The headaches of old age are best treated by epsom salts.

14. Headaches with heart hurry are very frequently relieved by drinking strong tea. Caffein is the best minus tension headache cure we have.

15. Ammonium chlorid should always be given very well diluted.

16. Alkalies hold an important place in all headache mixtures.

17. High grades of arterio-sclerosis increase the severity of all headaches, whatever their cause may be; therefore treat with iodid of potassium between the attacks.

18. Treat all neuropathic headaches as you would epilepsy.

THE EYE AS A CAUSATIVE FACTOR IN CHRONIC HEADACHES WITH REFERENCE TO THE EAR, NOSE AND THROAT.*

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To modern ophthalmology belongs the achievement of recognizing reflex results of eye strain and connecting the visual apparatus with the body in general. Asthenopia was described in the seventeenth and eighteenth centuries, but the underlying cause, the refractive error, was not recognized and the condition went unrelieved. Donders of Utrecht, in his "Anomalies of Refraction and Accommodation" paved the way in 1858 and the application of retinoscopy furthered our knowledge of the subject. The earlier writers also recognized a true squint and conditions where the eyes were generally not straight, but an insufficiency of the muscles, a tendency of the eyes to turn either in or out, up or down, was not known. To von Graefe belongs the renown of calling attention to this subject.

Errors of refraction were recognized by the Greeks and Egyptians, but only as regards diminished vision. Numerous references to lenses are in the early writings and in the days of Rome, Cæsar is reputed as having viewed the arena through a crystal.

American and English writers deserve a large part of the credit for having connected refractive errors with reflex neuroses, and Dr. William Thompson in 1879, in a paper entitled, "Astigmatism as a Cause for Persistent Headache and Other Nervous Symptoms," applied the physiological teachings of Donders in an attempt to rectify these obscure cases of headache by the correction of ocular errors.

S. Weir Mitchell, in the early seventies, stirred the profession by his writings on this subject, and one may look upon that date as the beginning of a plethora of papers regarding eye strain.

To-day it is universally admitted that in all cases of chronic headache where the etiological factor of the same has not been brought out, the state of the refraction and muscular balance of the eyes should be inquired into. The mistake is made in medicine, as in other walks of life, of underestimating causative factors that may be in the minority. Unfortunately the refraction as a cause of headaches has been too highly exploited, with the result that some practitioners have looked for a cure of this condition in a large number of cases that were without the category. This gave a small percentage of successes,

* Read before the San Francisco County Medical Society, May, 1909.

considering the number of cases referred to the ophthalmologist, with the inevitable result that the pendulum has swung the other way, and to-day numerous sufferers from chronic headaches continue unrelieved through the failure of submitting to a proper examination of the eyes.

Specialism in medicine has been accused, and I think rightly so, of a narrow groove and seeing but its own side of the subject, and the eye surgeon is no exception to the rule. A patient presenting himself with a history of chronic headaches should not be referred to the ophthalmologist until his physical condition has been thoroughly gone into without eliciting the cause of the trouble. A few cases are so palpably due to the eyes that looking for another probable cause would be but time wasted.

One must remember that the eyes are the most used and abused of the special organs; in fact, the mere presence of light and its interpretation, is work done. From the moment we awaken until we close our eyes in sleep the retinæ are functionating, and this accounts for the large percentage of eye strain headaches in contradistinction to the large number of other conditions of a misbalanced and abused organ producing no apparent reaction.

In following the evolution of the eyes through the various stages of animal development, and, in fact, through the stages of mankind we notice near work—that is, work done requiring the focusing of our eyes on a close object—is artificial and, what is more, our eyes were never intended for the amount of such work that present civilization requires of them. The savage looks into the distance for a foe or food and does but a small amount of close work, and that under good conditions, inasmuch as he does no work with artificial illumination. The result is a relative freedom from ocular errors. Our present civilization has produced and is producing an increasing number of refractive errors, and the end is close to blindness unless ocular hygiene and compulsory ocular rest are enforced.

The condition of myopia, nearsightedness, is purely of artificial production with an hereditary predisposition in some instances. All babies are born with a short eye, that is, a hyperopic state of refraction. When the eyes are used in early education or if an anomalous condition of the ocular muscles exists in relation to the eye or to the orbit, the distortion in their shape begins and astigmatism and refractive errors are formed.

Cases of acute headache will not be considered by me, for if the eyes are the cause of the condition they will be inflamed and show objective changes that are definite.

In chronic headache some patients give a history that is so certain that the condition can be connected with the eyes without further research. If the headache comes on during the day or is increased by the use of the eyes, or if close application alone produces the pain, no hesitancy should exist in the examiner's mind in examining the refraction and muscular balance of such a patient. Again, the patient may have noticed the connection between the headache and the use of the eyes, but in that event usually goes direct to the ophthalmologist.

With the exception of inflammatory changes within the interior of the eye, but one condition, other than errors of refraction or muscular imbalance, can produce a chronic headache and not show macroscopical changes to the untrained observer. I refer to chronic simple glaucoma. Here a patient will complain of pain, will not give any definite clew to the physician which will connect the trouble directly with the eyes, but will complain of chronic headache that may be located anywhere about the head. An examination of the globe will show changes in the cornea, depth of the anterior chamber and the ophthalmoscopic examination will bring to light the cupping of the nerve head. Added to this we have increased tension of the eyeball. Hence, in every case at least, the tension of the globe should be determined, and if at all suspicious, a careful examination for chronic simple glaucoma made.

If the headache is due to disease of the fundus of the eye, sufficient data from interference with sight, distortion of objects or flashes or changes in light will call the patient's attention to the eyes.

The estimation of the refraction is one of the most difficult procedures in ophthalmology and is usually poorly done. It is left to the beginners in large clinics and to the assistants of men having large practices. Most oculists consider the work as tedious and uninteresting, which, added to the fact that it is underpaid, accounts for the slovenly and incorrect manner of its accomplishment. We have to contend with the opticians and street venders who, in America, refract more patients than the profession.

The eye is eliminated as the cause of the trouble and the patient returns to the physician only to submit to another thorough examination with the routine drug and hygienic treatment, and not finding result will wander elsewhere. After the next examination the physician will again refer the patient for an examination of the eyes, but will be told that the eyes have been thoroughly examined, without proving to be the source of the trouble. Thus he is kept from determining the true source of his headache until some practitioner with previous experience in this direction will again counsel an examination of his eyes, with a result that is positive.

When you pause to consider that an eye having but a small error of refraction will accommodate itself to this condition and see perfectly, you have the key to the situation. Generally these are the cases that produce the neuroses, for Nature in her effort to correct the trouble, causes the eye to overtax itself with a resultant reflex of function, a neurosis, here considered as pain. If the error is large, Nature cannot overcome the deficiency, the eyes can not obtain normal vision unaided, and the individual is spared the overtaxing of the organ. He suffers from loss of sight, but has no reflex neuroses, and it is optional with him whether he should wear glasses or not.

Now, since you are dealing with an eye that has good vision, most likely normal vision, and is ob-

taining said vision by virtue of its own muscular contractions, it is evident that to obtain its refraction those muscular contractions must be temporarily suspended; a cycloplegic must be employed.

The ophthalmologist with a mathematical training and those recognized as good refractionists are united in saying that small errors cannot be brought out without complete suspension of the accommodation. They differ somewhat as to the choice of the drug and in the minuter methods of its application, but are one in recommending its use. This portion of medicine approaches an exact science more nearly than any other and the last word should have been said. Hence I cannot too vehemently condemn the publication of an article in a recent issue of the *Journal of the American Medical Association* by Dr. Roosa of New York, in which he speaks of refraction lightly and contends that it is simple and does not require the use of a cycloplegic. Such a man does incalculable harm to the profession, for while those who know his standing as a refractionist are not biased by his statements, the general practitioner, judging his worth by the positions he holds, is misled into underestimating the worth of the examination. It is unfortunate that a medical censor cannot reject articles aimed at overthrowing proven and established medical facts.

In private practice atropin is employed when the patient is under fifteen years of age, and if over, homatropin is used. The detail of the administration determines the effect and whether complete and reliable paralysis of the accommodation will result. Notwithstanding most careful directions, the average patient will not get drops into the eyes. About one out of four instillations succeeds in entering the eye. It is necessary for the refractionist to superintend personally the final application of the drug.

Having obtained satisfactory cycloplegia, and the mere dilation of the pupil is not sufficient; I maintain that smaller errors cannot be brought out by the use of the trial case alone. It is necessary that retinoscopy be used.

The other condition in the eyes which produces chronic headache is a state of imbalance or relative difference in power of the various extra-ocular muscles. If we look into the anatomy and physiology of but one eye, with no reference to its fellow, we are impressed with the complexity of its possible movements and the diverse innervation of the ocular muscles. If one eye is complex, the two considered together are many times more than doubly so. The associated movements of the globes is one of the most beautiful instances of correlated action in our economy. It is not difficult to see that if one muscle lags behind or oversteps its associated fellow, an extra nerve stimulus will be required in order to obtain parallel motion of the two eyes. This is just the condition which confronts us here. A typical divergence or convergence of the eyes that is a strabismus, does not necessarily cause the patient any reflex neurosis, as the eye which deviates will in time either diminish in sight or become practically blind, thus being disregarded and not taken into account. Such a patient has only monocular sight, but no pain. It is the latent errors as mentioned above, these conditions which do not show as squint which cause the trouble. Hence, a more careful examination of the muscular apparatus, both in regard to the individual motility and strength, and in regard to the associations through the fellow eye, is indicated.

The above conditions can be remedied, and prove the prescribing of lenses as the most exact therapeutic remedy in the realm of medicine.

If headaches are due to the eyes, the mere wearing of lenses will not immediately cause a cessation of the pain. The patient must learn to relax his abused muscles and allow the glasses to do the extra work. As this is not likely, and especially if the lenses prescribed are the full amount of the error, it is usually not possible to judge of the result for two, three or possibly six weeks.

Added to the wearing of the correction, the patient must rest his eyes frequently, and closing them a number of times during the day, if for only five minutes at a time, is more beneficial than one long period of rest.

In résumé, I may say that with the exception of those few cases in which the headache is palpably connected with the use of the eyes, the only way possible to find if the eyes are the cause of the trouble is through the therapeutic test of wearing proper correcting lenses.

While the large majority of headaches from a reflex head condition can be attributed to the eyes, the ears, nose, mouth or throat contribute a portion.

In obscure cases these organs must be carefully examined. When one considers the important role played by the nose in warming, filtering and moistening air, it is not difficult to connect any interference with these physiological qualities and changes in the blood with resultant stuffy headache. Chronic nasal catarrh, and this condition is usually but a symptom of some obstructive inflammatory focus, causes a large number of headaches. The nose should be examined under varying conditions in order to determine the amount of obstruction.

The region of the middle turbinate is particularly prone toward producing reflex headaches and pressure from a deviated septum or spur exerted on this organ accounts for many an obscure case. In these examinations the mucous membrane should be contracted with adrenalin and the depth of the canals fully exposed often bringing to light a ridge or spur which by constant pressure is the source of the trouble.

All forms of nasal stenosis, or atrophic rhinitis may reflexly or rather indirectly cause headache.

Some of the most baffling cases of chronic headache are produced by inflammations of the accessory sinuses and in order of frequency the frontal, anterior-ethmoidal, sphenoidal and lastly maxillary may be noted.

In certain sinus affections the symptoms referable to the nose may not be taken into account, the patient complaining of chronic headache, but not mentioning what he considers a mild nasal catarrh.

I have seen a case in which the frontal sinus was proven as the source of the attacks merely by systematic examination. The symptoms were by no means characteristic of frontal sinusitis and the diagnosis was made by elimination only. If the pain is located permanently over one sinus, and if tenderness and pressure exist, no difficulty would be encountered in considering it the source of the headache but unfortunately in medicine atypical cases seem more the rule than real typical ones. Even though one frontal sinus may be affected the pain will often seem bilateral. It is not my intention to go into the diagnosis of nasal lesions but to emphasize the fact that in stubborn cases one must look for disease and not expect classical symptoms to point out the trouble.

Chronic empyema of the ethmoidal cells produces a number of cases of hidden headache and this region must be carefully examined. The sphenoidal sinus though comparatively inaccessible must not be overlooked if the headache is a difficult of placing.

Adenoids are sufficient in number of cases to produce a chronic headache, both as a direct neurosis or indirectly through resultant nasal catarrh and obstruction. In a like manner epipharyngeal catarrh and enlargement of the posterior ends of the turbinated bodies must be looked for.

All of the above enumerated conditions may cause inflammation of the eustachian tubes with a catarrhal process sufficient to interfere with its patency. This will give a stuffy headache mechanically through the difference in air pressure on the two sides of the ear drum.

If the ear is discharging it should not be overlooked, as inadequate drainage or the presence of polypi, etc., may be the source of the trouble. But here again the physician's or patient's attention will be called to the offending part so no difficulty should exist in having such an organ examined.

Chronic disease of the tonsils will cause headache indirectly either through its effect on the economy in general or through acting as a focus for local inflammation of the mucous membrane of throat and nose. The crypts should be exposed thoroughly and condition noted.

A cavity in a tooth very often causes pain that the patient cannot distinguish from a chronic headache hence an examination of the teeth is indicated in all obstinate cases. The cavity may be absolutely hidden, that is, within the substance of the tooth without a visible outlet and under such conditions one can see readily the difficulty encountered. The teeth must be transilluminated and minutely scrutinized.

To recapitulate. The eyes are the cause of many cases of chronic headaches. The character of the pain, its occurrence and position give some clew to the causative agent but not certain evidence, hence the eyes must be examined in all cases of chronic headache in which the cause of the trouble has not been ascertained.

A cursory examination of the refraction is not alone not sufficient, but often misleading. A cycloplegic must be used and retinoscopy employed.

Having found a small error of refraction it may be necessary for the patient to become thoroughly accustomed to the correcting lenses before making certain of the role that the eyes play in that particular case.

The nose, throat, including the teeth, and ear produce certain cases of chronic headache and should not be overlooked.

The accessory sinuses, especially the frontal and ethmoidal, are most prone to be the cause of the trouble.

Evidence of sinus involvement must be looked for as the objective signs may be very obscure and the subjective one noticed may be limited to pain.

Discussion.

Doctor D'Arcy Power: There is one point to which I would like to draw attention, which may be of some importance in the matter of treatment. The general principle of treatment of headache, as has been well stated in the papers, is to eliminate the cause. But those who have been unfortunate enough to be sufferers, know that when they have a headache they want relief. I take it that the general statement is true, that so far as the immediate pain from the headache is concernde, it is due in most cases to a condition of vaso-motor ataxy in the brain itself. There are certain areas of the brain in which the vessels are in a condition of relaxation or contraction, or these conditions coexist. It has been well said by Doctor Shiels that headache is largely due to a fundamentally neuropathic diathesis and that being the case there is a greater tendency for such patients to react more strongly to nerve stimulants than ordinary men; therefore I would draw attention to the value of direct applications of strong stimulants to the skin or other sensory organs during the attack. Experiments long ago served to show that either hot or cold water directly applied to the scalp of a dog brought about contraction of the underlying vessels of the brain which shows that we thus have means for the control of these vessels, and the use of hot or cold suddenly applied, or the application of a mustard plaster have real value and are based on a correct physiological principle. So also the stimulation of the Schneiderian membrane by the use of ammonia will often give immediate effect. To be of value it must be very strong, but the cure is often complete.

Doctor Rene Bine: There is little to add to the subject from the general standpoint, but I would like to emphasize the need of taking a very careful history, which is as important almost as the thorough examination of the patient. We are all apt to be too ready to prescribe drugs for the symptom—headache—without investigating the condition as carefully as we might. To be true, most frequently a careful search for organic disease is made in vain, but I believe that a systematic examination might often show that a trivial headache has some serious cause underlying it. This fact was very forcibly brought home to me several years ago, when I saw a hospital nurse who had been given drugs for a headache attributed to a menstrual condition. Having entered the institution but a few days before, and wishing to remain on duty, at first she did not complain. But the pain increasing, the physician who was asked to see her, ordered her to bed and prescribed "antikamnia." The first day she took 40 grains, the second again 40 grains, and on the third 30 grains besides some other coal tar preparation. At 4 p. m. that day complaining to her roommate that the pain was worse, the nurse went to call the physician. On their return the patient was found unconscious, cyanotic and not breathing.

Every known method was used in a futile attempt to revive the patient, but after 18 hours of artificial respiration, the heart had stopped beating. In spite of the fact that drug poisoning seemed to have caused the death, a careful inquiry revealed some important facts. Her sister said that the patient had suffered from headaches frequently even as a child, without there being any apparent cause. An autopsy was obtained, and a large chronic internal hydrocephalus was found, due, in all probability, to a meningeal affection in childhood having occluded the foramen of Magendie. A careful examination at the onset of the patient's symptoms should have revealed signs of intercranial pressure.

Doctor Shiels, closing: I agree with Doctor Power with regard to the efficiency of strong aromatic spirits of ammonia in the relief of headache. I look upon it as a surprise stimulant. As far as a working classification is concerned, that is a matter for the individual to decide and we always find patients grateful for the cure of headache whether this be done by a physician or a next door neighbor. When I give a purge I do not hold out a definite promise that I shall cure their headaches. I try to remove any reflex cause without explanation, for headaches are, as a rule, composite in character and hard to cure. Doctor Bine makes a strong point in the necessity for careful history taking and his interesting case proves this without a doubt. The use of the ophthalmoscope is all important in the diagnosis. The popular use of coal tar preparations is much to be deplored. We should treat headache people with caution.

A REPORT OF SEVERAL CASES OF NEPHRITIS WITH UNUSUAL FEATURES.*

By CHARLES R. HARRY, M. D., Stockton.

These cases are interesting from the fact that, although the patients were all comatose before they died, none of them had any muscular twitching or convulsions. There are also some other unusual features connected with the cases.

Case 1.—Male. Age 36. Came to my office October 10th. Complained of more or less gastric distress after eating, some shortness of breath on exertion, gradual failure of sight and weakness. Very nervous. Had lost 44 pounds in last three or four months. Present weight, 186 pounds. Physical examination—Slightly jaundiced; arteries atheromatous. Pulse 100, regular in rhythm but not strong. Temperature normal, systolic murmur at pulmonary site, also over aorta. Urine normal in quantity, but contained albumen and casts. Patient was put on a diet of easily digested liquid and soft solid food. A mixture of bismuth, also strychnia and digitalis and one-minim doses of 1% nitro-glycerin were given internally. Patient improved until November 21st. I was called to his home. Found that he had eaten some very indigestible food. He was troubled with a great deal of gas in the stomach, was very short of breath and excessively nervous. Quantity of urine still normal. Patient was put to bed and only liquid food allowed.

Strychnia, digitalis and nitro-glycerin were prescribed. Under this treatment the gastric symptoms and shortness of breath subsided. The urine, however, gradually decreased in quantity until he passed only about a pint in twenty-four hours. The nervousness increased and he became hysterical at times, crying and declaring he was never going to get well. The urine became greatly diminished in quantity, averaging from 7 to 14 ounces in twenty-four hours, in spite of the use of diuretics, large quantities of water and sweats. He soon became delirious and remained in this condition four days. At times the nurses were unable to keep him in bed. There was no twitching or convulsions. About forty-eight hours before he died he became comatose and remained so until his death, December 10th.

Case 2.—Male. Age 44. Came under my care June 14, 1908. Complained of weakness, shortness of breath on exertion, very rapid heart action and indigestion. Very nervous man and indiscreet in his diet. Lost considerable in weight during last three months.

Pulse 132-136, high tension. Systolic murmur at mitral valve; apex beat one inch to left of mammary line. Urine contained albumen and casts, quantity about normal. Patient was put on a strict diet. Bromides given to quiet the rapid heart action and relieve nervousness and iron for the anemia. Large quantities of water were also advised, together with laxatives. Patient improved for a time; pulse came down to 96-108, shortness of breath not bad so long as he would keep quiet. Still felt very weak, but would not go to bed and at times would not adhere to the diet prescribed. About November 11th was taken with a severe attack of indigestion, due to indiscretion in diet.

Heart and kidneys both became worse after this. Was unable to sleep without hypnotics. Urine became very scanty and was loaded with albumen. November 24th was slightly delirious, but there was no twitching. The delirium gradually increased until he became very violent. This continued until November 26th, when coma developed, and he remained in this condition until he died, November 27th.

Case 3.—Female. Age 43. Was confined at full term December 27th. Labor was very tedious and a high forceps delivery was performed. During pregnancy no albumen was found in the urine and the quantity was always about normal.

Convalescence was uninterrupted until January 1st, when she had a little rise of temperature. The quantity of urine, however, was normal and no albumen was present. Uterus was washed out and her temperature came down to normal. As the patient lived twelve miles out in the country, I did not see her every day. January 3d I was sent for, as the nurse stated she had not passed urine since 11 a. m., January 2d. I arrived at 2 p. m., used a catheter, and to my surprise only drew off one dram of urine. This represented the secretion for twenty-seven hours. She felt quite comfortable, however, excepting a little nervous.

There was no headache, twitching or other uremic symptoms. She was immediately brought to St. Joseph's Hospital, and, in spite of profuse sweats, large quantities of water and diuretics, the urine did not increase much. She was catheterized every six hours, as she could not pass water naturally, and only from one to three drams removed at a time. The quantity of urine secreted would only average from ½ to 1 ounce for each twenty-four hours. It was loaded with albumen. Patient felt rather nervous and had an ulceration of the gums, but no twitching at all.

In the evening, became slightly delirious and a complete hemiplegia of the left side developed. She became comatose soon after this and died the following forenoon.

This case is remarkable from the fact that she lived six days with a total secretion during that time of only four to six ounces of urine. She was perfectly conscious until the night before she died and did not complain of anything except the soreness of her gums from the ulceration.

Case 4.—Male. Age 52. Commenced treatment about November 15th. Troubled with shortness of breath and sleepiness. If he sat down in a chair, even in the daytime, he would go to sleep in a few minutes. Puffiness under the eyes; very fat, weight

*Read before the San Joaquin Valley Medical Association, 1909.

260 pounds. Pulse rapid and not very strong, heart tones clear; edema of legs. Urine scanty, but no albumen could be found after several examinations. No examination was made for casts.

I put him on digitaline gr. 1/5 and strychnia gr. 1/30 ever six hours. Also diuretine grs. xv every four hours and a strict diet. His urine increased in a short time to over three quarts in twenty-four hours. Shortness of breath gradually lessened and the sleepy feeling was much less. Weight decreased gradually. Lost over 30 pounds in two months' time and felt much stronger than when he commenced treatment.

On the afternoon of January 23d was taken with a severe attack of appendicitis. I was not called until about noon January 24th. After examining him an operation was recommended if he was not better in a short time. I saw him again at 5 p. m. and he was much worse, so advised an immediate operation. Pulse at this time was 130, temp. 103.5°. Urine was not examined. He was removed at once to St. Joseph's Home and prepared for the operation, which was performed early in the evening. The appendix was gangrenous; it had already perforated and a large abscess had formed. The abscess cavity was swabbed out and pieces of the gangrenous appendix were removed with forceps. The cavity was packed with gauze and the patient removed to his bed.

Pulse 148 after the operation. Monday noon his pulse was 94, temp. 101.8°. A pint of normal salt solution was administered per rectum every four hours. The quantity of urine kept up until late Monday afternoon, when it became scanty and contained a great deal of albumen. Temp. 104.2°, pulse 116. From 11 p. m. Monday until 7 a. m. Tuesday (56 hours) he secreted 14½ ounces of urine, although diaphoretics, diuretics and large quantities of water were given. During the time there was no twitching or convulsions.

Patient became delirious Wednesday night and died in coma the next morning.

VISIBLE MOVEMENT OF BLOOD IN RETINAL VESSELS.

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Movement of the blood in retinal vessels had been observed in the early days of ophthalmoscopy in a few instances by Ed. Jaeger, Liebreich and von Graefe in local changes, i. e., detachment of retina and in a case of "neuritis"—also by V. Graefe several times in the asphyctic stage of cholera. Subsequently the phenomenon has repeatedly been reported in cases of so-called embolism of the central retinal artery, in a majority of which, according to our present knowledge, it has probably been due to a local endarteritis proliferans. In the Deutsche Medicin. Wochenschr. No. 45, 1908, Th. Rehberg gives the extensive history of a case of aortic aneurysma, observed at the University Medical Clinic of Koenigsberg, making the following statement regarding the eyes—"Vision somewhat lowered in right eye, F. V. normal in both. The retinal veins are relatively large compared to the arteries; the bloodstream, especially in the veins of the right eye, is markedly retarded and plainly visible, the blood column being divided into pieces of a varying size, i. e. from big granules to cylinders, which are separated by light interspaces."

From the literature at my disposal (there is also no reference in the literature given by Groenouw Zusammenhang von Augen—U. Allgemein—Krankheiten in Graefe—Saemisch, 2nd ed.) and the fact that Leber (1) in his exhaustive study passing in review all experimental and clinical data extant does not mention any similar observation, I believe Rehberg's to be the first observation of the kind, and I feel justified therefore in reporting a similar, regarding the eyes though much worse, history which I have been able to follow (October-December, 1908) in my service at the University of California Hospital. Doctor Moffitt has demonstrated the patient from the medical side before the San Francisco County Medical Society. I will only give the data in so far as they would seem to be of special interest here.

J. H., ironmolder, age 29. No previous illness. November 1907, during work, sudden sensation of jumping of eyes out of head and dizziness. Gradually getting worse with pain in eyes and sensation of blood trying to rush through skull and attacks of roaring in ears. Sight gradually had been failing in both eyes, until July, 1908, permanent blindness set in in right—sight having been hazy for one day, it had gone out next morning entirely. Patient has been hoarse since March, 1908, suffered frequently from frontal headache, and at times the top of scalp seems numb. Sight has persisted in left eye, but has acted in general as in right. At present (October, 1908) it is very bad, hazy. Patient becomes blind in attempt to cross room. Spending his time in bed whilst in the hospital, patient sees best in sitting posture with head bent forward, sight getting dim and leaving entirely at times if he leans backwards or even lifts head merely, but returns promptly on lowering head again. The temporal, facial, carotic, subclavian and radial pulses are absent on both sides, the brachial and ulnar present on either side, but weak. The femoral pulses are present and those at the dorsum pedis, right and left are strong. Reflexes are normal, and so are sensations, though pinching of the skin anywhere seems to be very painful. Left side of skull very dull, especially over parieto-occipital region. Tenderness over left parietal eminence. Frequent clots of blood in right nostril since beginning of illness. Left vocal cord at first moving less than right, has become paralyzed during stay at hospital (examined by Doctor Albert B. McKee). Trigemini in sensory and motor portions intact, corneal reflexes prompt. Facial nerves intact. Blood pressure on legs October 7, maximum 220, minimum 160; October 12, 218; November 21, with Esmarch's on other leg, maximum 150, minimum 125, without Esmarch's 130 and 105. Patient had referred to occasional attacks of general convulsions with loss of consciousness and it was found that pressure on both carotids for about thirty seconds produces deep, noisy breathing with pallor of face and finally twitchings of face and arms, especially on right side. With twitching comes loss of consciousness, patient falls forward and respiration stops for a few seconds. Face then begins to flush and consciousness returns. On November 13, whilst rising in bed, patient had momentary loss of consciousness with slight, but regular, epileptic attack.

Diagnosis by percussion, etc., and Roentgenogram: aneurysma aortae. Owing to the general condition of the patient, etc., the examination of his eyes is not as complete as might be wished for, especially re. c. vis., F. V., etc.; however, I feel satisfied that the essential diagnostic features were obtained through the ophthalmoscope. The tension of both eyes is decidedly lowered (T-I). Right eye amavrotic. October 8, 1900, optical atrophy with rather indistinct outline—the vessels, however, being normal in size, especially arteries not contracted, the evidence does not point to a distinct neuritis preceding. There are retinal changes close to disk towards macula, also upwards—and since analogous, though more recent changes in left eye are also confined near posterior pole, the process in right may be, perhaps, looked upon as a secondary, ascending atrophy of nerve.

O. S. Around posterior pole, though macula itself appears free, a number of recent degenerative changes in retina *under* vessels. *Over* main v. temporal inferior two distinct roundish plaques of exudate.

7. X. 08. In main branch of v. temporal inferior o. s. a slow interrupted centripetal stream is observable, the blood column is divided into segments. This phenomenon is confined to the one vessel and to o. s.

9. X. In the vein first affected the segments are longer, moving forward in a slow and jerky way. The same appearance as shown on 7th inst. by this vein is offered to-day by the v. inferior nasal, and beginning in the other bigger veins, perhaps also in some of the smaller ones. Several of the big veins, universally broader, show a relatively smaller caliber at and near disk than some distance off. Disk somewhat pale as one would expect from the poor general arterial circulation.

16. X. The current in veins is very slow, at times ceasing. The phenomenon is seen to-day in one vein o. d.

21. X. No current visible in either fundus. Rosary appearance of affected veins.

2. XI. No visible current in either eye.—O. s. shows rosary appearance of lower veins, which are universally smaller, though still extended near pa. Arteries also are a little smaller.

The patient, who had left the hospital in December last, was seen April 8th, a. cr. strikingly improved in general health (increased weight).

Patient makes no complaint regarding left eye. Vision H m + 0.75 = 1.25] J. I in O, 24 m, p. pr. O, 16 m. L. F. V. normal for white and colors, no central scotoma. T normal. L Pu normal and reaction n. Ophthalmoscopic. n. (especially arteries n.).

Right eye T n. Fundus n. outside of atrophic pa. which is now quite sharply outlined. The arteries in the fundus are everywhere decidedly large and of the same size as the veins, which are not enlarged. On the art. temp. sup. (only!) which, in spite of a main branch running in the same direction, is of the same size as the one accompanying vein an unusually broad and intensely white central band (reflex from a thickened wall?) is present, no white lines alongside of vessel (under mydriasis).

As a purely physical phenomenon, there is no reason not to adopt in our case the explanation for the visible bloodstream given by Reimar (2). If the blood flows normally the red corpuscles are whirled about so violently and carried off with such rapidity that on account of their smallness they cannot be made out. With decreasing velocity of the current the individual corpuscles become noticeable at first merely as smallest particles quickly shooting past. Gradually these particles, as a result of sedimentation and agglutination, increase with greater slowness of movement until we finally notice little cylinders separated by plasma. This last stage may perhaps best be compared after Dimmer (X) to the quicksilver torn to pieces in a thermometer, only that in our case cylinders, but of universally rather uniform size, came under observation. Omitting Reimar's closer argumentation, I will only add that Reimar was able to produce experimentally the several stages as referred to by pressure on the globe until he finally got a centripetal stream in the arteries—this being always the last of the changes that begin in the veins with minute particles flowing in normal centripetal direction. The clinical importance of these phenomena lies in this "that blood circulation does take place as long as the blood columns, be they ever so thin in parts, or be covered (apparently interrupted) by thickening or clouding of walls, don't show in their farther continuity disintegration—i. e., agglutination of the formed elements. Only when the blood column is broken up and the individual segments are at a standstill is one justified to surmise a complete interruption of the blood current. Absence of spontaneous or pressure pulsation is absolutely not a sign that circulation does not take place."

That the circulation in the upper part of the body and in the head was being interfered with greatly is clear from the absence of the several pulses mentioned, further by the lowered T in the eyes which according to Leber (l. c. 118) can never be higher than the blood pressure within the eye, by which alone it is produced—and finally by the epileptiform attacks. Regarding the latter Rehberg (l. c.) reviews the literature regarding experimental and clinical data in aortic aneurysm all being in favor of the cerebral symptoms being due to anaemia through mechanical interference with the circulation and not through excitation of the vagus. It is in regard to the additional ophthalmoscopic findings, I think, that the chief special interest of our history lies. Leber's (l. c.) studies in their analysis of facts from human pathology as well as experimental have reference to complete obliteration of the circulation exclusively. Regarding clinical data Leber also considers the reestablishment of circulation after the complete block in the narrowed vessels, stating expressly that the latter is a permanent feature. We have seen that at no time an arterial contraction has been found in our case and that, as a noteworthy feature, an enlargement even of retinal arteries was found in the blind right eye at the last examination. Look-

ing upon this latter feature as of nervous origin we must yet refrain from trying to enlarge upon it in the face of the many contradictory facts found in experimental work to which Leber refers so exhaustively and judicially. The further changes we have found in the retinal (whitish plaques, etc.) bring a clinical confirmation for Leber's findings and are of special interest in so far as they show the deleterious effects of a diminished blood supply even. The reason why this was sufficient to lead to atrophy of the optic nerve in the right eye would seem to lie in the great dependance of the retinal ganglion cells on the supply of oxygen (in contradistinction to nerve fibres (Leber, l. c.)) In the absence of pathological pigment, even in the right retina, we can not say whether permanent changes have resulted through any process in the choroid. (XX).

(X) Der Augenspiegel, etc., 1893.
(XX) C. S. G. Nagel, Archives of Ophthalmology, 1900, XXIX. Nov. 5.

For the general data in the foregoing history I am indebted to my colleagues, Drs. Moffitt and Ash.

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(1) Die Circulations und Ernährungs verhältnisse des Avges, Graefe-Saemisch, second edition.
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SOCIETY REPORTS

SAN FRANCISCO COUNTY MEDICAL SOCIETY.

Regular Meeting July 13th, 1909.

Dr. Emmet Rixford:

(a) **A Case of Compound Pott's Fracture and Colles' Fracture.**

This young man is a police officer who stopped an automobile in the Park on Christmas day last. He received a compound Pott's fracture, the whole of the ligamentous apparatus being torn away from the front of the joint and the end of the tibia, even including the internal malleolus, which was not broken, being thrust out through the tear. On the other foot he received a posterior dislocation of the great toe, on the right wrist a Colles' fracture and at the left wrist a fracture of the lower end of the ulna. The interest in this case is particularly in the excellent functional result of the ankle where the whole ligamentus apparatus was torn across and the thing exposed to infection. He was fortunately taken care of very quickly after the accident at the Central Emergency Hospital, where the wound of the joint was thoroughly cleaned, so that there was very little to do for it after he got under my care. We trimmed up the ligaments and put the ends of the bones together, closing the wound with drainage. Practically primary union resulted with, as you see, the present perfect form and considerable range of useful motion. As for the dislocation of the great toe, the posterior dislocation is quite similar to the posterior dislocation of the first phalanx of the thumb, and it is just as hard to reduce. I tried the classical manipulation of hyperextension, traction and flexion, but failed, and circumduction worked no better. Whether it was the capsule that grasped the head of the bone, as is the theory of some, or whether the sesmoid bones had got into the way of the process on the inner side of the head of the bone, or whether the head of the meta tarsal was grasped between the tendon of the long flexor and the abductor pollicis and flexor brevis, the traction closing them together (which is the generally accepted theory), it was interesting to me to try to find out. The first thing I did after failure in reducing was to make a subcutaneous section, with a small knife, of the capsule as is advised by Stimson, and to see what effect that had. It had no effect whatever; reduction was no easier than before. Next I exposed the joint by a little larger incision to see whether I could manipulate the tendons with the sesmoid bone; it finally resulted in a pretty wide section of the ligamentous apparatus of the joint, and still I was unable to reduce the dislocation. I succeeded only by lifting the long flexor tendon out from behind the shoulder on the inner side of the head of the meta tarsal bone, which was done with an elevator. The moment that was done the dislocation was reduced. I believe from the result in this case that posterior dislocation of the great toe and also that of the thumb can be managed by a small incision and so placed as to permit a blunt dissector or a prying instrument to be put in on the inner side and then prying off the tendon on the inner side from behind the expanded end of the bone. This manipulation will be facilitated by flexing the phalanx dorsally to relax the tendons.

(b) **A Case of Tuberculosis Peritonitis.**

This little boy in 1906 was brought into the hospital by Dr. Max Magnus with a tuberculous peritonitis; it was a typical case, with ascites, distended abdomen and hard masses to be felt in the omentum. We opened the abdomen, let out the fluid, examined the lesions and closed the wound. As soon as the wound was healed the patient was taken across the Bay, where he has been living ever since. I have not seen him for three years and he is apparently now a perfectly normal child. This is simply an example of the probable importance of the out-of-door treatment of tuberculosis more than anything else, but at the same time sharing the value of laparotomy in tubercular peritonitis. There was nothing used to wash out the abdomen. The primary focus was not found, the peritoneum was studded with tubercles everywhere and masses in the omentum were large enough to be felt before opening the abdomen.

(c) **A Case of Tuberculosis of the Spine, Wrist and Anal Region.**

This young man exemplifies another phase of tuberculosis. Two years ago he returned from the East with a fatal prognosis. He had a tuberculosis of the anal region which was so extensive that the tissue was undermined completely. The area of infiltration was about as large as my two hands outspread; there were ramifying fistulæ in many directions; patient was greatly emaciated, had fever, night sweats, etc. The question of operation was being considered, but we decided to take the rather desperate chance of radical excision. The whole tuberculous mass was dissected out and little islands of skin left were patched together as best we

could; about half of the total volume of the sphincter had to be removed. The wound healed kindly save for slight recurrence during the process of healing, which was overcome by a very slight incision and curetting; healing was complete. He went to the country and gained from 30 to 40 pounds in weight. Within six months' time he came back with a beginning numbness of the extremities and pain in the back and pain in the left wrist. There was a typical tuberculosis of the left wrist and tuberculosis of the spine with granulations in the spinal canal, causing compression of the cord. The paraplegia increased until it was with considerable difficulty that the patient could move his legs. The paralysis was never complete. However, a plaster of paris jacket was applied for the spine and Bier treatment given the wrist. In addition to the Bier treatment we used minute 1/10,000 mg. doses of Koch's T. R., and we have been giving it at intervals of about three weeks for the last year. His present condition is that of a young man in reasonably good health; he walks now as well as anybody. The most striking thing is the condition of the wrist. There was typical spindle formed wrist with granulations throughout the joint and limitation of motion, great muscular spasm and rarification of the bone as shown in the X-ray plate. The lesions in the bone had not formed any sequestrae, however, and there was no evidence of mixed infection. It is hard to ascribe the present outcome alone to the Bier congestion, which was kept up for three or four weeks. It seems very probable that the tuberculine was of real value.

(d) **A Case of Colles' Fracture.**

This case is one of Colles' fracture. This is a time-worn subject and yet is a thing which has not been altogether worn out. Many of the statements in the text books I think can be characterized as untrue. One is that there is little tendency to recurrence if you once get the Colles' fracture adjusted. I know that this is not so; fracture most always occurs in the cancellous tissue near its junction with the compact tissue of the shaft. Rarefying ostitis which follows fracture is much more apt to cause rapid absorption of the thin bony lamellæ than of comfort bone permitting shortening. One point which receives very scant mention is the approximation of the shaft of the radius to the shaft of the ulna, fracture being above the expanded lower end of the radius. That approximation permits a tilting of the lower fragment of the radius to the radial side, the shortening of the radius due to this tilting pulls off generally the styloid process of the ulna. If you do not force apart the shaft of the ulna and radius you lose a great deal in the effort of holding the lower fragment of the radius in its properly extended position. In another case I was much struck by this very thing. I opened and cut down upon the fracture and found that there was no manipulation which I could devise by which I could hold the thing in place except simple traction. This I believe would solve all difficulties of these cases could it be effectively carried out. The difficulty of applying traction is a practical one; it is exceedingly difficult to make effective traction upon the lower part of the radius. The pistol splint was intended to do that, but it does not do it, because as Hamilton showed, there is no fulcrum to make the leverage effective. This young woman fell from an automobile and received a Colles' fracture as well as a dislocation of the elbow. The Colles' fracture was typical and showed to a marked degree this deformity of the approximation of the radius and ulna shaft with great shortening of the radius. After various trials we cut down on the radius and put in a wire suture obliquely in such a manner as to hold the radial shaft to the radial side. You cannot always put in wire because the fracture is through cancellous bone, often the lower fragment is comminuted. Wiring is more satisfactory in secondary operations done at sufficiently long intervals for scar bone to have matured. An inflamed bone within a few weeks of the injury undergoing rarefying ostitis will not hold the wire. In this case we operated five months after the accident and we were able to get the wire in so that it would stay. Particularly was I impressed with the fact that by placing my wire in a certain position so as to hold the radius and ulna apart, I could make extension effective on the lower end of the radius. It is now five weeks since the operation and I am merely showing the case in order to show the absence of the prominence of the lower end of the ulna.

Dr. Langley Porter:

(a) **A Case of Splenic Anemia.**

This case is presented because of certain features of unusual interest in a child of 6 years of age. The patient presents an enormous spleen, hard liver which is not very much enlarged and fluid in the abdomen, no history of hemorrhages or petchiae, in fact a typical picture of splenic anemia. Perhaps some of you may prefer to think of it as Banti's disease. The patient has been ill for about fifteen months, the history was negative up to that time, when he had measles, since then he has had fever every afternoon, head sweats and a slight cough. A normal amount of urine has been passed but for some time it has been very muddy in appearance. Patient was constipated. The abdomen has been getting gradually larger. The exact date of the beginning of the enlargement can not be definitely ascertained; it is said to have been about the time of the measures. There has been considerable wasting away during this time and the child is no longer playful. He is growing weaker all the time. Physical examination shows the boy to be poorly grown and badly nourished, he has a very protuberant abdomen and his color is a muddy lemon color but the conjunctivae are clear. The heart is normal and the lungs move well but respiration is rapid. On the left side there is an area of dullness from about the 6th rib to the 12th, extending around as far as the posterior axillary line. The breath sounds are well heard, no rales anywhere. On palpation at the anterior border of the abdomen a mass is felt rounded and firm extending from the left costal margin in the mesentary line to the pelvic region and at a point lower than half way between the umbilicus and the pelvis and umbilicus there is a definite notch to be felt and a little lower down a second notch. This mass is taken to be an enlarged spleen. Above the line of the lower portion of the umbilicus has a knife like edge, very thin and hard. Roryanis percussion reveals that fluid is present in the abdomen. All the glands of the body are enlarged and hard. The blood picture is of interest in this case, although the urine is negative. There are 3,000,000 reds with a hemoglobin of 45% and 3,000 white cells. The

chief reason of having this child here this evening is to ask advice about treatment. The Moro and Wasserman reaction were tried and both were negative.

(b) **A Case of Pyloric Stenosis in an Infant.**

Some time ago this society had a symposium on congenital pyloric stenosis. This case is presented because it has shown all of the typical features of pyloric stenosis and now seems to be getting better. This is the eighth child that I have seen in 4 years with this trouble. Whether this was a case of stenosis or spasm I can not say, but I believe it to have been stenosis. The symptoms were very clear when first I saw the child. The history was as follows: the child began to vomit within a month after birth, and has been wasting away ever since. At birth the weight was 8 lbs. The child was fed every 2 hours and 2 or 3 times during the night. It seemed to thrive for a month and the food agreed with it up to that time. The bowels were inclined to be constipated, the movements soft and occassionally green, and the baby cried most of the time. I first saw the baby in its tenth week. Physical examination showed the child to weigh 6½ lbs., to be wasting and atrophic, the belly was not distended, was rather firm and hard and not tender, there was no local rigidity, the heart and lungs were normal and there was visible gastric peristalsis but no pyloric tumor palpable. The infant vomited at variable times after nursing, often more than it got at one feeding. The mother thought she had not enough milk and fed the child for some time on bread and a little soup. The child seemed to be satisfied after having nursed for five minutes. The vomitus showed coagulated milk, curdy and stained yellow. With regard to the treatment in this case, it was decided to temporize, and as the sister-in-law was at that time nursing a baby and had a full supply of milk, this child was put upon the breast of the sister-in-law for a while. For a few months the baby went on, neither gaining nor losing and was most miserable, it was wasted away and had a tremendously big belly. Operation was discussed with Doctor Stillman, but the mother wished the child to go on feeding from the sister-in-law's breast. Had this been my own baby at three months old, in the condition it was, I would certainly have had it operated. I think an operation would have saved the child two months' suffering, and I consider it only good luck that the baby lives. Of the eight cases which I have seen, five were operated upon and all are alive and well, three were not operated upon and this baby is the only one which is alive. Doctor Lewitt has another case, which would make the ninth in my knowledge and the second alive without having been operated upon. One other child I know of was operated and died. Thus we have six cases operated with one death and four cases unoperated with two deaths, figures which certainly encourage me to endorse gastro enterocolostomy at once on young children. While this child is feeding at the breast the peristaltic wave is visible.

(c) **A Case of Congenital Lues.**

This is a case of congenital lues showing the characteristic iritis and the double painless knee-joint of congenital lues. The teeth are the characteristic screw-shaped teeth instead of the regular notched Hutchinson teeth. The X-ray plate shows that the periosteum of both bones is involved.

(d) **A Case of Polyarthritis, Possibly Tuberculosis.**

This case I have brought to see if I can get help in diagnosis. Doctor Stillman has operated upon the ulcer of the leg of this child which has been rapidly breaking down. The leg has been doing well since the operation. Doctor Ophuls reports, after examining the sections from the ulcer, that it was a granuloma of the skin. The girl is twelve years of age. The right knee began to swell two years ago, but the condition in the left knee began when she was 7 years old. She was a 7 months' child; weaned at 6 months and walked at 2½ years; had no convulsions; never vomited and never had sore throat. She has had cold sweats at night from time to time but was not subject to colds. Physical examination shows a spindle shaped swelling close to the joint of the left elbow. The swelling is not painful and is moderately tender. The head of the radius is swollen and large and so is the internal condyle of the humerus and to some degree the upped end of the radius; movement is limited in this joint. The right elbow joint seems to be normal. There is some grating to be elicited on rotation of the forearm and some slight grating of both shoulders. The knee joints are involved and the right is large and spindle shaped. The knee joints are not painful. The Moro test was positive, the Wasserman negative. The X-ray plates, taken of the elbow joints, show a joint like that of an older person; development being further advanced than is customary at this age. The joint space is smaller and less clean cut than usual and there is no apparent destruction of the bone or periosteal deposits. The radiograms of the knees are somewhat blurred owing to the quantity of fluid present within the joint. Here there is also a tendency toward increased rate of development. There is no evidence of bone destruction. On the outer point of the left tuberosity the bone has a scalloped appearance. The question in this case is the diagnosis and prognosis. Doctor Stillman believes that the elbow is an old tuberculous one held in ankylosis. There is a reasonable assumption considering that the child showed the positive Moro reaction. The knees are not characteristic tuberculous knee joints. What we are dealing with is a question which I would like to hear discussed. I lean to the idea that this is a rare type of polyarthritis due to a hidden focus of tuberculosis. Such cases have been reported. Doctor Rothchild has called my attention to a recent report on toxic polyarthritis due to a tuberculous focus in some other part of the body by Schaffer, Journal for Tuberculosis, No. XIII, in which 116 not dissimilar cases are reported.

Dr. Ethan H. Smith:

A Case of Double Congenital Dislocation.

I beg leave to present this case demonstrating a recovery from double congenital dislocation of the hip joint, reduced by Hoffa's method. I herewith present radiographic prints both diagnostic and also showing the result. This child came to me a year ago last August at the age of two years and five months. She showed the characteristic deformity of double congenital dislocation and the characteristic waddling gait. I have been asked if "Hoffa's Method" does not mean the open method. Hoffa was the first surgeon to do the open operation for the relief of this condition, but abandoned that for the so-called bloodless method, which is a modification of the Lorenz method eliminating the brutal features of Lorenz manipulation. The adductors are not massaged and pinched off proceeding to the reposition of the head of the femur in the acetabulum. The reduction of the dislocation is not a difficult matter. A great deal has been said about the bar to effective reduction, or cure of these cases, because of the capsular ligament and contraction of the same. This is of small consequence. If the head of the femur is once placed in the rudimentary acetabulum and kept there, these cases will recover providing the joint is not too lacking in development. The earlier in foetal life the dislocation occurs, the greater will be the discrepancy in the bones and the harder the task of treatment. If we confine the head of the femur in any one location on the innominate bone and keep it there we shall get a secondary acetabulum. The capsular ligament has very little to do with it.

Dr. Réné Bine:

(a) **A Case of Melanosarcoma of the Eye.**

Mr. W., age 50, entered the German Hospital on April 7th, complaining of pain of two months' duration, in the left shoulder, in the lumbar region, and occasionally in the knees. The pain was aggravated by motion, was more or less present all the time, and was of a dull aching character. The patient used to drink heavily at times in former years, but had been temperate of late years. Family history unimportant. In his past history venereal disease was denied. He had typhoid when a boy, malaria at age of 33, and at 40 had lost several toes as the result of exposure to cold. An indefinite history of hemoptysis as a boy, and of a winter cough of 20 years' standing completed the patient's tale.

The examination revealed the following points, all of which are now to be seen, though they were perhaps less prominent on admission than they are now.

The patient is emaciated and thin, about 35 pounds under his average weight. His left eye, lost as a result of trauma one year ago, the patient being a blacksmith and exposed to the wind, dust and dirt (for three weeks was under doctor's care, then on account of acute inflammation), presents the following condition: conjunctiva pale with large conjunctival and subconjunctival vessels which continue large up to corneal margin. Cornea clear. Anterior chamber is completely abolished, filled with a grayish-yellowish mass with some black pigment. Tension plus 1 (at least). Slight amount ptosis. Globe bit small. Right eye apparently normal.

Heart and lungs practically normal except for an old apical dullness, there being no rales, no sputum, and no Pirquet reaction. The liver is remarkably enlarged, reaching to the umbilicus, and while it was fairly smooth and regular on admission, there are now several spots of softening palpable on the surface. It is impossible to say whether the spleen is enlarged, because of the overlapping left lobe of the liver.

There are numerous nodules in the skin, freely movable, and varying from the size of a small shot to that of a large pea. They seem to have increased in size as well as in number and perhaps to have become a shade darker, since the patient came under observation.

The blood, urine, gastric and stool analyses were negative. An X-ray plate showed no changes in the pelvic bones or vertebrae.

A nodule was excised from under the skin, and Dr. Ophuls, who very kindly sectioned it, reports that it is a fibrosarcoma.

In spite of this, as well as in spite of the absence of melanuria, we believe that the patient's disease is a malignant one, the result of metastases from a primary melanosarcoma of the left eye. He has failed rapidly during the last two weeks, and is now so feeble as to be almost unable to stand unaided—quite a change from the day he walked into the hospital.

(b) **A Case of Myxoedema.**

This little girl, age 15, has been under Jellinek's observation for nine years, and I am presenting her to-night for your attention, not because of her myedematous condition, which can be recognized at a glance, but because of her having had two large cavernous angiomata when she first came under observation, one of which, on the lip, has practically disappeared coincidently with thyroid medication, while the other, a very large one over the thigh, has been transformed into a small teleangiectasis. The photographs I am passing around show the original status of these lesions. Owing to ignorance on the part of the parents, as soon as the child improves a bit, they discontinue the thyroid feeding, so that the patient is still far below the normal in development.

Dr. H. Edward Castle:

Intracuticular Wound Suture.

In presenting this case we trust it will make clearer an improvement in our technic which we consider quite advantageous in the closure of wounds. During the last year Dr. Ryfkogel and I have closed the skin with No. 16 cambric needles and china bead silk, the same kind of material we use in anastomosing arteries and veins. Dr. Morris has very kindly come before you to-night to permit you to inspect the scar which resulted from an operation for appendicitis one month ago. The slight redness along the line of suture is produced by the exfoliation of the epithelium which was taken within the grasp of the suture. In a short time this new epithelium will fade and the ultimate result will be perfect. This refinement of minimum scar has not much importance in covered parts of the body; a subcuticular silk-worm gut will answer practically as well; but on exposed surfaces it is of great value. You will kindly permit me to speak a word of the post-operative treatment of Dr. Morris, which is typical of that in general routine. He was put into Fowler's position when brought from the operating table. After he recovered from the anesthetic, i. e., about four hours, he was instructed to get up in a chair, at which time he had a cold sponge and the bed changed throughout. In a few hours he went back to bed and slept during the night. Next morning he was up, and likewise each succeeding day. He left the hospital on the fifth day and resumed work on the eighth day, looking as though he had been out camping rather than in a hospital, owing to his being in the sun so much. We advocate this line of treatment in any simple major operations such as appendectomies, hysterectomies, etc., which should be performed in 15 to 40 minutes, believing the patient will convalesce better, having fewer complications of lung and kidney affections, and less discomfort from intestinal disturbance, backache and nervousness.

Dr. P. Campiche:

A Case of Van Recklinghausen's Disease.

This patient is 42 years of age and has always been in good health. He says there are no other skin diseases in his family. As far as he can remember as a child he had already a very small number of nodules in the skin. On examination we find the cutaneous surface studded with hundreds of soft, painless tumors, some of them are flat or still under the skin, others are sessile, while the great number are more advanced and are pedunculated. I would also like to call attention to the bluish aspect of some of the flatter tumors which very much resemble naevi. The affection has involved the scalp but the palms of the hands and the soles of the feet are free from growths. This is evidently a case of generalized fibroma molluscum. The number of these tumors can be very great, and a Japanese author (Hashimoto) has counted 4,500 of them on a single individual. They are supposed to take their origin in the deep layer of the corium and possibly of the nerve sheaths, and are considered as hyperplasias of the connective tissue. The alteration probably begins in foetal life, is closely related to the naevi and can be considered as a congenital malformation in the connective tissue. Recklinghausen has described a special variety in which these generalized fibromata are associated with some pseudo-neuromata or fibromata of the nerve sheaths, and defective intellectual development. The affection is also familial. I have not been able to find in the patient any tumor in the cutaneous nerves, and I would consider the case as one of single fibroma molluscum father than as an instance of Recklinghausen's disease. In stating the prognosis of this very chronic affection it would be remembered that according to Garre 10% of the cases subsequently undergo sarcomatous changes. Many textbooks hold that the

only possible treatment is surgical, such as excision. ligature or electrolysis. But in 1900 Whitehouse attracted much attention by publishing in the American Journal of Cutaneous Diseases a case of generalized fibroma molluscum in which he said the growths disappeared rapidly on administration of Asiatic pills. If any of the members of this Society have had similar experience I should like very much to hear their opinion as to the value of arsenic in such cases.

Dr. A. B. Spalding:

(a) **Two Specimens of Ruptured Uteri.**

These two specimens of rupture of the uterus I present to demonstrate not brilliant work, because both mothers and babies are dead, but simply to illustrate some of the dangers of the supposed conservative obsterical operations. The first case of rupture of the uterus came to my service at the City and County Hospital about four years ago. The history has been lost and the identity of her medical attendant is unknown, but the specimen speaks for itself. The specimen shows a ruptured dermoid cyst attached to the uterus and the posterior segment of the uterus has an opening that was very probably caused by puncture with forceps applied above the brim of the pelvis, or the rupture may have occurred by pulling down the lower segment of the uterus onto the promontory of the sacrum and causing the rupture in that way. The woman, when admitted to the hospital, was in extreme shock; the uterus was packed by the resident physician and the patient died the next day. At the autopsy there was found a general peritonitis, a ruptured left ovarian dermoid cyst, and a rupture of the uterus as presented by this specimen. This shows one danger that comes from applying high forceps without knowing the true condition causing the dystocia. The baby in this case had a depressed fracture of the skull and died three days later.

The second case of rupture of the uterus was caused by manual dilatation of the cervix. In this case the woman was a multipara, 28 years of age. This was the sixth child. There is nothing interesting in her history except that the pelvis was slightly contracted. The previous deliveries had been normal and spontaneous. The patient expected to be confined on May 26th. The following notes were obtained from her attending physician after the patient was admitted to the hospital. There was a history of two abortions, the last one a year ago. There had been two operations, one for gallstones and one for appendicitis. There was no specific history. The diagnosis of breech presentation was made shortly before delivery. Labor pains began at six o'clock on the morning of June 3rd, and the doctor was called to the case about eleven. At that time there were no fetal movements and the fetal heart could not be heard. On vaginal examination the membranes were bulging through the cervix. The membranes ruptured and a large amount of foul smelling amniotic fluid escaped. An arm presented through the cervix, the cervix being dilated about two fingers. The pains which had been regular up to the time of the rupture of the membranes, stopped and forty minutes later an attempt was made to dilate the cervix manually to turn the child. This was attempted for an hour by the attending physician and an associate, without anesthesia, and at the end of the hour they noticed a small tear in the front of the cervix opening into the abdominal cavity which they thought was the giving out of an old scar. This is a point which I wish to emphasize because later, at the time of operation, it was found that the uterus was so twisted on itself that the left broad ligament was directly anterior and this small tear was an extensive laceration through the cervix and lower uterine segment. At this time the patient collapsed and had a hemorrhage. She was packed by vagina and hurried to the University of California Hospital. Some time was necessary to do this and it was not until two hours after the rupture occurred that I first saw her. She was practically pulseless and had extreme pain in her lower abdomen. There was very little external hemorrhage. The question was what was best to do. The physician who came with her urged laparotomy. What we did first was to make an examination and remove the gauze. I found the baby could be turned easily by a Braxton-Hicks version. After the child was turned I did a carniotomy and delivered the child. The patient was in such extreme shock that I did not think I should take the chances of a laparotomy and hoped that her shock would subside. After the delivery I packed again and gave an intravenous infusion of salt solution with an injection of adrenalin as advocated by Crile. The result of the injection of the adrenalin into the vein was very marked. The pulse came up and kept up for some time, but she went into shock again and was apparently dying. I then did a laparotomy as a last hope. On opening the abdomen the uterus was found twisted so that the left broad ligament was directly anterior and the cross diameter antero posterior. Evidently in doing a dilatation of the cervix by Edgar's method they had pulled directly apart the left side of the uterus opening into the broad ligament, tearing the uterine artery and its branches. The broad ligament was distended with blood and had ruptured anteriorly and posteriorly, there was considerable blood in the abdominal cavity. A rapid extirpation of the uterus was attempted but the woman ceased breathing before this was completed.

These cases illustrate some of the dangers of high forceps operations and of dilatation of the cervix by Edgar's method. I believe that other operations are in selected cases of more value and I believe that such operations should be done before the patient is dying. That means that the obstetrical patient is entitled to the same careful diagnostic attention and matured operative judgment that the surgeon gives to the surgical patient.

(b) **A Case of Haematoma of Vulva.**

This case is one a similar treatment of which I cannot find recorded in the literature or in the textbooks. The woman was admitted in extremis to the University of California Hospital with the following history: Seventeen years of age, primapara. A small amount of sugar was present in the urine during pregnancy. The labor progressed normally until she was well along in the second stage and the head presented at the vulva. Labor promised to be easy. Then there appeared spontaneously a lump about the size of a walnut in the left labrium major. At first this could be reduced by taxis and was stated to be tympanitic. The tumor increased rapidly in size, soon involving all the left side of the vulva and the perineal region. The patient was in extreme pain and the labor pains were rapid and violent in the expulsive effort. She was chloroformed to stop the pains and taken to the hospital. I have seen only one other case of large puerperal hematoma, and I acknowledge this case was puzzling. Upon making an abdominal examination I found the foetal heart 90. It was impossible to examine vaginally because a mass about the size of a foetal head involved all the left vulvar and perineal region. The attending physician insisted that the mass was a large hernia. Spontaneous rupture seemed imminent with each labor pain. The drawing which I present was made by Dr. Lee at the time the patient was being prepared, and shows accurately and graphically the extensive involvement of the vulvo-perineal region by the tumor mass. This illustration will be published later with a more detailed report of the case. The treatment recommended in these cases is to make an incision and then extract the baby. However, if I had an-

other case of large hematoma obstructing labor I should treat by Cesarean section, as I did this case, for the following reasons: In making a perineal incision some patients have died from hemorrhage while many others have died later from sepsis. If you pull the child through the oedematous vulva and vagina you open up avenues leading to infection of the abdominal cavity. In my case treated by Cesarean section the baby was delivered and revived. After the abdominal incisions were closed the hematoma was opened and packed with gauze saturated with a mixture of camphor and phenol. The vagina was also packed with gauze. At no time later was there any infection of the uterus although the perineal wound became septic. The baby survived and the mother, in spite of the severe sepsis developed in the cavity of the hematoma, after running a high temperature for three weeks, recovered and is now pregnant again. I present this case for the consideration of the operation of Cesarean section vs. forced vaginal extraction and believe in this case the evidence favors the more radical procedure. To-day I gave my advice for a Cesarean section in a case of placenta praevia and the baby is alive. I do not believe that in properly selected cases, in hospital practice, and in experienced hands the operation is so serious as made out.

Dr. W. W. Boardman:

A Case of Indurative Headache.

As the case which I wished to present this evening is not here, I will merely give a brief history. M. F., came to Lane Hospital, entering under the service of Dr. Schmoll; he was an American, aged 23, carpenter. Two years ago he was taken with very severe pains in the left side of the head, beginning over the entire side. As time went on the pains became more severe and localized to the base of the cranium. The man went to the different clinics about town. He was treated for lues, his eyes, nose and throat were examined with no success. I went over him when the case came in and found nothing in the blood, feces or urine analysis. Physical examination was apparently negative until Dr. Schmoll on deep palpation of the neck found several indurated nodules in the muscles which could be rolled between the fingers. These were very painful upon slight pressure and varied in size from a pea to a small marble. Upon these findings the case was called one of indurative headache. The patient was put on salicylates gr. XV., given every three hours with local heat applied to the neck and massage twice a day. For the first three days the patient required liberal doses of opiates, but then improvement was manifest, the headache clearing up rapidly, the pain becoming less severe and disappearing by the 9th of April. This was the first time in two years that the patient had been free from pain for any length of time. The patient was discharged as cured, but on the 22nd of June he returned with an acute intestinal condition and a slight return of the headache, which rapidly cleared up upon renewing the former treatment. The objective results of treatment were very interesting. First, these indurated nodules became less tender, then diminished in size and finally practically disappeared. Although this is a well recognized clinical entity in Europe and is by some claimed to be one of the most frequent causes of headache, there is very little in the American literature upon this condition. In closing I should like to call your attention to an article in the Journal of the A. M. A., April 24, 1909, which briefly and clearly reviews this subject of indurative headache.

Dr. Wm. Ophuls:

Demonstration of a Sarcomata of Uterus.

I wish to present eight specimens of sarcoma of the uterus which we have collected in the Pathological Laboratory of Cooper Medical College in the course of the last ten years. Sarcoma of the uterus is usually looked upon as a rather rare disease although (1) Winter states that in a series of his own of 753 cases of fibromyoma of the uterus by careful histologic examination he was able to detect sarcoma in 17, which represents an average of 3.6%. Noble (2) has collected 2,274 consecutive cases of fibromyoma of various authors, among which there were 34 sarcomata, an average of 1.4%. Among his own series of 337 cases he found two sarcomata only, i. e., less than 1%. I believe that some of the cases of Winter, although histologically suspicious, would hardly be classified as sarcomata, clinically, and that on this account Noble's average of about 1½% is more nearly correct.

Sarcoma of the uterus was accurately described quite early in medical literature. Virchow (3) speaks of it in his book on tumors and early English authors like West and others have called attention to it under the name of "recurrent fibroid." The relation of the sarcoma of the uterus to the ordinary fibromyoma is naturally of great interest because if a conversion of this benign tumor into sarcoma is fairly common it affords an additional indication for early operation. The first description of the uterine sarcomata as recurrent fibroids practically implies that these tumors are closely related to and commonly arise from fibroids. This idea has gained a strong foothold among medical writers although our own experience makes us believe that quite often these tumors are independent of pre-existing fibromyomata. Ricker (4) emphasizes this view very strongly, going so far as to say, "Es ware interessant zu erfahren, wie der Klinisch so häufig gebrauchte anatomisch nur in ganz ausserordentlich seltenem Fällen bestätighe Begniff der malignen Degeneration der Myome entstanden ist." Of the eight tumors which I wish to show to-night not one has any definite relation to a pre-existing myoma and in my records I find three cases only of fibromyomata with sarcomatous places in them. I do not wish to be understood as if sarcoma could not arise from fibromyoma, too many convincing cases have been described in literature to make such an assertion, but the possibility of the independent origin of such tumors does not seem to receive the attention which it deserves.

Another question which has aroused considerable interest is the one, whether the cells of these malignant tumors are derived from muscle cells or from the cells of the interstitial connective tissue. V. Kahlden (5), Williams (6), Pick (7) each claim to have demonstrated the origin of their tumors from muscle cells, still both Williams and Pick refuse to accept v. Kahlden's case as convincing, although it is quite similar to theirs. It would hardly seem possible in these instances to decide with certainty whether one had to deal with a very definite mixture of sarcoma and muscle cells or whether they actually originated from one another. Recently Mallory (8) has attacked this problem in a more promising fashion, departing from his observation that in the involuntary muscle there are certain fibrils (myoglia fibrils) which are more or less characteristic. It is true that in staining reaction and other properties they resemble similar fibrils which are found in fibrous tissue, the so-called fibroglia fibres, but Mallory believes that in other respects they are sufficiently different to make them distinctive. With his method he finds that a considerable proportion of the sarcomata of the uterus is of muscular origin. He believes therefore that muscular tumors should not be spoken of as sarcomata of the uterus, as that would imply origin from the connective tissue, but better be termed malignant myomata. Mallory acknowledges, however, that ordinary spindle-celled sarcoma of connective tissue origin do occur in the uterus. Unfortunately our material was not preserved in the proper way to

allow of an application of Mallory's methods. It is impossible therefore to tell how many if any of our specimens are of muscular origin.

So far as the gross anatomy of these tumors is concerned, the original classification of Hegar is still commonly adhered to. He distinguished between sarcoma of the mucous membrane and sarcoma of the wall. The sarcoma of the mucous membrane is more or less polypoid, projecting into the interior of the uterus, extending also a certain distance into the wall. The sarcoma of the wall on the other hand forms in the substance of the uterine wall. Eventually it may reach the inner or outer surface and in advanced tumors it may be difficult to make out whether they originated in one way or the other; a difficulty which Hegar already called attention to. Among our tumors there is one typical sarcoma of the mucous membrane (case 1), and another one (case 2), which probably originated in the mucous membrane. Cases 3, 4, 6, 7 and 8 are typical sarcomata of the wall of the uterus. Case 5, although apparently originating in the lower part of the uterus, not in the cervix proper, exhibits a close resemblance to the sarcoma of the cervix which by some is put in a separate class by itself. These tumors are polypoid, more or less papillary, rapidly growing and very malignant. The blunt papillary projections of them, which hang down into the vagina, are often oedematous; according to some they may contain true mucous tissue. In these tumors cartilage and striated muscle cells have also been found. They are usually described as the traubige cervixsarcoma, sarcoma colli uteri hydropicum (Spiegelberg). The sarcomata presented here differ considerably in their histologic structure and accordingly in the rapidity of their growth and in their malignancy. It is incorrect therefore to speak in a general way of the malignancy of sarcomata of the uterus. It varies with each individual case.

Cases 1, 2 and 6 are rapidly growing malignant tumors of the type of the spindle celled sarcoma. Case 5 shows many large multinuclear giant cells which are quite common in such tumors. Cases 3, 4 and 5 are characterized by the presence of large numbers of new-formed blood vessels and lymph vessels which latter are dilated and filled with an abundance of clear lymph. These lymph and haemangi-ectatic sarcomata of the uterus seem to constitute a definite type of such tumors. Case 4 resembles somewhat the tumor described by Williams as a melanosarcoma of the uterus as it is very deeply pigmented. I do not believe that these tumors should be so classified as the pigment is evidently blood pigment, not autochthonous pigment, as in a true melanosarcoma. Cases 7 and 8 represent more slowly growing tumors of the type of a fibrosarcoma; case 8 especially contains much dense fibrous tissue and except for the apparent destruction and infiltration of the uterine wall might very well be taken for a hard fibroma.

The following is a short description of the findings in each case:

Case No. 1—B. 516. Mrs. P. Dr. Rixford. Aug. 9th, 1902. Uterus about size of two fists with hypertrophied wall. On the outside directly under the peritoneum there is a hard, well defined spherical tumor, size of a walnut. On the inside the surface is very ragged over a large area. The area is surrounded by nodular tumor masses which extend quite a distance into the uterine wall, and do not show a sharp line of demarcation against the muscle. Microscopical examination.—Shows the outer tumor to be a typical hard fibromyoma. The tumor masses on the inside consist of bundles of large spindle-shaped cells with very large clear oval nuclei. These cells do not stain with picric acid like involuntary muscle cells. Between the bundles there is some connective tissue which in places shows marked hyaline degeneration. In many places the tumor contains a considerable number of large bloodvessels. Some of the walls of the capillaries also show hyaline degeneration. The outline of the tumor towards the uterine wall is very irregular. In most places the tumor is surrounded by a layer of fibrous tissue, but there are places in which the tumor masses reach down to the muscle without the interposition of a capsule, and show an infiltrative growth. Near the base of the tumor masses there are several large arteries with very thick walls, partly filled with thrombi. Diagnosis—Spindle-cell sarcoma of the uterus.

Case No. 2—K. 582. Mrs. H. Dr. Somers. May 24th, 1909. Uterus moderately enlarged, wall infiltrated on one side with grayish white fairly soft hemorrhagic tumor about 6 cm. in diameter, with central large ragged cavity which opens into the uterine cavity. The tumor extends from the interior, where it forms a nodular projection through the uterine wall forming a flat nodular projection on the outside, which is still covered with peritoneum. Section shows tumor made up of very large irregular or spindle-shaped cells which penetrate far into the muscle. The tumor cells are more or less spindle-shaped, arranged in bundles with some connective tissue fibrils between them. The inside projections of the tumor show large capillary blood vessels in the center of the bundles of cells. Diagnosis—Spindle celled sarcoma of uterus.

Case No. 3—B. 264. Miss W. Dr. Stillman. Feb. 27th, 1902. The tumor is about the size of a child's head and is somewhat pear-shaped. The surface is white, in places a little coarsely granular, otherwise nearly absolutely smooth. The tumor is very soft, almost fluctuating. On the cut surface one sees that it consists of a tough fibrous outer membrane which is between two and three mm. thick; the rest of it consists of what appears to be very oedematous loose fibrous tissue. On one side this soft tissue shows a diffuse hemorrhagic infiltration. The lower part of the tumor is more solid, having about the consistency of the uterine wall, and is grayish white in color. The upper part of the uterus is attached to the lower pole of the tumor, and the dividing line between the tumor and the muscle is fairly sharp. The uterine cavity is normal, the appendages are normal, and in a normal position. Microscopical examination—The tumor consists of bundles of large spindle-shaped cells, with some connective tissue fibrillae between them. In the more solid parts there are few, in the soft parts very many capillary spaces which are filled with blood; there are also very many irregular lymph spaces filled with lymph. In places there are numerous small hemorrhages and some brown granular pigment. The capsule consists of dense fibrous tissue with some bundles of involuntary muscle. Diagnosis—Lymph and haem-angiectatic sarcoma of the uterus.

Case No. 4—E. 316. Mrs. B. Dr. Steltzner. Dec. 21st, 1904. Within the uterine wall, enclosed by muscle on all sides, there is a round, badly defined tumor about 5 cm. in diameter. In the center there is a large irregular cavity with ragged inner surface which in many places shows remnants of an old hemorrhage and a marked brown pigmentation. The little tumor tissue left in the periphery is almost white with a perfectly smooth cut surface. No other tumors present. Sections of the tumor show that it consists almost entirely of bundles of rather short spindle cells with oval clear nuclei. There are many capillary blood vessels, and many dilated lymph vessels. No sharp line of division between the tumor and the wall of the uterus. Near the cavity there are masses of dense fibrous tissue full of brown granular pigment. Diagnosis—Lymph

and haem-angiectatic sarcoma of the uterus with old central hemorrhage.

Case No. 5—K. 640-653. Mrs. R. Dr. Somers. June 7th, 1909. Soft tumor full of hyperaemic blood-vessels with a smooth surface full of polypoid projections seems to arise from the lower part of the body of the uterus and project down through the dilated cervix. Several large detached specimens of a similar tumor material from within the peritoneal cavity. Sections show tissue composed of bundles of large spindle cells, many large multinuclear giant cells, and many large new formed capillary blood vessels surrounded by thin sheaths of connective tissue. Many dilated lymph spaces, mostly around blood vessels, partly filled with red blood corpuscles. Diagnosis—Lymph and Haem-angiectatic sarcoma of the uterus.

Case No. 6—G. 799. Mrs. S. Dr. Rixford. April 17th, 1907. Small uterus with rather wide cavity. Mucous membrane swollen. Small subserous fibromyoma. Large intramuscular, fairly well circumscribed tumor of the fundus about 11 cm. in diameter, which has grown through the muscle to the peritoneum. Tumor is grayish brown and soft. Sections show that it is composed of large spindle cells arranged in bundles. Many large capillary blood vessels and veins. Diagnosis—Spindle-celled sarcoma of the uterus.

Case No. 7—F. 86. Mrs. B. Dr. Rixford. Sept. 8th, 1905. Uterus, nodule from the iliac peritoneum and pelvic lymph gland. Within the wall of the uterus there is a nodular tumor the size of two fists. The cut surface of the tumor is rather smooth grayish white, in the center more yellowish and opaque. The uterine cavity is of nearly normal form, but from three to four times the normal size. The tumor extends through the muscle on the outside, where it projects with a fairly smooth coarsely nodular outer surface. Sections from the main tumor and from the metastatic nodule from the peritoneum show a tissue consisting of bundles of large spindle-shaped cells with narrow strands of connective tissue fibrils between them. Here and there one finds large mononuclear giant cells. A moderate number of large capillary blood vessels. Toward the center the tumor shows more intercullular substance. Large central necrosis. In the periphery of the large tumor one can plainly observe that the tumor cells infiltrate the uterine muscle and destroy it. There are a moderate number of mitoses. The small lymph gland shows some catarrh of the lymph spaces but no tumor. Diagnosis—Fibrosarcoma of the uterus.

Case No. 8—G. 735. Mrs. H. Dr. Stillman. March 30th, 1907. Large ovoid grayish white solid tumor, about 10 cm. in diameter, with area of softening in the center. Sections show tissue to be made up of bundles of very large wide spindle-cells in bunches with large oval nuclei. The spaces between the cells are filled with connective tissue fibriles. In the center of the bundles one finds large capillary blood vessels. Around these the tumor is especially cellular and in these places there are a few large fusiform mononuclear giant cells. Diagnosis—Fibrosarcoma of the uterus.

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BOOK REVIEWS

Medical Sociology. A Series of Observations Touching Upon the Sociology of Health and the Relations of Medicine to Society. By James Peter Warbasse, M. D. New York and London, D. Appleton & Co., 1909.

The author of the above volume of essays, addresses and observations, is well known to the profession as the former editor of the New York State Journal of Medicine. His book ought to be read by every parent in the land and should be placed in the hands of every instructor of the young and upon the shelves of every public library.

Doctor Warbasse believes with Lord Beaconsfield that "public health is the foundation on which reposes the happiness of the people and the power of a country, and that it is, therefore, the first duty of the state to provide for the public health;" and, citing Descartes, that if it is at all possible to ennoble mankind it will be through medicine. His volume is an attempt to "draw the physician and the people closer together" and "to teach the public the importance of medical knowledge and of the medical profession and its power to save." It is the earnest, eloquent plea of a public spirited citizen and savant for the diffusion of medical knowledge among the people, so that "knowing the truth they may do the right," and for the exercise of preventive medicine by the state. Doctor Warbasse would make the study and teaching of biology, physiology and hygiene compulsory in the common schools, and deplores the fact that "no medical college in the land has a course in hygiene and sanitation worthy of the name." He further urges the establishment of a federal department of public health presided over by a sanitary general or secretary of public health, and wonders that the country is so slow to awaken to the necessity of such a branch of the government.

"Preventive medicine is the thing." He would even change the term "medicine," which he very correctly finds too suggestive of drugs, especially to our legislatures and courts, to "sanitary science."

The lay reader will find the chief interest in the chapters on alcoholism and the venereal peril. The perils of alcohol are perhaps familiar enough to, although not sufficiently realized by, the public; but the average layman, even the well educated, who reads Doctor Warbasse's instructive volume, has but a faint conception of the awful penalties of gonorrhoea. Has he not been taught by his old-time doctor to treat this common complaint lightly, even with contempt? Was he not discharged cured after perhaps a week's treatment? It will be then with no small degree of surprise that he will hear Doctor Warbasse declare that the gonococcus still lurks in the depths of his urethra, ready at any moment to be awakened to activity and to impregnate the wife of his bosom, entailing upon her a host of uterine disorders, causing her untold suffering and a chronic state of invalidism. The statement that according to gynecologists "75 per cent of the operations for inflammatory diseases in women is due to gonorrhoea," that this disease is "a disease of virtuous wives in our great cities," that "in the United States it is calculated that 65 per cent of the males have had this disease," that "it is the most prevalent of all diseases next to measles," that "most of the sterility of women is due to gonorrhoea contracted from the male," that "30 per cent of the males and 50 per cent of gonorrhoeal women are sterile," will fill him with horror. Doctor Warbasse says the report of the experts are "woefully complete."

In what measures is the remedy for this social scourge to be sought? By the diffusion of medical knowledge, individual and legal prophylaxis, according to Doctor Warbasse. "It is not so much

a want of virtue or of morals that concerns us as it is a want of knowledge and adequate instruction. The only cure for the lack of virtue which will stand every test is knowledge. Evils which cannot be remedied by the cleansing power of truth are beyond the reach of human agencies. If to know all is to forgive all, so also is it true that to know all is to escape the necessity for being forgiven. The beginning of the victory over this great social scourge will come when its real character is known and understood by all men and women; when the penalties for violations of sexual hygiene are as common knowledge as are the penalties for violations of the common law of the state; when the dangers of falls into adultery are understood as well as are the dangers of physical falls; and when the tinsel is struck from the shoulders of women of loose sexual practises and the pitiable creature beneath is exposed. There is little distinction between the innocent and the guilty; all who suffer through unenlightment are innocent, for no one is so guilty as to elect unhappiness. At the bottom of these troubles lies the ignorance which it devolves upon society to remedy. Medical science has accumulated the knowledge which is necessary to correct these evils; it remains for the parent, the teacher, and the guardian of public morals to apply it."

It might be objected that, if ignorance is at the bottom of the trouble, how shall we account for the fact that the medical student and the specialist for sexual diseases are so often roaring libertines. Is not the aphorism of the brilliant and profligate Hamilton—man is a more reasoning than reasonable animal, mostly guided by his passions—eternally true? Doctor Warbasse cites Herbert Spencer to the effect that "to be a good animal is the first requisite to success in life, and to be a nation of good animals is the first condition to natural prosperity." Granted, but is not man, like the animal, polygamous by nature, and does he not, like the earth, rotate between Venus and Mars? Reason is certainly not his axis. In order to enter the sanitary kingdom of Doctor Warbasse one must be born again. How much more logical and simpler it would be to discover a vaccine for the venereal plague than to attempt to change human nature.

Still worse, even ridiculous, is the recommendation that the state must demand a clean bill of health from the man who applies for a marriage license.

"But one thing the state can do—and now; it can demand a clean bill of health from the man who applies for a marriage license. The innocent wife is the one who too often reaps the wild oats sown by her husband. The state owes it to her to see to it that the marriage contract with which it is so much interested shall carry with it a guaranty of safety."

Is not this paternalism with a vengeance? In the hygienic republic, in the prophylactic despotism of Doctor Warbasse and others, personal liberty is out of the question. Some of us would perhaps prefer to take our chances with the venereal plague and be free. What an opportunity for graft, and how fortunate for mankind that doctors often disagree!

In his chapter, "Sexual Immorality and the State," Doctor Warbasse asserts that "of the 30,000 prostitutes of New York 10,000 came from respectable homes, the daughters of loving mothers, that there are 10,000 little girls now happily playing with their dolls by their mothers' side who are to grow up and take the places of these when they have been swallowed up by the great consuming maelstrom of the city. It is not for the 10,000 prostitutes that we need be the most concerned—they are lost; but the 10,000 little girls are worth saving."

The critic will be apt to pronounce the deliberate desertion of the 10,000 women more sinned against than sinning wholly unjustifiable on the part of the physician-author who preaches the power of medicine to save and calls its mission "holy." If it is absurd, and Doctor Warbasse says it is, to arrest the drunkard and clap him into prison, when it is evident that he should be sent to the hospital, why is the bride of a thousand bridegrooms abandoned to the tyranny of the police and the insults of the public responsible for her degradation? Why is she not put upon the Weir Mitchell treatment, subjected to the suggestive influence of a Dubois, instructed in medical truth and taught to reason correctly. Not every Maslóva can expect to find a prince willing to save her. In other words, should not preventive medicine, like hygiene and law, be no respecter of persons?

The physician is seldom a good politician. Perhaps it is because of his great respect for the truth. Doctor Warbasse is no exception to the rule. The flings at the Church, and they abound in his pages, although perhaps natural in a man of science, are, to say the least, impolitic in one who is seeking to convert an ignorant, prejudiced and superstitious public to the principles of hygiene and sanitation, and who demands for the medical profession a large representation in the government. How much wiser it would have been to render unto Medicine what is Medicine's, unto God what is God's! But after all, the above views are only those of a layman, and, in spite of some inconsistencies and the exaggeration common to all ardent reformers the book of Doctor Warbasse is worth more than a hundred decalogues and a thousand sermons. WM. C. TAIT.

Orthopedic Surgery for Practitioners. By Henry Ling Taylor, M. D., the son of C. Fayette Taylor, M. D., a pioneer in the art. Publishers, D. Appleton & Co., New York and London.

The book, according to the author, "aims to give an outline of the essential facts in regard to deformities and crippling affections for daily use in general practice."

As a handbook, or a compend, from which the student may get an inkling, a little of everything and not much of anything, as is apt to be the case with most text-books, the work excels, but it certainly cannot be considered as a serious attempt to offer the present status of the art of Orthopedics adequately to the thinking and practising surgeon.

Speaking generally it is a good book for students who want to "bone up." It gives, usually, in simple language and in a very easy and graphic style, Orthopedic truths with Delphic statements, which should satisfy any examiner.

Again and again he talks as if faith, buckles and any old vibrator left little to be desired in an Orthopedic Armamentarium.

Knowing a little of Dr. Taylor in his work we hardly think that he does himself justice. He appears most unhappy in his treatment on "Causation," especially regarding the cause of the various arthritic conditions. Admitting that the subject is not thoroughly cleared up, still, the loose treatment accorded to this subject could be much more definite and much more exhaustive in no greater space. The chapter on Poliomyelitis is good and is written in such a manner as to interest the family doctor and put him on his guard against delay and the advent of crippling deformities which follow the waste of time and foolish treatment so widely prevalent; and yet in this section we deprecate the advice given to cut the tendons of intact muscles, in cases of Poliomyelitis, in order to correct deformities, such a method giving only apparent temporary improvement and against the opinions of most conservative Orthopedic surgeons. We do not agree with him that in children, at least, synovial tuberculosis may exist for years without affecting cartilages or bone. Our experience also causes us to

differ in the matter of prognosis of knee-joint tuberculosis, which we think is better on this coast. He objects to early operations in bone tuberculosis unless a definite focal lesion is determined, and in view of some experiences we have had lately, his advice is good and timely. We agree with his experience in the Bier treatment of bone and joint tuberculosis, which coincides with ours.

In clubfoot, with inward rotation of the tibia, he does not mention a plan of correction which we think merits the highest praise, which is to make an osteotomy of the tibia and rotate the lower fragment outward on the perpendicular axis. We have found this maneuvre of the greatest value. He gives, however, many practical suggestions in the care of Scoliotics, and gives a place to Jones' method of treatment of contractures due to ischaemic paralysis.

As a whole the general part is suggestive, and, excepting the tangle on rheumatoid affections, of some value to students of medicine and to the family practitioner. At the end of the book, as a sort of appendage, there is a section on technic, and this is the cream and is really reason for the book. If the rest was lost this alone would be worth the price. There is more meat, more good advice, more happy suggestions on braces and methods and splint-making than we have seen in a long time. It is a joy to read what he says about splints.

Quotation after quotation could be given which should be axiomatic in the mind of every surgeon.

Why a man should waste his time in advocating vibrators and electricity and what not like a patent medicine "ad," when he really knows and can teach so much regarding the great mechanical principles, remains a mystery. S. J. H.

The Renewal of Life. By Thos. Bassett Keyes, M. D. The Tubercle Press Bureau, Chicago, Ill. 1909-1910.

This book of 206 pages is not, as its title implies, an essay in metaphysics or on religion, but a series of arguments for the use of subcutaneous injections of oil "in the cure and prevention of senility and disease; for the making of the acme of abundant health, stamina, vigor, vitality and constitution; for the cure of consumption and other diseases, particularly those of a chronic nature," a treatment which the author calls "the greatest therapeutic advance that has ever been made." According to the author, "oil injected into the tissues enters the circulation in practically the same way as when strained through the intestines; oil thus injected affects the blood cells directly, by feeding them so that they are enabled to grow, both in size and numbers and increase their strength and working powers."

Such assertions are at variance with the results obtained by recent experimental investigations. Henderson and Crofuth [1] showed that "oil injected subcutaneously is readily and widely distributed through the subcutaneous spaces. Such oil, however, is not transformed **in situ** into adipose tissue. In fact, the tissues react to its presence as to any non-irritating foreign substance. In the blood, lymph and milk it does not appear in any detectable amounts. While the oil is ultimately absorbed and utilized in metabolism, the process is one of extreme slowness. Oil injections in any moderate amounts are therefore practically without nutritive value."

Such false premises, coupled with an unpardonable lack of genuine medical knowledge, explain some of the author's extravagant, not to say ridiculous, statements, especially regarding the germicidal action of oil, the relatively small importance of outdoor life in the treatment of pulmonary tuberculosis, and finally the immunity to consumption through the assimilation of fats in sufficient quantities.

The author's portrait occupies the first page of this odd publication from the Tubercle Press Bureau. The last four pages contain references from the well-known Medical Brief and Pacific Medical Journal. D. T.

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1 Yandell Henderson and Edward F. Crofuth—American Journal of Physiology, Vol. XIV, No. 3, page 193.

A Treatise on the Principles and Practice of Medicine. By Arthur R. Edwards, A. M., M. D., Professor of the Principles and Practice of Medicine and of Clinical Medicine, and Dean of the Faculty in the Northwestern Medical School, Chicago; Attending Physician to Mercy, Wesley Hospitals, etc. Lea & Febiger, New York and Philadelphia, 1909.

It may appear surprising that this work has come to a second edition in such a short time, considering the number of similar standard text-books. But on looking into Edwards' book, the reason of its popularity is immediately apparent. For the practicing physician as well as for the student, it has many commendable features. Particular attention is paid to differential diagnosis, the various disease groups being often tabulated. Treatment is gone over in detail, a feature usually wanting in other works. Numerous plates and engravings illustrate the text. The writer has borrowed freely and wisely from other authors, both as to text and illustrations, and gives us a good, readable, clear exposé of his subject.

It is rather remarkable that in the diagnosis of aneurysms, the X-ray is not mentioned, and that exploratory puncture is spoken of as a means of differentiation from solid tumors. The Wasserman test is not alluded to as an aid to the diagnosis of syphilis.

It is furthermore rather astonishing that none of the recent books mention the fact that while many paratyphoid cases cannot clinically be distinguished from typhoid infections, on the other hand, many cases of acute gastro-enteritis prove to be paratyphoid infections, when investigated bacteriologically. R. B.

Diseases of the Eye. By Chas. H. May, M. D. Publishers, Wm. Wood & Co., New York.

The sixth edition of May's well-known text-book has appeared, and deserves to be well received as it has been heretofore.

As a text-book for students in general medical work, it fills the requirements satisfactorily. The space given to the various divisions of the subject is well balanced, and the whole is concisely and lucidly treated.

There are a few paragraphs which do not express the latest and best line of thought—would mention particularly his treatment of Lachrymal Sac conditions. E. C. S.

Parenthood and Race Culture. By C. W. Saleeby, M. D. Publishers, Moffat, Yard & Co., New York.

To what extent the physician should be interested and study those subjects which are but indirectly a part of his "private practise" is a question which must be determined by himself. We admit that his work is primarily to care for the sick when afflicted with some dread disease; secondarily, he studies hygiene and it would seem that upon this branch the physician of the next generation will place more dependence.

Associated with hygiene and but a step from it is "eugenics," which is the science of race culture, and the first attempts to define its general principles as a whole has been issued in "Parenthood and Race Culture," by Dr. Caleb W. Saleeby (London, 1909). He starts with the basic assumption that "there is no wealth but life" and upon these words of Ruskin develops his subject, emphasizing the importance of heredity and education, the part played by alcohol and tobacco in the production of physical unfitness, and dwelling especially on the possibility of selection through marriage. He would not have us think that the eugenist is only concerned in the production of the physical fit, and in the chapter on "The Selection of Mind" lays stress on the fact that the mind has been the principal means of changing our relative position to our simian forebears.

"Physical eugenics can by no means be ignored; but . . . the physical is of worth only in so far as it serves the psychical and is worse than worthless in so far as it does not." He quotes freely from the words of Francis Galton, who has written so extensively on the subject and gives in detail the books which can be used by those desirous of extending their knowledge. To review a book of this character as it should be done demands an acquaintance with everything it dwells upon, which I do not possess and which ignorance I, no doubt, share with the majority of the profession. However, now that the several states have taken legal action toward the regulation of marriage by forbidding alliances among the criminals, paupers and feeble-minded, and as in Indiana provision is made for the sterilization of its confirmed criminals, imbeciles and rapists, it would seem that the time has come for every physician to study carefully this new science, and as guardians of the public health to spread, as we best of all professions can do, that knowledge which will lend to prolong life and increase human endeavor.

To those of the profession who have but a materialist view of their work the book will not appeal as it has nothing for them, yet, everyone who feels that the limit of human perfection has still to be reached will be deeply interested in its pages and who, with Dr. Saleeby, believe that "there are many events in the womb of time which will be delivered, and the fairest of her sons and daughters are yet to be." G. H. R.

A Text Book of Surgery. George Emerson Brewer, M. D. Lea & Febiger, New York and Philadelphia.

This volume is a fair example of publishers' not infrequent attempts to foster upon unsuspecting students a mass of old material in patched attire. Too much has been added to our knowledge since the first edition of this work to justify the mere adding of a few plates or an occasional page, and we are prone to attribute to the undue haste of incompetent collaborators this second edition. D. T.

APPEAL TO THE MEDICAL PROFESSION OF THE WEST AND SOUTH.

Up to the present time there has not been a concerted effort made to collect and preserve historical data in regard to the origin, evolution and personnel of our profession in this part of our country. The result of this delinquency has been the total loss of much material that should have been preserved, especially pertaining to medical schools and societies, and biographical matter in connection with the practitioners and teachers of medicine of by-gone days. A good deal of material of this character is still obtainable if a systematic effort is made to locate and preserve it. It is in the possession of individuals, families and private libraries and will eventually be lost. The Western Association for the Preservation of Medical Records was organized in May, 1909, for the purpose of collecting the historical and biographical records of the profession of the West and South. We wish to preserve anything and everything pertaining to western medicine and medical men and are anxious to enlist the active help and support of every member of the profession who is in sympathy with our aims. We want every one to become associated and identified with the work of our association. There are no fees or obligations of any kind. We have made arrangements with the Lloyd Library, Cincinnati, O., for the proper housing of the material collected. The latter will be systematically arranged, catalogued and properly preserved, so that it can be made available for research work. We are particularly anxious to obtain:

1. Medical Journals published in the West and South prior to 1880;
2. Medical books and pamphlets written or published in the West;
3. Manuscripts and autographs of early physicians;
4. Old diplomas and other documents of a medical character;
5. Proceedings of medical societies;
6. Reports of hospitals and other medical institutions;
7. Catalogues and announcements of western and southern medical colleges of all "schools";
8. Biographies and portraits of western physicians;
9. Information and material of any kind pertaining to medicine and medical men and affairs in the West and South.
10. Curios of a medico-historical character.

All contributions should be sent in care of the librarian. In view of the fact that we are performing a labor of love and have no funds, our friends will readily understand why all contributions sent by express or freight should be prepaid, so that no expense may accrue to the association. The necessary expenses of the association are at present being met by voluntary contributions of its organizers.

May we not count upon your active help and support? We would like to hear from every member of the profession who is interested in the proposed work.

A. G. DRURY, M. D., Librarian,
710 W. Eighth St., Cincinnati, O.
C. A. L. REED, M. D., Chairman.
OTTO JUETTNER, M. D., Secretary.

RESIGNED.

Spurgeon, Franklin, Chico.

DEATHS.

Jones, M. S., Santa Ana; Younger, Alex. J., of San Francisco, died at Sydney, N. S. W., in Sydney Hospital, 1907; Harkness, Geo. S., Stockton, Cal.; Gilreath, M. A., Selma, Cal.

California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

PHILIP MILLS JONES, M. D., Secretary and Editor

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VOL. VII DECEMBER, 1909. No. 12

EDITORIAL NOTES.

PROGRAM COMMITTEE.

The Chairman of the Committee on Scientific Program for the next annual meeting of the State Society is already at work and has the program fairly well shaped up. The meeting will be held at Sacramento in the third week in April, 1910, and there is good reason to believe that it will be a successful one in every way. Matters of great importance will come before the House of Delegates and every County Society should see to it that it is represented at the sessions of that body. There are always a number of members who desire to present papers at the annual meetings, but who delay sending in notice of that fact until too late. It is therefore urged that all those who desire a place on the program, correspond at once with Dr. H. R. Oliver, Butler Building, San Francisco. Dr. Oliver is Chairman of the Committee and very naturally desires to have all these requests at as early a date as possible.

THE END OF A VOLUME.

The present issue completes the seventh volume of your JOURNAL, which compares very favorably with the preceding volumes. The JOURNAL is your own journal; the articles in it are your own productions, and if they do not come up to the mark to which you think they should come, it is your own fault. Physicians in California are doing as good work as any in any state in the land, and are doing better work to-day, on an average, than ten years ago. And your JOURNAL has helped somewhat. Many a man has been stimulated to produce reports of his work or original articles; and also, many a man has seen his own shortcomings when they got into cold type, and has been stimulated to do better work, clearer or more careful thinking, or more accurate and precise presentation. What the JOURNAL shall be is all in the hands of the members of the Society; the better their work for their County Society and for the State Society, the better will be the material which goes out to the world in their own JOURNAL. Let us all keep eternally at it—improving, building, enlarging, progressing, always striving for better work, for better results, for progress in medicine at home, and for a closer knitting together of our several units into solid societies, each working for the greater benefit of our charge, the public health.

DRUG COMBINATIONS WITH ACETANILID.

The use of caffein and the alkaline carbonates in connection with various coal-tar antipyretics has for a long time been popular, but the reason for their employment with these drugs is by no means clear. Apart from the general impression, largely founded on theoretical considerations, that caffein safeguarded the heart from any depressing action, its use cannot be said to have been based on sound physiological investigation showing that it acted as commonly supposed. No doubt this belief in its efficiency has been influenced to some, if not to a considerable extent, by the favorable reports of its use in cases of acetanilid poisoning. So far as the alkaline carbonates are concerned, various explanations have been given for their introduction. On the one hand, it has been suggested that they were given to increase the alkalinity of the blood which is lowered by acetanilid, as shown by Herczel in 1887. Allowing that all methods for the determination of the alkalinity of the blood are unreliable, Herczel's observations would at least afford an experimental basis for the use of the alkalies, but the small amounts in which they are ordinarily given almost certainly preclude the idea that they were administered for this purpose. On the other hand, many, especially pharmacists, have given them with the idea that they favored the solubility of the acetanilid, but that they do not do so has been well shown by the studies of Puckner.

While, therefore, the raison d'etre for the use of either caffein or the alkalies in acetanilid and antipyrin mixtures, has not been clearly understood, our knowledge regarding the action of these drug-combinations has recently been materially assisted by a series of interesting experimental studies carried out by Worth Hale of the Department of Pharmacology, United States Public Health and Marine Hospital Service (Bulletin No. 53, September, 1909). In the light of this work most, if not all of us, will find it necessary to revise our views regarding the subject. These experiments indicate that the deleterious effect of acetanilid upon the heart is very imperfectly antagonized by caffein. Hale shows that so far as the contractile power of the heart is concerned, the

antagonism is very weak or even not present at all, and in some cases that the two drugs seem to combine to depress the heart to a greater extent than acetanilid does when given alone. The heart rate, on the other hand, is not slowed after a mixture of acetanilid and caffein are given, as is the case when acetanilid is given alone, and the decreased heart rate following the exhibition of the former alone tends to become normal upon the subsequent injection of caffein. Caffein is further shown to increase the toxicity of acetanilid mixtures when given to the intact animal, and in certain experiments this is not only a summation effect but even some synergistic action is to be observed.

Sodium bicarbonate appears to markedly lessen the poisonous effects of acetanilid upon the heart, which is shown to be less depressed than when the alkali is not given. The lessened toxicity also appears in the experiments upon the intact animal, in which case acetanilid when given alone proved to be far more toxic than in mixtures with the alkalies.

Another interesting point demonstrated by the investigation is the increased toxicity of acetanilid by the addition of alkaloids of the morphin group. Salicylic acid and the bromides, on the other hand, appeared to have no effect one way or the other. Other experiments showed that caffein is not materially antagonistic to the circulatory depression following antipyrin, but that it prevents the slowing of the heart rate. With the intact animal the mixtures of the above drugs were invariably more poisonous than antipyrin alone. In contact, and as in the acetanilid experiments, sodium bicarbonate was somewhat antagonistic to the heart effect of antipyrin, but when given to the intact animal it did not seem to lessen the toxicity of antipyrin in any degree.

MEDICAL DEFENSE.

Do not forget that the question as to whether we shall continue indefinitely to defend the members of the Society in all malpractice suits for a merely nominal assessment each year, will come before the Society at the next meeting. The Council did all that it could do in getting the machinery started and arranging to run it until next April; then the Society as a whole must pass upon the plan. In all human probability the work can be carried on for an amount not exceeding one dollar per year per member. For one dollar plus your ordinary dues to your County Society, you are sure of having any suit for malpractice that may be filed against you, defended to the limit. Does not that seem to be highly desirable—and mighty cheap? No single practising physician can say when some disgruntled patient may take it into his head to bring suit even on the most flimsy of pretexts; and even if the suit is foolish and the defendant sure of a verdict, it means to him a lot of trouble and annoyance and considerable expense. This can be done in more effective fashion by the Society as a whole and can be paid for easily out of a fund secured by the special assessment of one dollar per year upon each member. The work is already under way and two suits have thus far come to our attorney's attention, both of which will undoubtedly be successfully defended. Remember that the cause for the action must have occurred *after July 1st, 1909*. No suit based on an alleged malpractice which occurred before that date will be defended by the Society. Some beginning date had to be set and the Council fixed the first of July, because it was the beginning of the month next after that in which the Council decided to take up the work. Do not wait for a suit to be filed if you have any reason to think that one is pending; let us know the facts, so that the attorney may become acquainted with everything relating to it, and possibly ward off the threatened suit.

DR. CESARE LOMBROSO.

The career of Dr. Cesare Lombroso, the famous psychiatrist and criminal anthropologist who recently died at an advanced age, furnishes a fertile field for thought. Exhibiting in early years an extraordinary mental development, he became a Professor in the University of Pavia at the age of twenty-six, and during his long life devoted largely to research, promulgated doctrines so radical that they attracted universal attention. It is possible that some future historian will classify this remarkable personality with those men of genius whose eccentricities were so carefully studied by him. His exhaustive knowledge and versatility are nowhere exhibited to better advantage than in his efforts to prove the insanity of genius. His temperament is seen everywhere in his writings, and they teem with an enthusiasm which is irresistible. As a scientist he discovered no great truths which will perpetuate his name, but the subjects with which he was so closely associated owe their development in recent years largely to his writings. Extremist though he was, and lacking that rare scientific acumen which permits of accurate discrimination, he mingled the web of fact with the woof of fancy in such an attractive fabric that it has made his books famous the world over. The opposition his radical ideas engendered built up a voluminous literature which has done much in elucidating his chosen fields. Lombroso's work was essentially that of the pioneer, and as such it must appeal strongly to every thinking man. It has remained for others to separate orderly truth from chaotic fiction. He hewed a crooked trail which those who have followed in his steps have broadened and straightened.

ANIMAL EXPERIMENTATION.

The address of Charles W. Eliot, delivered on Ether Day at the Massachusetts General Hospital, appears in a recent issue of the *Boston Medical and Surgical Journal*. The ex-President of Harvard surveys the field of medicine from a mountain top and so broad and comprehensive is his horizon that his view will be of interest to every practitioner. His arguments for animal experimentation deserve a wider reading than the columns of this excellent journal afford. It is the attention of the laity which

should be sought primarily, for medical readers must be very few who are not already convinced of the justness of this cause.

Three doubts, he says, are often suggested concerning the value of animal experimentation. The first relates to whether or no biological research really contributes to the success of medical art. The second concerns the question of justification for animal experimentation when it is not known that the results, although they may be scientifically sound, can have any effect whatever on the human being. The third doubt would question the justification of experiments which might interfere with the comfort, joy or life of animals. These are the queries which the intelligent layman, who has made some attempt to solve the problem for himself, is prone to ask. With rare logic, splendid illustrations and statistics so aptly chosen that they are startling even to him who follows medical literature carefully, the writer bowls over these quandaries one after another.

At the present time the best arguments of physicians in favor of the importance of their work are given to other practitioners to assimilate. There is no reason why the medical profession should be fed so constantly on predigested food. The great body of the general public, of which the profession is but a small part, are seeking eagerly such information. The people are deeply interested in medical research and its many conquests and are especially concerned with preventive medicine and its present applications. A recent article on hookworm disease in a popular magazine has set the world thinking. It is safe to say that the average Californian knows more about pellagra than he does of the prevalence of malaria in his own state. The whole superstructure of preventive medicine depends upon the education of the individual. Is it too much to say that the rights and privileges of animal experimentation rest upon the same basis?

TROPICAL MEDICINE.

It is not any longer necessary to emphasize before the medical profession of this state the special position of responsibility to the nation that California occupies in the matter of tropical medicine. The importance of the subject demands a recognition on the part of the whole profession of the Pacific Coast of the various so-called tropical diseases which are now present in, or may at any time invade our territory. With this fact in mind, we have asked Dr. Creighton Wellman, whose eminent qualifications and researches along these lines are well known, to prepare from time to time a critical summary of advances in knowledge in this direction as well as other matter relating to the incidence, etc., of tropical disease in this part of the country. Our idea is to make use of the JOURNAL as a clearing-house for subjects of interest in this field.

A cordial invitation is extended to all medical men to co-operate in making this department useful. Communications, abstracts, reviews, notes, comments, news items, etc., bearing on the general problem of tropical medicine may be directed to the Editor, Dr. Jones, or to Dr. Wellman in his care.

TROPICAL DISEASE IN OAKLAND.

With the object of gaining an idea of the amount of tropical disease in the city of Oakland, the writer has examined a number of patients in its hospitals, clinics and dispensaries, with the result that tertian, quartan and aestivo-autumnal malaria, leprosy, amoebic dysentery and liver abscess, bubonic plague, filariasis, flagellate diarrhoea and various intestinal parasites—including flukes (*Opisthorchis*), tape worms (*Dibothriocephalus, Taenia, Hymenolepis*), and round worms (*Ascaris, Oxyuris, Necator, Trichocephalus, Strongyloides*)—have all been seen. It is proposed to publish a fuller communication on this subject when the list is complete, but the existence of these and probably other tropical diseases is here recorded as being of interest and illustrative of the dangers of infection to which the inhabitants of the bay cities are constantly exposed.

CHOLERA IN RUSSIA.

The reports of thousands of deaths from the epidemic of Asiatic cholera now raging in European Russia furnish an instance of a "tropical" disease invading a temperate and arctic region. The situation begins to recall the great European epidemics of the last century, notably those of 1829, 1847 and 1869, all of which mulcted Russia severely. The older members of the profession will remember some of the epidemics which visited the United States in 1832, 1848-53, 1866 and 1873. We may congratulate ourselves that we have districts where cholera would probably be unable to propagate itself even if introduced, but we should not forget that we possess others where the conditions make quite possible such a calamity. The moral of the whole situation is that not only Russia but every other temperate country also needs to be constantly on guard against the importation of tropical diseases and watchful of any already introduced.

PELLAGRA.

Pellagra in the United States is a curious illustration of a disease long unrecognized but found to be common when once the general profession learned to diagnose it. The affection seems to be widespread, having been reported pretty much throughout the south, from New England and from the middle west. It should be carefully looked for on the Pacific Coast, as all information regarding its geographical distribution is at this time of the greatest value as having a possible bearing on the obscure aetiology of the disease. As it has been reported from such diverse regions as South Africa, the Soudan, Egypt, Turkey, Italy, Poland, India, Argentina, Brazil, Mexico, New Caledonia, the West Indies and the United States, importation of cases may always be expected in addition to those which originate at home.

ORIGINAL ARTICLES

ACUTE AND POST OPERATIVE DILATATION OF STOMACH.*

By W. S. THORNE, M. D., San Francisco.

It is perhaps fitting to premise this paper by an apology, since it is merely a brief synopsis of the existing literature on the subject in which no new etiological factors are revealed, nor any impressive physiological discoveries announced.

It is rather an attempt to focus the various and divergent lines of thought and observation, on the particular phenomena that wait as a menace or a possibility, upon any surgical procedure. I am not unmindful that these precincts are reserved to exploiting advanced research, original discoveries, and founding new habitable colonies in the great domain of science, hitherto unknown and unexplored.

I am likewise conscious that this temple is at all times surcharged, metaphorically speaking, with intellectual radio-activity in which my farthing rushlight casts but a shadow, a penumbra in the midst of effulgence.

I am not unconscious that this august body must be jealously guarded against commonplace statistical recitals, and the discussion of settled principles. Hence, I am impressed by the possibility of trespassing upon more profitable entertainment.

However, I shall here present some data, together with my own cases, observations and deductions in order to elicit discussion and the results of your observations.

Dr. Walter B. Laffer of Cleveland has recently published an exhaustive resume of the literature of acute dilatation of the stomach. The history begins with the observations of Rokitansky in 1842, who at that time described a type of acute dilatation of the stomach due to the compression of the duodenum, its vessels and nerves by the root of the mesentery; thence continuing the review to the present year.

The historical researches of Dr. Laffer include 217 reported cases, including the data more or less complete of proximate exciting causes, the symptomatology and post mortem findings.

Of the 217 cases collated by Dr. Laffer, there are to be found 135 deaths (63.5 per cent), 77 recoveries (36.4 per cent), with five cases not stated. Of the 135 fatal cases, 120 were examined at autopsy.

Ninety-seven (38.2 per cent), followed operations, and 69 per cent of the post operative fatalities followed laparotomies. The gastric phenomena were observed most frequently to follow operations on the gall bladder or the hepatic ducts, next in frequency after operations on the kidney, the appendix, currettage operations on the uterus and adnexa, hernia, the stomach and the extremities in the order named.

Acute dilatation of the stomach has been observed to occur after such a variety of exciting proximate causes, as lead us to conclude that no one of them is the efficient etiological factor. In the analysis of the cases of post operative dilatation of the stomach thus far presented, we are forced to assume that it may follow indifferently the administration of either chloroform or ether narcosis, and may arise after any formal operative procedure. It has followed chloroform more frequently than ether narcosis. Its cause has been ascribed to trauma of the abdomen, and of the epigastrium, injury to the spine, head, thorax and of the extremities. It has followed the progress of acute diseases, appendicitis, carcinoma of the oesophagus, miliary tuberculosis and diseases of the brain. It has occurred during convalescence from acute diseases, notably typhoid fever. It has followed errors of diet, *dilatatio ab ingestis,* from almost every known alimentary substance. It has occurred after drinking large quantities of gaseous liquids and it has resulted from the administration of various drugs, e. g., sodium salicylate, veronal and morphin. It has been attributed to emotional causes, fright, excessive joy, and to complications during confinement, to the loss of water from the tissues, to peritonitis. The study of enumerated proximate exciting causes are so various that we are led to conclude that no one of them bears any *constant* relation of cause and effect; and that the phenomena of acute dilatation of the stomach may equally follow upon the ingestion of a great variety of substances, both medicinal and nutrient, and is likewise the possible sequellae of almost any surgical procedure. The morbid anatomy of this disorder reveals a wide variety of visceral lesions. One constantly present is the dilated stomach which frequently occupies the entire abdomen from the costal arch to the symphisis pubis. The stomach walls have been reported thinned in a number of cases, thick and inflamed in others. Gastritis with parenchymatous pigmentation and superficial necrosis of the stomach wall have been observed. Twisting of the oesophagus, kinking of the pylorus with downward displacement, constrirction of the duodenum by a band of omentum, adhesions of the pylorus to the gall-bladder. Duodenum dilated but a short distance, and not up to the duodeno-jejunal junction.

In a number of cases no dilation of the duodenum. It was dilated up to where the root of the mesentery crossed it, and here compressed in twenty-seven cases. The duodenum was found kinked in a number of cases, and in several instances it was compressed by the stomach. Of the twenty-seven cases in which the dilation of the duodenum stopped at the point of compression by the root of the mesentery, the small intestines were found in the true pelvis in only twenty-one cases.

This latter finding is therefore by no means constant and we are informed that it has no exclusive pathological significance, as it is found after death from other causes. Dr. Laffer, quoting from Albrecht, informs us that in 1899 the total number of recorded cases of acute dilatation of the stomach was nineteen. In 1902 they had risen to forty-four; in 1905, to sixty, and Dr. Laffer, by diligent search through American and foreign literature, has been able to collect a total of two hundred and seventeen for 1907. The disease is fatal in sixty-five per cent

* Read before the San Francisco County Medical Society September, 1909.

of reported cases. The pathology and *modus operandi* of acute dilatation of the stomach and gastro-mesenteric ileus is not definitely known, but the experimental, clinical and pathological evidence points to a primary inervation disturbance affecting the gastric nerves or their centers in the brain or cord. It has not been proved that compression of the duodenum by the root of the mesentery is the primary cause of the so-called arterio mesenteric ileus.

My personal experience is limited to three cases with one recovery.

Case 1. Miss A., age 32, had suffered from prolonged hemorrhage from the presence of a large myofibroma of the uterus. Twenty-four hours after its removal she began vomiting at intervals of five or ten minutes, dark green fluid, becoming dark brown and finally floeculent and black. The fluid came in increasing quantities, and was a regurgitation rather than by the act of vomiting. The upper abdomen was greatly distended and there was no appreciable peristalsis on palpation or inspection. No painful sensations were expressed by the patient and temperature normal and pulse small and at no time above 90. At the expiration of the third day her condition was critical. There had been no sleep or rest and the patient was approaching collapse. On the evening of the third day I gave per rectum 2 grammes of chloral, 4 of ammonium bromide and 1 cc. of tincture digitalis in a mixture of whisky and water. The effect was most beneficial and unexpected. The patient slept several hours during the night and the following day the vomiting had entirely ceased; distention of the abdomen subsided and the bowels gradually resumed their normal peristalsis, and at no time was a stomach-tube passed. Recovery was uneventful.

Case 2. Mrs. R., age 32, nulipera. Four years ago I removed a cystic ovary on the left side. Patient gave a history of long standing stomach trouble attended by nausea, occasional vomiting of bilious matter, headache and constipation. During convalescence she had some nausea and retching, but nothing alarming, and she left the hospital on the fifteenth day. Four years after the patient returned, complaining of pain in the right side. Examination reveals quite a large cyst of the right ovary and a tender appendix. She gives a history of continued stomach trouble, constipation and irregular menstruation. After a week of preparation I removed a right cystic ovary and an adherent and twisted appendix. Six hours after the operation the patient complained of severe pain in the right hypochondrium with moderate vomiting of greenish fluid and the eructation of gas. The vomiting continued with increasing frequency and amount, although no liquids or solids were given by mouth. The outline of the distended stomach was clearly visible through the abdominal parietes. There was no appreciable peristalsis of the abdominal contents. No gas passed per rectum. The patient succumbed sixty-six hours after the operation. No gastric lavage was employed. No post-mortem allowed.

Case 3. Miss B., age 35, occupation seamstress. Gives a history of stomach trouble during adult life. The last few years has had pain in the right side. After two weeks of preliminary preparation I removed a cyst of the right ovary. Three hours after the operation patient complained of severe pain in the right hypochondrium and began to vomit and to eructate gas. With frequent gastric lavage the vomiting diminished, and on the fourth day the patient's condition was satisfactory, but on the evening of the fourth day, although there had been a free bowel movement with the passing of gas, the stomach became much dilated and she vomited large quantities of dark green fluid containing blood, at short intervals. Lavage and transfusions offered no relief and she succumbed on the evening of the fifth day. Examination of the vomitus showed red and white corpuscles, epithelial cells, amorphus urates and irregular masses resembling epithelium. The fluid ejected by this patient was so irritating as to excoriate the lips. It evidently contained duodenal secretions. No autopsy having been performed on any of the three cases cited, some doubt might be suggested that the clinical histories here recited are not typical of acute post-operative dilatation of the stomach. But in a careful examination of a large number of reported cases, I think the observed symptoms warrant the diagnosis.

In April of the present year Dr. Beverly MacMonagle of this city presented a paper on "Acute Dilatation of the Stomach" to the American Gynecological Society.

He describes six cases occurring in his practise with three recoveries. The three cases autopsied revealed no obstruction or constriction of intestine, vessels or nerves at the root of the mesentery. In each case the stomach was found greatly distended, and in one, both stomach and duodenum were distended and the small bowel was flat. In one case the small bowel was found crowded into the pelvic basin. Five of Dr. MacMonagle's cases were post-operative, two hysterotomies, one hysterectomy and one gall-bladder and one appendicitis. The symptoms in the several cases were typical, viz.: abdominal distension, vomiting or regurgitation of dark green, ill-smelling fluid, weak pulse, shallow respiration, slight temperature and hiccup.

The treatment by Dr. MacMonagle consisted in repeated washings of the stomach, the administration in one case of dilute hydrochloric acid water ad libitum, and in one case unable to obtain any stomach contents by stomach tube, he incised the stomach under local anaesthesia drained by tube for twenty-four hours and returned the stomach to the abdomen. Recovery followed.

Dr. MacMonagle notes that acute gastric dilatation seems to follow more often on abdominal and joint operations. He suggests as worthy of trial strychnia and physostigmine and utilizing the stomach tube for frequent washing rather than syphoning the stomach contents, as advised by most writers.

Since Rokintansky first suggested the prolapse of the intestine into the true pelvis exerted by its weight a sufficient pull on the mesentery as to pinch the duodenum against the spine, thus closing its lumen at this point and resulting in the dilatation of both duodenum and stomach, most observers are prone to accept this explanation as the true etiological factor of gastro-duodenal dilatation. But of 120 cases autopsied, only twenty-seven were found to be of this type. Hence in a vast majority of cases, at least, we must look for other efficient causes of gastro-duodenal dilatation. Experiments on the cadaver tending to show that gravitation of the intestine into the true pelvis was the efficient cause of dilatation have been shown to be of doubtful value, and Hana and others have pointed out that the small intestine is often found in the true pelvis at autopsy unassociated with gastro-duodenal dilatation, and that when the intestine is found thus incarcerated, it shows no aedema cyanosis or other abnormal conditions.

Braun and Seidel have shown by a series of carefully conducted experiments on dogs that when one of the vagi is cut, the animals do not vomit after the administration of tartar emetic, but that they promptly responded to apomorphin, which is a centrally acting emetic. They also showed that section of the spinal cord between the last cervical and the sixth orsal vertebra prevented vomiting, even after apomorphin was given, which shows that the motor innervation paths of the stomach pass through the cord above the sixth dorsal vertebra. The stomach has nervous plexuses in the walls and it is connected to the brain, spinal cord and sympathetic system, and experiments on living animals appear to show that the vagi are the most important of the gastric centripetal paths from the stomach to the centers in the cord and brain—that the vomiting centers are paralyzed in man during narcosis, and on awakening an excitable condition of the centers is shown by post-anesthetic vomiting. After the excitability has continued a variable time, the centers in most cases return to their natural excitability. In others, it is followed by a condition of lessened excitability, exhaustion or paralysis. In the latter case we have acute dilatation of the stomach.

It is interesting to note in this connection that Braun and Seidel believe that the so-called vicious circle following gastrostomy, gastroenterostomy and resection of the pylorus is due to a more or less severe grade of motor insufficiency resulting from injury, direct or reflex, to the stomach.

Openchowski declares that there are a number of centers in the brain and upper cord controlling movements of the stomach. From these centers both contraction and dilatation fibers pass either by the vagi or by the spinal cord. Acute gastric dilatation is often mistaken for a high intestinal obstruction or peritonitis. The most important symptoms are vomiting, pain, severe thirst and scanty urine and abdominal distention. The vomitus is a dark green, flocculent fluid, generally odorless, but is sometimes ill-smelling and fetid. The quantity ejected is often great, exceeding many times the amount taken. In one of my cases, the vomitus was excessive and contained blood. Chemical examination of the vomitus shows the presence of the normal acids, yeast cells, sulfureted hydrogen, distatic ferments, colon bacteria, staphylococci and streptococci.

The pulse is generally rapid and small and the temperature frequently sub-normal. Acute dilatation of the stomach is frequently mistaken for peritonitis or a high obstruction in the intestinal tract. From the former, it is differentiated by the absence of abdominal tenderness, high temperature and leucocytosis, abdominal rigidity and large quantities of greenish vomitus.

As a precautionary measure, cases prior to operation should be examined for the presence of gastric dilatation, in which case operative measures are to be postponed if possible. It is generally understood and observed by most surgeons not to administer liquids of any kind by mouth for twenty-four hours or even longer if advisable on account of nausea, eructations or vomiting. From four to eight ounces of salt solution administered by rectum every six or eight hours adds nothing to existing pain or distress and relieves the craving for water. The rational treatment appears to be the repeated introduction of the stomach-tube. The consensus of opinion based on experience respecting active treatment is the passing of the stomach-tube at short intervals to prevent vomiting and relieve pressure—not washing the stomach. As the stomach is low down in the abdominal cavity, it should be passed sufficiently low to reach its lowest depths and thus to siphon its entire contents. The postural method had been advised, the pelvis elevated and several German observers advise avoidance of the dorsal decubitus as much as possible, some having practised the knee-chest position supporting the body with pillows.

The operative treatment of gastric dilatation has thus far proceeded on a conception of etiology that appears not to have been confirmed by experience, viz.: the compression of the duodenum at the root of the mesentery, and that gastroenterostomy is a drainage operation. Mayo's observation confirms the negative side of this assumption. He says it has been shown that in only twenty-seven cases out of the one hundred and twenty autopsied was there any obstruction at the root of the mesentery, and experience teaches that a gastroenterostomy is only useful as a drainage operation in the presence of obstruction at the pylorus or duodenum. Furthermore, in the report of operations of this character undertaken for the relief of gastric dilatation, the patients have succumbed.

Briefly, then, our resources in gastric-dilatation seem limited to the postural method as far as practicable and syphoning the contents of the stomach, total withdrawal of all liquids or food by mouth, normal salt solution by rectum to supply the deficiency of water resulting from vomiting, and reliance on the antiperistaltic and absorbing action of the large bowel for food and drink.

I think that we shall ultimately find that dilatation of the stomach following surgical procedures is a secondary disturbance of the sympathetic nervous system which is so closely allied with the control inherent in the gastro-intestinal muscles, and by reason of its unsegmented character is unable to prevent a general disturbance upon any of its component parts.

Discussion.

Doctor Beverly MacMonagle: I feel that there is very little to discuss in regard to this paper. I once made a short paper for the Gynecological Association, reporting cases which I have had. The subject seemed to me very important and I hoped that the discussion on my paper would be useful in the management of such cases afterwards. Doctor Thorne and I were talking over the cases and found that he had a number of cases which he has reported to-night. As to the cause of acute dilatation of the stomach, I have never discovered anything which has made it clear to me. The fact that it is not always a post-operative condition is well established. The diagnosis seems to be fairly easy to make. When it is associated with a certain amount of septic infection, the diagnosis is more

complicated and you have a distension which is not due to acute dilatation alone, but has added to it the distension due to the septic infection. The sepsis being ruled out, the diagnosis of acute dilatation does not appear to be very difficult. One of the distressing things in the management of these cases is that they may occur at any time, and a long time after an operation. The most serious case I had occurred nine days after an operation. The case was one of gallstones and was spoken of by Doctor Thorne. The gall bladder and the stones were removed and the patient made a very nice recovery; there was no vomiting and no distress, his bowels moved on the fourth day, he was taking light diet and drinking a sufficiency of fluid, and there was no rise of temperature. On the night of the 8th day, I ordered a dose of castor oil to be given at five in the morning. This he took with no result and shortly afterwards, when I saw him, he was complaining of an uncomfortable feeling. At two o'clock the nurse telephoned that he was very much distressed indeed, and that his stomach was distended, there was no rise of temperature, he was somewhat nauseated but did not vomit, and his bowels had not been relieved. I directed the nurse to give a purgative enema, which she did but with no result. I saw him again at five o'clock and the man looked as though he had had a perforation of some of the abdominal viscera, and he was suffering very much. I went over him carefully and concluded that there was an acute dilatation of the stomach. The pulse was poor, rapid and thready, he was perspiring freely and the respiration was rapidly growing shallow and fast; his color was not good. I attempted to wash out his stomach, pouring in considerable water, but when I tried to get a return of the water I failed. The man informed me that he had never been able to vomit; whether that had anything to do with it or not I do not know, but the water would not come out. I put in more water, but found that I only made matters worse. He looked as if he would die soon. As the incision for the gallbladder operation was well up, I injected cucain and adrenalin and opened the incision. When I came down through the peritoneum the stomach was distended and thin and looked as if, had the incision been sufficient, it would come out. After looking it over for some time, I concluded that I would open the stomach and get that water out which I had poured in and the other contents of the stomach, which, I was sure, would at least relieve the pressure on the diaphragm. I made an opening and taking hold of the stomach held it up against the abdominal wall. A large amount of gas was expelled, followed by a large amount of dark greenish-brown fluid. Then I put in some water, but did not succeed in getting it out. I enlarged the incision, and put in a Davidson syringe reversed and pumped out the stomach. I then reversed the syringe again and put in the normal liquid, and continued this until the water came out clear. The man suffered nothing, and during the operation he said, "What are you doing?" and I replied that I was doing the best I could, and that seemed to satisfy him. I kept on washing out the stomach until I got the water out clear, then I attached the stomach and held it up against the abdominal wall and put in a tube through which I washed out the stomach several times. At the end of 48 hours the man had an evacuation of the bowels with expulsion of a good deal of gas, and he was beginning to ask for something to eat and drink. I then closed the stomach and dropped it back into the abdomen. The man made a slow recovery with no further difficulties.

I have spoken of this in detail because there are not many cases of this kind which have been treated in this way. I am not exactly in a position where I feel like recommending such an operation. I think it should be used as a last resort, but we should not wait until the patient has one leg in the grave. If anything surgical is going to be done it should be done before the man or woman is moribund. This is a great drawback to the success of many operations which would otherwise be successful.

There is no other surgical operation in cases of acute dilatation of the stomach which seems to recommend itself to me. A gastroenterostomy in a stomach as I have seen it distended and as I have seen it post mortem, I do not believe could be done, certainly a posterior gastroenterostomy could not be done. The duodenum and jejunum were obscured from vision by the distension of the stomach. If you were to do gastroenterostomy you would first have to get the stomach emptied sufficiently to allow you to raise it up before you could do such an operation. Then in the next place, opening the stomach into bowel when the stomach contains such a large amount of vitiated material, if this material were thrown into the absorbing part of the bowel, I believe would kill the patient. I base my opinion on the fact of having once seen a case operated on by William Mayo where there was a partial obstruction of the pylorus. After opening the abdomen, Dr. Mayo found it very difficult to get anything done in the way of a gastroenterostomy, but eventually concluded that he would do an anterior enterostomy. This man was suffering from a partial obstruction and dilatation of the stomach, which contained dark green material. Dr. Mayo did an anterior enterostomy with rubber ligature and then opened the stomach, washed it out and sewed it up. In talking with him as to why he did the anterior enterostomy he said that he was afraid to throw the material from that stomach into the intestine in its vitiated condition, and knowing he could not leave it in the stomach, he desired to open the stomach and gain time while that ligature was breaking its way through from the stomach into the intestine so that the man should not have that vicious material thrown into the absorbent part of the bowel. Some believe that the cause of death in such cases arises in the duodenum where the material is so vicious. That is the line along which I have been thinking for some time.

I am glad to hear Dr. Thorne's report of the history and literature of these cases. His experience has been like mine, not extensive, but both of us have had the unfortunate experience of having a great many patients die. Dr. Thorne thinks that siphonage is better than washing. Siphonage is good, but siphonage and then washing is better, and I believe is more logical. I do not think that it does harm to wash out the stomach. There is an idea prevalent that washing increases vomiting. I have heard prominent men say that washing the stomach increases vomiting after an operation. I have been having the stomachs of my patients washed out for a long time and think that nothing but benefit is obtained. We can tell by the odor of a patient's breath that ether is retained a long time after it is given, and I think washing out the stomach relieves the distress caused by ether. I consider washing has an advantage over siphonage in that it dilutes the material in the stomach, refreshes the patient, and if we can leave a reasonable amount of good sterile water in the stomach it does not seem to me that it can do a great deal of damage. If I had occasion I would again open the stomach and wash it out, and would be governed by circumstances as to the treatment afterwards. I cannot, however, advise this to any one else.

A CONSIDERATION OF SOME POINTS IN THE TREATMENT OF INFANTS.

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Many measures that can help us to care for and manage both sick and well infants, are held in too light esteem or are forgotten entirely. There are so many that it will be impossible to touch upon any but the more important. Such measures may be divided into prophylactic and curative; some belong in the domain of physical therapeutics and some in that of drug treatment. To begin with the child just born. There are some prophylactic measures routine among competent practitioners, for instance the instillation of silver salt solution into the child's eyes when there has been reason to suspect gonorrheal infection of the maternal genital ways, but far too frequently is forgotten the fact that conditions which infect the eyes of the newborn will also infect the genitals of the female child who has just come into the world. When the Crede treatment is indicated for a girl baby, it is of equal importance that the same cleansing and antiseptic measures be applied to the vulva. Many cases of cystitis, pyelitis, and salpingitis that arise mysteriously in early childhood, would be prevented were this simple precaution always followed.

The best method of tying the cord and of treating the stump, are questions not to be treated within the limits of this paper but it is proper to say here that imperfect technique in the performance of this duty frequently is the cause of an umbilical hernia. There is another simple prophylactic measure that should be routine with the accoucher. Were retraction of the foreskin on or before the fifth day of a male baby's life made the rule much distress and pain would be avoided. Many crying babies who are dosed and experimented on to cure a supposititious colic would have no need of treatment and many of the operations for circumcision now needed in later life would be rendered unnecessary. Fissure in ano is another cause of distress and crying often overlooked.

One of the perplexing problems of modern medicine, is to prevent failure of the mother's milk supply, and when that supply does fail, to find a satisfactory substitute. Time and again it has been the unhappy experience of all who have had recourse to artificial feeding to see little patients linger along for weeks or perhaps for months semi-invalids then often to die after a long course of discomfort through which they have wasted away and become hardly more than little skeletons. There is no more harrowing experience in our professional life than to deal with such a case; to see the parents' agonies as they watch their offspring through this lingering death and to feel ourselves unable to give substantial aid. I think there are but few here unwilling to admit that it is little short of malpractice to countenance the substitute feeding of children if it be possible for the mother to provide nature's food. Of late years, in the case of breast-fed babies, much success has attended the German method of 4-hour intervals between feedings, and a very large proportion of the mothers who now find it impossible to feed their children, when the babies are put to the breast every 2 hours, would have an abundant flow of milk of a better nutritive quality, if the children were allowed to nurse only at 4-hour intervals. It is a fact of common knowledge that too frequent nursings over-stimulate the breast and cause it to produce a milk much higher in fat and therefore much less digestible. It has been an invariable experience that breast-fed babies who vomit or have a good deal of colic, with so-called curdy stools recover from these unpleasant symptoms if the interval between meals is increased to 4 hours. For children under six lbs. the utility of the plan is questionable and it is not wise to feed such lightweights less often than every 3 or 3½ hours; but for any child who is vigorous and up to weight at birth there is no question but that the 4-hour interval is a proper one. For marasmic infants for whom we are unable to provide human milk either from its own or some other child's mother I have found a plan that has seemed to me to be of value, but my experience covers so few cases that I can only offer it as a suggestion. Acting on Starling's discovery that secretin, which causes the pancreatic, enteric and biliary secretions, to become actively digestive, arises in the duodenum under the stimulation of the acid chyme entering from the stomach; and theorizing from my own observations as well as the records of others that the H Cl content of the athreptic babies' stomach is low, I have begun to use a 2% acid, hydrochloric acid whey for feeding these little ones. In 3 cases in which the children failed on every other diet they began slowly to gain on this acid whey and after some 3 weeks we were able to add cow's milk to the diet and to lead them by degrees to a food proper for their age and weight and so to complete recovery.

Consideration of such measures brings us naturally to the consideration of another therapeutic measure of very great value which is much too little practised; that is the washing out of babies' stomachs. One ought never to hesitate to wash out the stomach of a vomiting baby or of a baby who is not taking food well or of any child who is suffering from an acute intestinal infection. In my hands, washing out the stomach even as early as on the first or second day of life, has been of very great value. I can recall many children in whom the practice was invaluable, one in particular who was born in the breech position and who retained no food from the beginning until after a quantity of grumus mucus which had been swallowed during birth was removed from the stomach. As I reflect on my earlier experiences, I am sure that many babies I have seen die under similar circumstances, might have been saved had this maneuver been practised. Children who have been over-fed with fat and whose stomachs retain an accumulated amount of fatty acid are all the better for lavage. Such children may have a spasm of the pylorus caused by the retained fatty acids, and the results of the spasm are difficult to differentiate from true stenosis. In such cases stomach washing is a very satisfac-

tory therapeutic measure. It will relieve and cure the spasm in all such cases and it will relieve the symptoms of retention in a considerable proportion of cases of undoubted stenosis, due to hypertrophy of the pylorus. The value of stomach washing in certain cases of acute summer diarrhoea or in food infections of any sort, is too evident to be dwelt upon. The technique is simple. The error usually made is to use too small a catheter. The oesophagus of even a newly born baby will accommodate a catheter No. 14 to 16 E. If the catheter is too small, the fluid is apt to come up around the tube and may thus get into the air-ways. It is essential that the child be pinned securely in a large towel so that it cannot struggle, and that it be laid on the knees of a nurse with its head a little lower than its shoulders. On withdrawing the tube it is wise always to pinch the catheter, for if but a few drops of fluid enter the larynx one may bring on a fatal asphyxia. When much tough milk curd is to be expected, it is best to use a T tube with a piece of rubber tubing attached to one arm, the catheter to the other of the T so that suction can be made that will withdraw curds and abstract any mucus that may clog the catheter eye. The best solution to use for lavage is a 2% to 5% watery solution of sodium bicarbonate. Once convinced of the ease with which a tube is passed into the infant stomach, it will naturally follow that you become a convert to gavage as well as lavage, and forced feeding through the stomach tube, when used with good judgment may become a life saving measure of the first order.

If washing out of the stomach is too little done, certainly this cannot be said of colon irrigation. One sees very many children in whom the irritation of the bowels is maintained and discharge of green slimy stools is kept up by injudicious and too frequent bowel washing. I doubt if more than 2 bowel washings in 24 hours are ever justified. More often a single daily lavage will be more efficient than many. The best solution to use is an alkaline one. It must be remembered always, that mucous and albuminous secretions in general are soluble in dilute alkali and for that reason it is better to use such solutions. A recognition of this fact has made the fortunes of the Glycothymoline and Listerine people.

While the washing of the bowels is overdone, the slow drop by drop absorbative enema is very much too little used. In children who are wasting or have wasted, children who are vomiting a good deal or have vomited much, it is possible by proper utilization of this method to give from one-half to a pint of fluid daily. It was formerly my practise to give hyperdermoclyses of salt solution to babies into the axilla, but a well trained nurse can, by the rectal drop method, get a good deal more fluid absorbed, and that without any pain or distress to the child, while the subcutaneous method inevitably causes a good deal of discomfort. It is possible by using a 5 per cent solution of glucose to give the child, at the same time with the fluid a considerable amount of nourishment; but it must be remembered that the glucose solution is not as well absorbed as simple salt solution. However, should a baby be suffering from starvation and show acidosis, or from any other cause have demonstrable acetone bodies in its urine, then it is essential that it be given glucose. If this is not retained by the rectal drop method, then the child should have the solution by the subcutaneous route, a few ounces of the 5 per cent glucose solution. This small amount of food may turn the nutritive balance and it is not unusual to see a child who has had practically no digestive power, after such an enema or hyperdermoclysis, develop a good digestion and food utilization when, had it not been given the fluid and the glucose, it would certainly have died from starvation and the diagnosis "Marasmus" would once more have been written on a death certificate.

I feel that had the physician recourse more often to castor oil in small doses, five to ten drops with one or two drops of paregoric before feedings, that in many cases repeated colon washing would be unnecessary, for in this combination we gain a therapeutic power over entero-colic infections that no other combination gives to us. The use of this castor oil mixture in the course of diarrhoeal attacks, especially if there has been given one good purgative dose of castor oil in the beginning, and if this has been followed by one or two colon irrigations each day may be useful; in the later stages one or two big doses, 20-40 grains, of bismuth subcarbonate will almost invariably give good results. The persistent use of this plan will bring us to a point where the lesser infections of the digestive ways are without threat to us. Here I would like to say that there seems to be no doubt that some children who have suffered severely from long-drawn-out entero-colic infections, have suffered so because it is not sufficiently recognized that there is such a thing as a characteristic starvation stool which resembles the stool of entero-colic infection, and that there is also an accompanying starvation temperature. After an acute entero-colic infection it is usually unwise to withhold food, simply because a low fever persists and the stools remain green and slimy. Malted milk, dexternized gruel, egg albumen—any one or all of them are good foods to begin feeding. In such cases I never fear to feed sterilized skimmed milk after two or three days on a simple diet when I have used the castor oil and bismuth combinations, and I have never had occasion to regret my use of milk, although I realize that it is discountenanced by many authorities. It is important that the milk should be boiled for at least twenty minutes and that it should contain a good deal of lime water, at the least 10 per cent. Another foodstuff which is of great value in feeding these cases is gelatin. For nurslings and young children it is best given after the manner of the French school. The gelatin is dissolved and boiled for about three hours, after which it should lose its power of jellying and remain a liquid. An ounce of gelatin has the same food value as an ounce of sugar and can replace an equivalent amount of carbohydrate in the dietary. While touching on points in feeding, I would like again to lay stress on the necessity for higher proteid content in the dietary of children. I believe that most of our formulas call

for too dilute mixtures. Within limits, no healthy child will do as well with a weak milk mixture as with a stronger. The best dilutions are, one-third at two months, half and half for a six-months-old baby, and by the time it is nine months old the child should be taking almost or quite full milk. From the fourteenth month a child is improperly fed unless it gets a ration of proteid in the form of scraped or pounded meat in its daily dietary. Most children at this age suffer from overfeeding, especially with carbohydrate and fat. This overfeeding is directly due to the bad practise of giving too frequent meals and persistence in the use of large quantities of milk and carbohydrate and because of feeding between meals, especially with the ubiquitous graham cracker. A child at fourteen months is very much better off if its milk ration be limited to a pint each twenty-four hours and if it be given a full ration of solid food, chosen for simplicity and digestibility; at this age four meals are certainly enough and most children do better if they are given but three.

Any baby, as we all know to our sorrow, may exhibit the most alarming and mysterious temperature; sometimes with this sign they are very sick and at others they seem hardly troubled by the temperature, but most of us have had the experience of having been baffled in our search for the cause of the trouble. In this relation I want to call your attention to the necessity, especially when dealing with female children, of catheterizing the bladder and of culturing the urine. It has been my fortune in the last six months to have seen a number of these mysterious fevers explain themselves when the child was catheterized, and in every case we have found pure cultures of colon bacillus, and in every instance the fever cleared up under proper doses of urotropin, although the bacilluria did not disappear in any instance until we had recourse to an autogenous vaccine, and this calls for a word about the value of vaccines in children's diseases. At the Cooper clinic we have found their use exceedingly valuable in the class of cases now being discussed, and in another condition too frequently overlooked, the gonorrheal vaginitis of little girls. In these cases vaccination with autogenous vaccines, or failing these with stock cultures, has justified the claims made for it. Vaccination with tuberculin should never be neglected in cases of enlarged tuberculous glands. Mention of tuberculous glands leads one to think of a diagnostic aid which is too frequently omitted in the examination of children; that is, rectal examination under an anesthetic. In almost any child under six the whole lower half of the abdomen may be explored with great accuracy by the bi-manual method, one hand on the abdomen and one finger in the rectum. I mention this now because much more often than is expected one finds in little girls with vaginitis some inflammation of the tubes. Manual examination may make an obscure, painful abdominal condition clear and allow operative interference, early enough to be of service.

Just now I spoke of the use of tuberculin in cases where one is dealing with tubercular glands, but I want to call your attention to the fact that very many times when cases are diagnosed as tuberculosis of the cervical glands we are dealing not alone or not at all with tuberculosis, but with a bacterial infection of another kind, an infection secondary to invasion of the tonsils or of the naso-pharynx, and I believe that we have no greater duty than to teach parents how necessary is the complete removal of diseased tonsils and of adenoids. In the light of our present knowledge, it is little short of criminal to have tonsils guillotined. The only rational procedure is to completely eneucleate them, and further it seems to me that when one is called upon to operate for breaking down cervical glands, removal of the glands alone is useless and a kind of malpractice, unless at the same time tonsils and adenoids which are infecting the diseased glands are removed. In this connection I feel that it is too little recognized that adenoids are not solely a disease of children in their first or second year, but that very many babies, even as early as in the first and second months of life, suffer from adenoids, and that many times, when babies are unable to suckle properly or where feeding is difficult, the trouble is due to the fact that the child's air passages are blocked and that it then becomes partly asphyxiated while attempting to nurse. Such cases certainly call for immediate operative interference notwithstanding the infant's tender age.

I have taken too much of your time, but I cannot close without calling attention to a therapeutic measure which I consider the most valuable in the whole realm of physical therapeutics. I refer to the mustard pack, a measure made popular by Heubner, although it is almost as old as medicine itself. In my earlier experiences I approached every case of broncho-pneumonia with dread. Now I can say with a perfectly clear conscience, that since I have adopted the mustard-pack treatment, broncho-pneumonia has come to be a disease that I fear very little. In a very long series of cases during the last four years, some of them following whooping-cough, some measles, and others of simple primary broncho-pneumonia, there has been but one fatality, and that in a child after whooping-cough, with a massive collapse of the lung.

I shall give in detail the method employed in administering the pack. Five or six heaping tablespoonfuls of mustard (the amount depends on the strength of the mustard) are thoroughly mixed in a cup with cold water. This is then put into a liter or a liter and a half of hot water and a sheet is dipped in this hot mustard solution. A rubber sheet should be laid on the table, upon this a blanket, and upon the blanket the sheet which has been rinsed out in the mustard. The child is now placed in this, and under ordinary circumstances should be kept there for twenty minutes. Occasionally an individual will be found which cannot endure the pack this length of time, and the person giving the pack must use his or her own judgment as to when it should be removed. After twenty minutes in the mustard water the child should be removed from the sheet, the mustard rinsed from its skin by a douche of warm water from

a pitcher, and after a warm drink the child is to be put into a plain hot pack for an hour. By this time a skin reaction will be produced that leaves the child a vivid scarlet, a color like that of a baby with scarlet fever. After this the child is put to bed between blankets with plenty of hot bottles. A profuse perspiration follows and after two hours the skin is wiped dry and an alcohol rub given; the results are astonishing, the fever drops, the pulse slows and strengthens, and respiration becomes stronger and deeper. The child drops into a quiet, restful sleep, in which it remains usually for five or six hours. It is rare to have to give more than two of these packs at twenty-four intervals in order to overcome even the worst attacks of broncho-pneumonia.

Another useful therapeutic measure of especial use when fever is high, particularly where the intestine is involved, is the ice enema. A pint or more of iced borax solution is allowed to run slowly in and out of the bowel; and this measure will bring the temperature promptly down without discomfort to the patient.

While the cold pack is all too infrequently used, the indications for its use and the methods of its application are so well known that I will not more than call attention to the fact that it is next to the mustard pack the most useful single therapeutic measure we have in dealing with sick children.

In passing, I would like to emphasize the value of chloroform inhalations in pertussis; not only will the drug ameliorate the paroxysms, but it will shorten the course of the disease. A word in ending on the value of the open window in the treatment of lobar-pneumonia cannot be out of place when so many brilliant results are being reported following these simple treatments, even in the most inclement parts of this country. And open windows are of equal use in dealing with broncho-pneumonia, but it must be remembered that while children who have lobar-pneumonia are better for cold air, those with the bronchial form must have the room kept warm even while the windows are open.

THE TREATMENT OF FLAT AND PRONATED FEET.*

By GEORGE A. HARKER, M. D., Oakland.

In considering the matter of flat and pronated feet we should first arrive at some definition of the terms used.

A flat foot might be defined as one in which there is a changed relation between the bones which form the arch of the foot; a pronated foot, one in which this relation is not greatly altered but in which the arch has rolled to the inner side. In either case the foot may be rigidly fixed in its abnormal position or may give way only under strain. The so-called weak foot is of this latter type.

That some feet do their work, causing neither weariness, pain nor discomfort we all know. We also know that feet may be a constant cause of discomfort or that they may be unable to stand the strain of certain occupations. Nurses will often complain of painful feet while on duty. Many women experience acute discomfort during shopping tours but are quite normal at other times. We have all heard of children's "growing pains" in the legs, and of knees that are painful without any apparent reason. That these symptoms accompany functional or anatomical changes in the feet is not always recognized.

It is possible to have great pain with feet that are apparently anatomically correct, and it seems wise to consider the clinical symptoms in every case. There are feet which retain a high arch under body weight and yet are typically painful. Their arches may be said to be lower than is normal for them. On the other hand badly deformed feet may cause but little trouble, though the gait may have become awkward and inelastic.

Among the causes of deformed feet are conditions which permit of relaxation of the interosseous ligaments. This relaxation is secondary to weakness of the muscles whose tendons help to support the arch. Of these muscles the tibialis posticus, tibialis anticus and flexor longus hallucis are the most important.

A spastic type of foot may be produced by the opposing pronating influence of the peroneal muscles. The influence of the former muscles is shown in the relative immunity from flat foot among people who do much uphill walking. In the Philippines the soldiers often distinguished the people of the hill tribes from those of the plains by observing the difference in gait.

Occupation requiring constant standing with little walking is a great factor in the production of flat and pronated feet. Nurses, motormen, policemen, bartenders and shop girls are common victims.

But there is little doubt that the modern shoe has much to do with the matter. The shoemaker notices that most people wear off their heels a little more on the outer side than on the inner side at the rear of the heel. This is due to the effort of the individual to overcome the tendency to pronation—in other words the foot tries to assume a varus position as the heel strikes the ground. The shoemaker then reasons that if heels are worn off on the outer side they should be made thicker on this side. So not only are the heels thus built up but they are often reinforced with nails and even with metal discs to prevent this wear. The result is that the foot is thrown into pronation by the heel. The whole shoe is then made to fit the pronated foot. A glance at almost any shoe window will illustrate this. Two other common defects in the ordinary shoe are the high heel, permitting shortening of the tendo Achilles and the pointed toe producing a hallux valgus. The Achilles tendon without the co-operation of the tibialis posticus exerts a pronating influence, and the outward farcing of the great toe throws an important support into a position of disadvantage. We therefore have several mechanical forces favoring pronation. It should be stated, however, that the stocking alone may prevent the big toe from assuming its natural position.

* Read at the Thirty-ninth Annual meeting of the State Society, San Jose, April, 1909.

There are several methods of correcting these deformities and giving relief. Altering the heel of the shoe in an attempt to overcome the pronation is sometimes successful; it is necessary, however, that the shoe fit snugly at the heel, permitting the counter to act as a lever on the os calcis. To make this leverage as efficient as possible the weight bearing surface of the heel may be increased inward and forward. Exercises tending to strengthen the muscles which hold the arch in place are important; rising on the ball of the foot, walking with the feet in the varus position, and other exercises in over-correction give good results especially in the elastic feet of children.

Leather insoles or wedges are often worn but they cannot be accurately fitted to the foot and give only temporary relief unless used in shoes without heels since they depend upon the shoe's sole for their own support.

Students are often taught to obtain a foot print by having the patient stand on a sheet of carbon copying paper. For diagnosis or as a guide to treatment this method is of little value. If the foot is quite flat the whole sole of the foot is seen to bear weight, but the method does not show the difference between a high arch and one that is half way down.

The most satisfactory corrective apparatus seems to be a steel plate accurately fitting the arch and supporting it. Many shoe stores and surgical supply houses furnish stock plates of different designs. In many cases these give relief. None of them, however, are really fitted to the foot and employment of them is haphazard. Others soon flatten down and cease to be supports. The plate which is fitted to the shoe by the dealer and later adjusted by the surgeon again has the disadvantage of not conforming to the lines of the foot, and therefore not meeting special conditions.

The plate which is modeled on a plaster cast of the foot seems to be the most satisfactory method. In taking the plaster impressions, the patient seated separates the knees until he barely feels pressure under the inner part of the ball of the foot. This lifts and rolls the arch outward to a certain extent, and furnishes a useful starting point when carving the models. The cast is carved to allow for compression of the soft parts and to further correct the foot if this seems advisable.

When the plate is carefully made to fit the altered model it gives good results, though at times it is necessary to raise or lower the corners if the pressure does not seem right. This bending of the corners does not alter the part of the plate in contact with the arch. After a few weeks of wear it is often desirable to further correct the position by this same means.

The anterior or transverse arch often breaks down with the general relaxation of the foot and causes acute local pain. Extending the plate forward and applying the proper pressure relieves this condition. Wearing a plate of the types described allows the relaxed tissues an opportunity of regaining tone so that they may again assume their functions.

In cases of acute flatfoot resulting from unusual strain or following prolonged illness such as typhoid fever, this support will usually be needed for only a limited period. As a rule, however, the sense of support is grateful and the patient prefers to continue the use of the plate.

ADDRESS OF DR. HENRY GIBBONS, JR., AT THE COMMENCEMENT EXERCISES, MEDICAL DEPARTMENT, LELAND STANFORD, JR., UNIVERSITY.

My few words are but a brief and partial historical sketch of the development of medical education in California. Fifty years have elapsed since the establishment of the first medical college on this western coast, largely through the instrumentality of Elias Samuel Cooper, for whom Cooper Medical College was named. I find by reference to the meagre minutes of this early period that the trustees of the University of the Pacific organized this medical department on Dec. 6, 1858, with but four professors, who divided among themselves the ten subjects then comprising the whole field of medicine and surgery.

These four physicians and their subjects were:

Dr. E. S. Cooper, Professor of Anatomy and Surgery.

Dr. J. Morison, Professor of Pathology and Practice.

Dr. Isaac Rowell, Professor of Materia Medica and Forensic Medicine.

Dr. R. Beverly Cole, Professor of Obstetrics and Diseases of Women and Children, Physiology and Chemistry.

It is a tradition that these four physicians, having at first no students, lectured to each other for a time to acquire facility of technical speech and greater familiarity with their several subjects.

Within a few months Dr. Benj. R. Carman, taking the chair of Materia Medica, and Geo. Barstow, Esq., that of Forensic Medicine, were added to the faculty, and in 1861 still other additions were made in the persons of Dr. Henry Gibbons, Sr., who succeeded Dr. Carman, and Dr. Levi Cooper Lane, who became professor of physiology. The first course of lectures was given in the spring and summer of 1859 to a class of eleven students.

As stated in the announcements of this early date the qualifications of students both for admission and graduation were essentially the same as those of sister institutions in the Eastern states.

For purposes of comparison and as an interesting statement of fact, it is important to note just what these qualifications were. First it was required that the student should reach the age of 21 years before graduating, and should be a man of good moral character. Second, that he must have studied medicine with a preceptor for one year before entering college,—a requirement perhaps quite as frequently honored in the breach as in the observance. Third, he must write a thesis on some medical topic.

There was no preliminary educational requirement whatever. Attendance upon two courses of 18 weeks' duration each, and in separate years, consisting mainly of didactic lectures, some demonstrations in the dissecting room and the few available clinics, prepared the student for his final and only examination for the degree.

There were no laboratories in those days, not even for chemistry, although laboratory demonstrations were occasionally made before the class. There was nothing known of bacteriology, nor of radiography nor of gynecology, nor specially of ophthalmology, otology, laryngology or rhinology. Our knowledge of biology, embryology, histology and nearly every other branch of medicine was crude compared with present standards.

On the 13th of October, 1862, Dr. E. S. Cooper, the leading spirit of the college, died at the early age of 40 years. The estimation in which he was held by those who knew him is well shown in the following extract from an address to the students, at that time, by Dr. A. J. Bowie, a highly gifted man, and himself one of the best surgeons of the city.

"I now refer to the irreparable loss which I feel from my heart science has sustained in the death of the distinguished Professor of Surgery of this institution. I could desire no higher honor than to be selected as his especial eulogist to you gentlemen, for I assure you that in all my intercourse with men who had consecrated their minds to the investigation of truth in the wide domain of surgical pathology, his was the most daring, the most original and the most successful. The splendor of his achievements in operative surgery will, perhaps, never be known or appreciated except by the few who had the opportunity to witness them; but to those who had the opportunity, I venture the assertion that they never stood by the side of a surgeon with less misgiving for his ability to acquit himself of any responsibility which his bold and confident nature inspired or prompted him to undertake. His contributions to science on the subject of operations upon the knee-joint are meagre and incomplete in comparison with the multitude of facts which he had collected for future generalization, but it is enough to say that he inaugurated a totally new theory as well as practice in regard to that very important subject, and had he lived I feel assured that he would have identified himself so completely (if he has not done so already) with original investigations into the nature of injuries and diseases of the knee-joint, and their treatment as to have rivaled the fame of Sir Benjamin Brodie."

Such was the man whose name Dr. Lane gave to Cooper Medical College. His death was a serious blow to the then existing school, and in part resulted in its discontinuance after the session of 1863-4.

The Medical Department of the University of the Pacific was revived in 1870 by its old corps of professors, with some additional aid. The entrance and graduating requirements, the length and number of yearly courses were not changed by the revived school. The number of instructors was, however, largely increased and the teaching methods considerably elaborated. There was added, also, in 1871 a preliminary or intermediate course to each term, which all students were urged, but not required, to attend.

In 1873, under promise of material aid from that source, the college became the Medical Department of University College of San Francisco, and assumed the distinctive title of Medical College of the Pacific.

While little change in requirement or curriculum had taken place for twenty years, the college had held itself in readiness for any improvement that could be made available. As indicating the earnest desire for betterment it may be mentioned that as early as 1877 the Faculty, on motion of Prof. Lane, instructed the dean to reply to a communication from the Association of American Medical Colleges that it was ready to accept its proposed plan of improvement if the other colleges in the city and throughout the country would do the same. It was impossible for one college without endowment to take any important step alone. The Faculty also urged an additional regulation that every student before admission to lectures be subjected to a rigorous examination. In fact, in the following year a beginning in this direction was made. The student was obliged to write his personal history as a test in English composition, and to pass examination in the usual English branches. It became my duty to make these examinations, and I very well recollect my surprise that this very modest requirement obliged me to reject five of the twenty or twenty-five applicants for the session of 1878.

The Medical College of the Pacific can thus claim to have been one of the first schools of the country to exact a preliminary educational requirement. In 1881 the college added a third year to the medical course.

During the year 1882 a handsome brick building had been in process of construction on the corner of Sacramento and Webster streets, San Francisco. No one knew its prospective uses—certainly not the newspapers which speculated much regarding it, nor those associated with Dr. Levi Cooper Lane in the Medical College of the Pacific. One day as the year and the building approached completion Dr. Lane called upon the present speaker and in his usual terse speech, and without preliminary, announced that he was about to organize a college to be named after his uncle, and asked if I would be willing to act as one of the incorporators. On my expressing pleasure in being so honored, he added: "I will appoint you then; the other members of the board will be Dr. Edward R. Taylor, Dr. Wm. A. Douglas, Dr. Richard H. Plummer and myself." Within the year the professors of the former college together with its modest equipment were transferred to the new institution and Cooper Medical College began its career.

To the fine building thus given the college, Dr. Lane erected an equally large addition in 1890 and donated in 1894 a substantial brick and stone hos-

pital of 100 beds. It was designed also that the remainder of his fortune should be devoted to the founding of a memorial library.

The establishment of Cooper Medical College was a life work of Dr. Lane. Twenty years before, he had resolved upon it and for that period he had devoted his energies to its accomplishment. But it is not for his gifts alone that we desire to honor and perpetuate his memory. Dr. Lane had many qualities that raised him superior, above his fellow men. He was a man of vigorous and untiring energy and high attainments, of sturdy, upright character, rigid in his ideas of right. He was noble in his aspirations, prompt and decisive in judgment, firm in purpose, steadfast and unyielding in action and withal modest and altogether free from ostentation. In his profession he was a man of superior skill, courage and resourcefulness and of large experience, and he was easily the best-read surgeon of the coast.

For thirty years following the establishment of the first medical college in California, improvement in methods of teaching, educational facilities and length of course had not been striking or important. In the past fifteen years, however, the advance in all directions has been both rapid and extraordinary, not only in Cooper Medical College, but in all the colleges of the country. In our own institution, in 1891 each of the three sessions was increased to six months. In 1894 a fourth year was added. In 1899 each course was lengthened to seven and a half months and to conform to eastern usage the course was made a winter instead of a summer one. The entrance requirement having been made more and more exacting, was finally in 1901 raised to a high school equivalent. In the same year the course was lengthened to eight months and in 1904 to eight and a half months or thirty-four weeks.

It is not without some pride that I make the statement that Cooper Medical College did not lag in this course of progress. It was even among the first in many instances to take the forward step. I can say with great satisfaction that it was never its policy to increase its student body at the expense of its average educational standard. Scores, yes hundreds, who have sought admission to its doors have been turned away because unqualified. Its aim has been to make fewer good physicians rather than many indifferent ones.

Let me compare briefly the requirements of fifty years ago with those that now exist, on the eve of our union with Stanford University. The contrast is inspiring. Then there was no educational entrance requirement whatever, now the student must have at least a high school qualification. Then there were but two courses of 18 weeks each; now there are four courses of 34 weeks each. Then the student was eligible to graduation after attending lectures and clinics for 36 weeks, now he must be in regular attendance for 136 weeks. Then the teaching was very largely didactic and theoretical, there were no laboratories and few clinics; now the student must attend nearly all of his first two years in laboratory and demonstration work—nine different subjects being taught in laboratory; and the last year is devoted almost exclusively to clinics. Then an examination, given only at the close of the last year, was upon eight subjects; now examinations given in the several years aggregate not less than fifty in number. In these fifty years over eleven hundred students have received the degree of doctor of medicine; nearly 900 from Cooper Medical College. Its graduates are scattered over the entire Pacific Coast from Alaska to Central America. They are found too in a number of the Eastern States, in China, Japan, India, Australia, Manila. And while among so many a few are better forgotten the vast majority have been and are earnest, progressive men who reflect credit upon their *alma mater*.

Fifty years ago there were no salaried professors or instructors, at least in the colleges outside the large cities of the East, and as there were no laboratories the expense of maintenance was small. The income was proportionately large, and even permitted an occasional dividend.

Cooper College, however, never divided its surplus funds, but reserved them for the purchase of apparatus and for otherwise increasing its teaching facilities. The establishment and support of many laboratories trebled the expense of maintenance and for some years it has been apparent that eventually an independent medical college without endowment can not be self-supporting.

The time has come when no college can do efficient work solely upon its income from students. It cannot compete with universities unless heavily endowed. Many of the smaller colleges throughout the country have been forced to suspend or to combine with each other or to affiliate with a neighboring university. That such a necessity might arise regarding Cooper Medical College was foreseen even by Dr. Lane shortly before his death and his deeds to the Board of Directors of this college were so modified as to permit a transfer of the property to Stanford University whenever it should become wise to make it. The Directors have found it wise to make it now and Cooper Medical College becomes the Medical Department of Leland Stanford Junior University. It must be appreciated that this transfer is not the result of sudden impulse but of the mature deliberation and foresight of those who have its welfare most at heart.

Warned by the increasing expense of college maintenance, by the impossibility of progression and betterment through its own resources, and by the trend of educational development in favor of university association the authorities of Cooper Medical College accept such association and in the fold of the University of Stanford seek that permanency which otherwise might have been endangered, believing that this course will not only conserve the munificent gifts of Dr. Lane, but will be of the greatest service to the student, the medical profession and the public at large.

Surely those who ministered at the birth of Cooper Medical College, who tended it in its infancy and watched with satisfaction its expanding maturity will have no fears in committing it to its new relation, but will continue to entertain the brightest hopes for its future.

PRACTICAL POINTS IN THE DIAGNOSIS OF EVERYDAY SKIN DISEASES.*

ERNEST DWIGHT CHIPMAN, M. D., San Francisco.

The well educated man has been defined as one who knows something about everything and everything about something. There are many medical men, however, who know everything about something and something about everything except the diagnosis of skin diseases. The average practitioner, indeed, cheerfully confesses his deficiency in this respect.

It has often seemed to me that a presentation of a few vital facts bearing upon the diagnosis of some of the everyday skin diseases would be of interest to all medical men regardless of school or specialty. Such a presentation I venture to attempt under two heads, viz:

I.—The consideration of the patient, and

II.—The consideration of the eruption.

At the outset it may be remarked that certain factors as a good light, a thorough examination of each and every lesion as well as an adherence to the recognized principles of diagnosis in general, are presupposed.

The consideration of the patient has to do with

(a) Age.
(b) Sex.
(c) Nationality.
(d) Occupation.
(e) General health, and
(f) Whether or not medicines have been administered.

The age of the patient always enters into our calculations. In children, where pathologic processes are more active, the skin more easily undergoes vesiculation and pustulation and is more inclined to hypertrophic conditions while in the aged many reactions are more sluggish and the tendency is greater toward atrophic conditions.

But more particularly certain diseases are associated with definite epochs in life. For example, pediculosis capitis is a disease of childhood; pediculosis corporis is a disease of the aged. Lupus vulgaris rarely develops after the age of thirty while lupus erythematosus only exceptionally begins before that age. Acne is a disease of adolescence, rosacea a disease of middle age and epithelioma most commonly a disease of later years. Ringworm is a disease of childhood and pityriasis versicolor is essentially a disease of adult life. Congenital syphilis and ichthyosis are usually noted in the first month of life.

The sex of the patient is only secondarily of importance. Certain distinctions are obvious. Sycosis is only observed in males and Paget's Disease in females. Epithelioma is more often seen in men; lupus erythematosus in women. The mild grades of rosacea are more frequently observed in females, particularly at the menopause, while the more severe forms show themselves particularly in men who are exposed to the inclemencies of the weather, such as cab drivers, sailors, etc.

Certain racial and national tendencies are to be remembered. The negro, for example, is especially prone to vitiligo and keloid and seems to enjoy relative immunity from acne. Natives of England seem especially susceptible to scarlatina while Americans fall ready victims to such catarrhal inflammations of the skin as eczema and seborrheic dermatitis. An interesting statement of Sabouraud is to the effect that the chancroid thrives famously in Italy and Austria but has never seemed to become acclimatized in France. Certain forms of ringworm which occur frequently in the East are rarely observed on the Pacific Coast.

The occupation often offers a clue to the diagnosis. In the case of bakers, grocers, bricklayers and washerwomen the so-called trade eczemas are to be suspected. Workers in arsenic, dyestuffs and various chemicals often exhibit diverse forms of dermatitis and Martial, in a recent article translated by D. W. Montgomery, describes a scabies-like eruption found in cement workers. Stokers and others exposed to high degrees of temperature are naturally inclined toward the eruptions associated with excessive perspiration.

The matter of the general health is obviously worthy of particular observation. While we consider the general health more from the etiological standpoint it is nevertheless oftentimes of definite diagnostic import. A finding of tuberculosis pulmonalis would perhaps be a deciding factor between the tubercular or luetic character of a lesion, although one might be more definite by resorting to specific medication or the tuberculin test. The facies is often suggestive—the emaciated outline or the hectic flush of tuberculosis, the sallow, anxious syphilitic aspect, the leonine expression of the leper are all to be regarded as of service to the diagnostician.

The relation between diabetes and furunculosis is known to all but overlooked by many.

In the presence of many eruptions it is advisable to know whether or not the patient has been taking medicine internally. Certain lesions, otherwise inexplicable, are readily accounted for when it is known that large doses of bromide, iodide or other drugs have been administered.

In practice all this takes much less time than it does to tell it. All that has been said is largely in justification of entering as a part of the record in each case the name, which implies the sex, the age, the occupation and the nativity of the patient. Having done this and inquired into the family history and the previous personal history we are ready for the consideration of the eruption. Here we have as subconsiderations:

I.—The general pathologic character of the eruption. We have certainly made some headway if mentally we can catalogue an eruption as belonging to such general groups as inflammations, hemorrhages, hypertrophies, atrophies, new growths, etc.

II.—The special type of the eruption; whether for example, the predominant lesions are primary, as macules, papules, vesicles, pustules; or consecutive, as

* Read before the Cooper College Science Club, Jan., '09.

stains, crusts, excoriations or scars. When one considers how purely papular is lichen planus, how purely vesicular is herpes and how purely bullous is pemphigus the value of noting the type of eruption is unquestioned.

III.—The configuration of the eruption—whether, in the first place, the patch is sharply circumscribed or ill defined, and whether, in the second place, it is regular, irregular, circular, oval, angular, circinate, serpiginous or gyrate in form. Here is a factor which may be of great service, especially in connection with other corroborative signs. Taken by itself it may lead to error.

For example, an annular or ringshaped lesion indicates to many nothing but ringworm whereas it may also signify syphilis, erythema multiforme, psoriasis or seborrhea. Not long ago I had difficulty in convincing a practitioner that an annular eruption which he was treating for syphilis was in reality a seborrheic dermatitis. Recovery was so complete and prompt with local applications of resorcin and sulphur as to leave no room for doubt. Seborrheic lesions in annular form are often mistaken for ringworm as well as syphilis. Erythema multiforme, especially that variety sometimes spoken of as herpes iris is easily taken for a syphilide by reason of its configuration as well as on account of the exudation connected with it which gives the skin a thickened feeling that is looked for in specific lesions.

To observe whether a patch is sharply or ill defined helps us in the differentiation of such common affections as psoriasis and eczema. Psoriasis is sharply defined while in true eczema it is difficult to discover where the diseased area ends and the healthy tissue begins. A point worthy of emphasis in this connection is the outline in eczema. With certain exceptions the border is always indefinite and irregular—a point to be insisted upon in diagnosis. The exceptions are first, an unusual form called eczema nummularis sometimes called eczema en plaque which presents oval and circular lesions sharply defined and usually symmetrically disposed; second, a so-called parasitic eczema. If parasitic from the begi[illegible] the eczema is sharply outlined [illegible]om the fir[illegible] peripherally inva[illegible] the indefinite [illegible]ch beco[illegible] abruptly circumscribed with the par[illegible] [illegible] The subject of pa[illegible] is worthy [illegible] special study. C[illegible]ally a parasitic eczema is distinguished by its definite outline, its bright red color and by thin, greasy, easily detachable scales.

The so-called seborrheic eczema is of course sharply outlined but as that is more properly considered a dermatitis it cannot be numbered among the exceptions. In differentiating between such common dermatoses as psoriasis and eczema we are influenced greatly by the outline. Eczema, as we have seen, is ill defined while psoriasis is often as cleanly cut as a cameo. Lupus and the tubercular affections in general are more easily distinguished from syphilitic manifestations by noting the configuration. Not only in active tubercular lesions but in their scars the tendency is toward irregularity and angles, while syphilitic lesions take on circular and symmetrical designs.

IV.—The duration of the eruption is sometimes a determining factor. If the lesion is of only one week's duration it is probably not epithelioma; if over a month in evidence it is not one of the acute exanthemata.

V.—The behavior of the eruption may signify much, both objectively and subjectively; objectively by a slow or rapid evolution and subjectively by the presence or absence of itching, burning or other sensations. Between lupus vulgaris and an ulcerating or tubercular syphilide the slow evolution of the former as against the relatively rapid evolution of the latter may be a decisive factor in the diagnosis.

Concerning itching, it may be said that not only its presence or its absence is significant. In certain conditions as lichenification the itching is paroxysmal in character. In scabies it is more marked at night.

VI.—Of capital importance is the distribution of the eruption. Under this head we have to consider whether the eruption is symmetrical or non-symmetrical, whether it is unilateral or bilateral, whether it is on those portions of the body covered by clothing or on the exposed parts; and finally we must observe the location for which it shows a special inclination.

The early lesions of syphilis are symmetrical while the late lesions are usually non-symmetrical. Eczema of internal origin, especially those in which the nervous system is a supposed factor, are inclined toward a symmetry of expression while those of purely external cause show no such disposition.

A familiar example of unilateral distribution is Herpes Zoster. Here the diagnosis is practically made by the distribution alone. Palmar syphilides are usually bilateral in the early stages and unilateral in the later stages.

It will often be worth while to note if the eruption is limited either to those portions of the skin covered by clothing or to those uncovered parts as the face and hands. Patches of senile keratosis occur in the great majority of cases on the hands and face. The facility with which these patches undergo epitheliomatous degeneration makes them of universal interest. In differentiating between variola and varicella, it is to be observed that the former affects those portions uncovered by clothing while the latter is found most abundantly on the covered parts.

Certain diseases have a preference for definite locations and a familiarity with these special associations is often of greatest service. How characteristic, for example, is the distribution in scabies. By the appearance of excoriations in the anterior axillary fold, the flexor aspect of forearm and wrist, the webs of the fingers, the lower abdomen, the nipple in females and the penis in males the diagnosis is practically established. Seborrheic eczema always shows some degree of scalp involvement besides attacking with great alacrity the sternal and

the interscalular regions. Psorasis favors the elbows, knees and scalp and it is rare one finds a case not involving one of these places. Erythema multiforme most frequently attacks hands, feet and face.

Sycosis, of course, is limited to the bearded region. Impetigo contagiosa, which may at times be confused with sycosis, will probably, though not necessarily, show lesions beyond the limits of the bearded region.

Pityriasis versicolor occurs as a rule only on the trunk, especially the anterior portions.

Lupus erythematosus has a special affinity for the nose, about which it develops in a characteristic butterfly pattern.

Syphilitic gummata of the leg and ulcers resulting therefrom are usually observed in the uppermost third while varicose ulcers occur as a rule on the middle and lowermost third.

VII.—Perhaps the value of the color of an eruption has been overestimated. Some, but by no means all, syphilitic lesions are copper or ham-colored. Lichen planus has a purplish and burnished effect. Favus has a characteristic sulphur yellow crust and pityriasis versicolor is evidenced by a dirty, yellowish brown hue. It will be of service to note the color in certain scars. The syphilitic scar is of a sepia brown and regular outline while the tubercular scar is of a whitish hue and inclined to an angular outline.

VIII.—Certain miscellaneous considerations are of positive or negative diagnostic significance. First the punched out ulcer. This is supposed, and probably with reason, to indicate a syphilitic nature. The undermined ulcer, which is often credited with being syphilitic, indicates in reality nothing but secondary infaction. The so-called moth-eaten appearance of the hair in secondary syphilis is usually a reliable guide, particularly as concomitant signs are also as a rule observable. Such appearance of the scalp may be somewhat simulated by reason of the scarring, which follows follicular inflammation, impetigo of Bockhart and furunculosis.

There are many points which might be added and which I hope will be added in discussion. Diagnoses of skin diseases seem often to have been made automatically. In reality nobody knows how many mental processes have been bearing upon the ultimate decision. All this paper professes is to indicate an easy path along which our conscious or our subconscious thoughts may take themselves, together with, may be, a few useful hints by the way.

THREE NON-TUBERCULOUS JOINT LESIONS.*

By JAMES T. WATKINS, M. D., San Francisco.

The three patients I am about to present are sufferers from three different forms of non-specific joint lesion. By non-specific I mean non-tubercular and non-syphilitic. It is a convenient rather than a scientific differentiation. I shall try to show you the essential differences between what we recognize as hypertrophic arthritis, atrophic arthritis and infectious arthritis, and with the clinical picture of each in your minds refer you to the literature for their exhaustive consideration. More than a clinical study of them is not possible if we would compare these three cases in the hour allotted to us. And I deem it of first-rate importance that you should at one sitting see together and compare all three conditions.

Each of these patients has been selected because he or she presents lesions which are typical of a pathological condition. It is always possible for two and perhaps for all three conditions to appear in the same individual, just as a tubercular patient may also be subject to a streptococcic or other infection.

Case 1 was referred to us from one of the medical clinics. The note which accompanies him calls attention to his spastic flatfoot and sciatic neuritis. He is 64 years of age, a Scotchman by birth, a miner by occupation, and says that until his present troubles overtook him he had never been ill a day in his life. He denies a venereal history and claims to have been of a temperate habit. His heart, lungs and digestive tract are reported to be normal. Nevertheless I asked Dr. Zobel to examine his rectum and as much as possible of the large bowel, and the doctor's report shows that the man's colon was found to be filled almost to impaction with foul-smelling fæces.

When we look him over we note that the man is in fair physical condition. Besides his flatfoot and the evidences of a left oblique inguinal hernia, we observe that the man stands with a peculiar forward stoop while his trunk is displaced to the left on his pelvis. His lumbar spine is so far flattened as to be nearly in the same line with his thoracic segment. Further the man volunteers that his left hip joint has become stiff so that he cannot cross his legs when he would lace his shoes. He points out a spot on his buttock which he says has lately become painful. We recognize it as the site of emergence of the left sciatic nerve.

If we now make our manipulative examination, we find first that the motions of the lumbar spine are diminished in all directions, and second that the man cannot bend to the right nearly as freely as he can to the left.

When we test his hip motions we note that abduction is diminished upon both sides, and further that it is most restricted on the left side. The man says he had not recognized that his right hip motions were restricted till we called his attention to it. This late recognition of diminished function is characteristic of the disease in question.

If we turn now to the X-ray pictures which Dr. Freytag has prepared of this patient's spine and left hip, exastoses may be distinctly seen at the right side of the vertebral bodies and intervertebral discs of the fourth and fifth lumbar vertebrae and somewhat less distinctly on the left side. They also appear at the inner border of the acetabulum and at the margin of the femoral head. Those at the inner side of the acetabulum explain the mechanical hindrance

* A clinical lecture from the Course in Orthopedics at the San Francisco Polyclinic.

felt by the patient when he tries to cross his legs. They occur regularly at the periphery of articular cartilages, and are characteristic of hypertrophic arthritis.

Note that the man does not show evidence of joint inflammation nor of constitutional disturbance; no fever, no rapid pulse, no local heat, redness nor tenderness. There is no change in the blood count. Glandular enlargements are not present anywhere. An examination would probably reveal that his urine was scanty, of a high specific gravity and loaded with urates. Finally he tells us this disorder came on so gradually that he does not know just when it began.

This is a fairly typical history and symptom complex of a case of hypertrophic arthritis. I prefer the term hypertrophic arthritis because there are pathological and clinical grounds for using it, whereas the older term osteo-arthritis is artificial, arbitrary and unscientific.

Case II. This young lady was seen by me in private practice some years ago during the acute stage of a disease which has now run its course. Because her case is typical she has been kind enough to permit me to demonstrate her lesions to you.

She is now twenty-five years of age. Her parents were Irish. When she was seventeen she was very much frightened by an attack from some one under the influence of liquor. Her early life was one of drudgery. Otherwise her previous history is negative. When she was eighteen she began to notice spindle-shaped swellings of her finger joints. She is not sure that the swellings did not begin the year before. They were not painful till much later, but her fingers felt stiff. The joints involved were the second and third rows. Gradually her wrists, knees, elbows, ankles, shoulders, and, what is very unusual, her hips became involved.

Deformities in the form of hyperextensions, luxations and subluxations began to develop in the joints first involved and they became painful. These were the deformities she presents to-day. Please observe the glossy, parchment-like appearance of the skin over them.

Had an examination of her urine been made at the time when the disease was active, it would have been found to contain excessive amounts of the salts of calcium. She recalls that at this time her hands and feet were bathed in perspiration. Beyond this there were none of the regular signs of constitutional disturbance nor of local inflammation.

The X-rays of this young lady's case were lost in the great fire, but I am able to show you what are practically identical ones from Dr. Freytag's collection. Please note the lack of density shown, the peculiar clearness with which the internal architecture of the bone is depicted. Again observe the thinness of the articular cartilages as shown by the nearness to one another of the adjacent bones. This picture does not show any erosions nor are the villous fringes apparent.

This patient presents the lesions, history and symptom complex typical of atrophic arthritis, or to call it by its unscientific name, rheumatoid arthritis.

Case III. Contrast the two preceding cases with the following one. This boy is nineteen years of age. Eight weeks ago he was infected with gonorrhea. Two weeks ago his discharge suddenly stopped and simultaneously he began to have pains in his joints, but especially in his right knee joint. This latter became distended with fluid, swollen, tender to the touch and excessively painful on motion. It feels hotter to the touch than its fellow. The skin over it is passively congested. His pulse rate is accelerated and his temperature a degree and a half higher than normal. I should expect an examination of his blood to reveal the presence of a moderate leucocytosis and, if the case were protracted, of a secondary anaemia. The X-ray picture here has been taken to show the soft parts. In the group to which this case belongs bony erosions occur only in the course of the severest infections. These are usually pneumococcic. The hazy shadings about the joints here are limited to the site of the synovial membranes and signify excessive periarticular thickening. The boy has evidently a gonorrheal involvement of his knee joint—an example of a third type of joint lesion, namely, an infectious arthritis.

Here, then, we have examples of three distinct types of non-tubercular joint lesion.

Hypertrophic Arthritis occurs oftener in men than in women, is, as a rule, a disease of advanced adult life and presents characteristic lesions. These latter appear oftener in those joints which are subject to occupational traumatisms. Exposure to wet and cold and sudden changes of temperature seem to predispose to it. Its beginning is frequently and perhaps always associated with intestinal putrifaction. The latter being shown as a rule by the occurrence of flatulence and constipation. It is self-limiting and non-deforming. The onset is insidious and usually painless without either local or constitutional evidences of infection. The characteristic lesion is an irregular hypertrophy occurring at the edges of the articular cartilages. As this new bone is thrown out it interposes a mechanical hindrance to the freedom of joint motions.

Atrophic Arthritis, on the other hand, occurs oftenest in young adult females; is predisposed to by the wear and tear incident to too frequent pregnancies and by the strain and worry of making an inadequate income meet the requirements of modern social life. Not infrequently it follows a great emotional outburst of grief or fright.

The disease process begins insidiously in the second and third joints of the fingers and progresses rapidly to involve the wrists, knees, ankles, elbows and shoulders in the order of frequency in which they are enumerated. There is a clammy perspiration of the palms and soles and the skin over the affected joints is parchment-like and glossy. As in the hypertrophic form of disease, the onset is gradual and, until erosions develop, almost painless. There are no local signs of inflammation, no change in the character of the blood, no swelling of the glands, no increase in the pulse rate, no fever. But excessive amounts of the salts of calcium are excreted in the urine.

The characteristic lesions are the spindle-shaped swellings and the luxations and subluxations consequent upon the shrinking of the cartilage. The characteristic rarefication of the bony structure and the thinning of the articular cartilages are shown in the earliest stages of the disease by the Roentgenogram. There is a round cell infiltration of the synovial villi while their blood vessels show endarteritic changes.

The term **infectious arthritis** must include all joint lesions where a bacteriologic cause can be demonstrated or reasonably inferred. Tuberculosis and syphilis logically come within this classification. Our exclusion of them is arbitrary. Beyond this, the term should include acute articular rheumatism; inflammations of joints following systemic disease, e. g., the exanthemata, pneumonia, puerperal sepsis; inflammations of joints secondary to distant infectious foci. Such infectious foci are to be sought specially in the gastro-intestinal tract, particularly the large bowel, the tonsils, the teeth, the urethra and disease of the middle ear.

The severity and duration of the symptoms will depend upon the nature of the infective organism, but unlike the first two types of non-tuberculous joint disease, the onset is sudden, the pain acute and accompanied by the signs of local inflammation. Heat, tenderness, swelling and congestion are always pres-

ent to a greater or less degree. Signs of systemic disturbance are also present—fever, increased pulse rate, a leucocytosis and eventually a secondary anaemia. Frequently there is general glandular enlargement. The physical examination further reveals symmetrical capsular thickenings and passive congestion of the joints. There is less reflex atrophy and less tendency to deformity than would appear in the atrophic form of joint disease.

The X-ray regularly shows no bony changes to be present, erosions appearing only in the severest, usually pneumococcus infections. Anchyloses, when they occur, are fibrous.

Here, then, are three non-tuberculous, pathologically and clinically different groups of joint lesion. I have elected to spend the time at our disposal in demonstrating them and emphasizing their differences, because where such differences exist, corresponding differences in treatment must be indicated. At our next meeting we will consider the treatment of these three groups of joint disease.

ROENTGENOGRAPHIC FINDINGS IN FRACTURES ABOUT THE ELBOW JOINT.*

By ALBERT SOILAND, M. D., Los Angeles.

Of all the common fractures met with in general practice, those involving the elbow-joint are perhaps the most interesting as well as the most difficult to always manage successfully. Interesting, on account of the number of different fractures that are possible in a small area, and difficult because of the readiness with which the normally limited motion of the elbow can be partially or wholly arrested by a malposition of fragments, or traumatic callus formation.

Believing that a series of Röntgenograms showing these fractures may be of interest, I have taken some pains to collect and segregate into groups the classical fractures as they occur, beginning with the type of break most frequent and exhibiting one of each kind.

In making reference to the following numericals, I cannot state the exact number of each particular fracture, as some plates were sent out before being properly indexed. This, however, does not mitigate the value of the total in round numbers, which can be relied upon to be fairly accurate.

Out of ten thousand X-ray photographs of all sorts made at my office, about nine hundred have been of the elbow joint.

Of these, seven hundred, or three-fourths of the total, have been of the neck and lower segments of the humerus. The most frequent of this class, amounting to about four hundred, is the straight supracondyloid fracture, with backward displacement of lower fragments. This is illustrated in print No. 1.

No. 2, shows perfect apposition of fragments from reduction in acute flexion.

No. 3, shows clearly the inadequacy of a right angle dressing for a fracture of this kind.

It has been suggested that all fractures of the lower humerus can best be dressed in acute flexion. It is no doubt true that a great many may be ideally placed in this position, for with the arm acutely flexed, the coronoid process of the ulna makes a splendid wedge for the condyles anteriorly, the triceps tendon being on a stretch, holds firmly posteriorly, and with lateral pressure by means of bandage around the condyles, an excellent approximation is had.

Print No. 4, however, shows this fracture where acute flexion might produce a serious deformity. Here the lower fragment rotates in the hollow of the olecranon, and upper fragment is displaced backward. It is therefore necessary to dress in some degree of extension, in order to secure relaxation of triceps, and satisfactory apposition.

Print No. 5, is the same fracture with less displacement, where a right angle dressing is sufficient.

The remaining three hundred photos of the lower humerus comprise the different fractures of epicondyle and condyles, often associated with transverse, oblique, or T fractures into the joint.

The internal epicondyle and condyle are quite frequently broken as is illustrated in Print No. 6.

No. 7, is a typical fracture of the external condyle.

No. 8, is a lateral view of a T fracture, where the humeral shaft has been wedged down into the joint.

No. 9, is a T, with forward displacement of humerus, and crushing of condyles.

No. 10, oblique fracture, less violent, with internal lateral displacement of upper fragment.

All these last named fractures can be dressed in acute flexion.

Next in order come fractures of the olecranon. Out of the two hundred remaining elbow fractures, one hundred and seventy-six were olecranon, and the balance were divided between head and neck of radius, which were nineteen, and coronoid of ulna only five.

No. 11, demonstrates simple fracture of olecranon, and No. 12, how full extension approximates fragments perfectly.

No. 13, depicts broken coronoid process, and olecranon.

No. 14, shows fractured radial neck and head. No. 15, fracture of radius and ulna, with complete ankylosis. Right angle dressing for these lesions is mechanically good.

Nos. 16, 17, and 18, extensive injury to all bones of elbow, with deformity.

No. 19, bad fracture of humeral shaft, involving elbow.

No. 20, shows the quite uncommon accident of backward dislocation of both bones without fracture of coronoid, the only one I have seen in my own work.

In presuming to suggest the manner in which these fractures should be dressed in a general way, I have done so from a mechanical standpoint largely, and also from having had ample opportunity to observe results in the hands of many good operators.

A Röntgen examination covering two angles, will tell quickly the best position in which any particular fracture may be dressed.

Scudder, in his excellent late book on fractures says, that all injuries of the elbow should be subjected to an examination under anesthesia.

In the light of modern medical progress, I ven-

* Read before the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.


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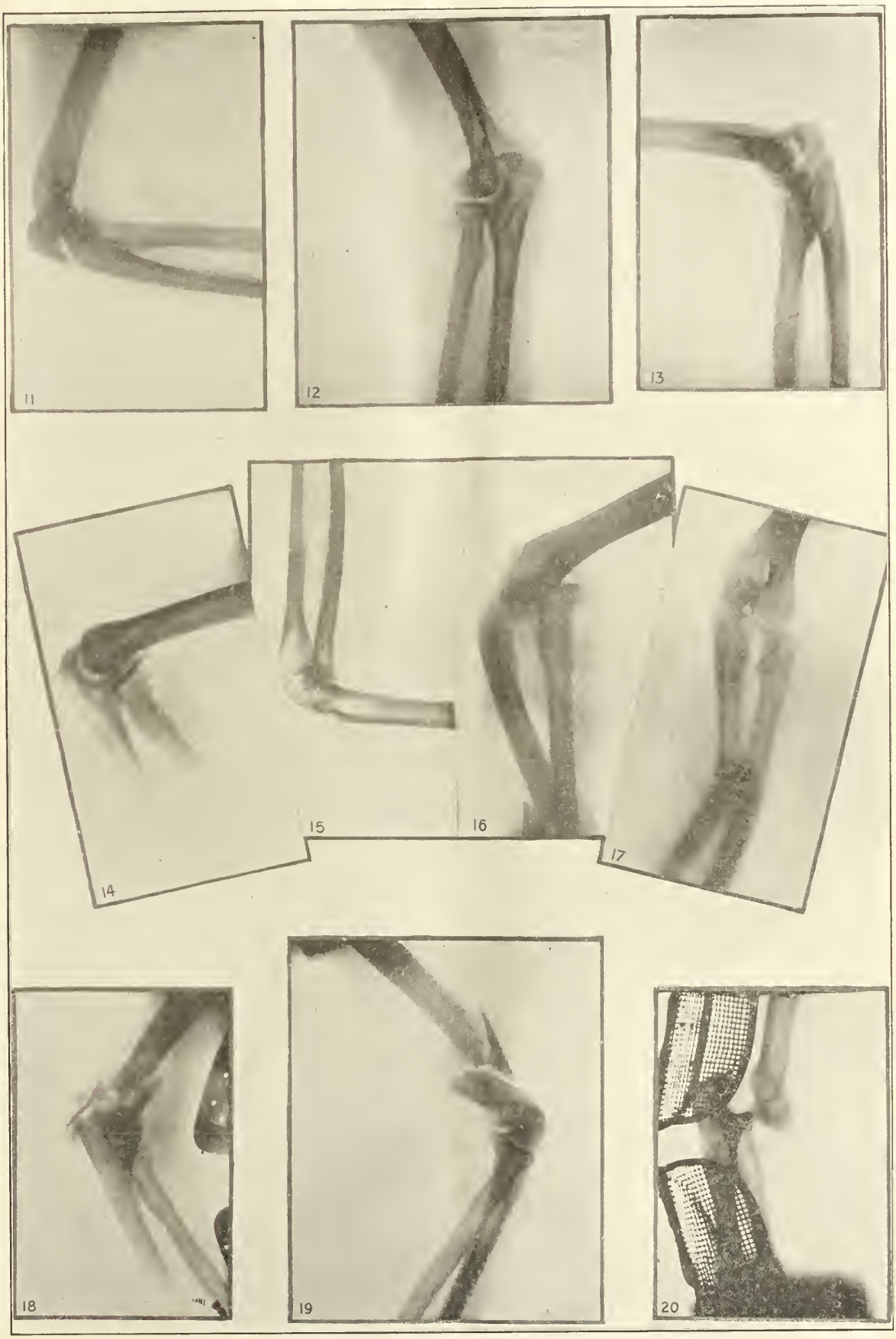
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ture to state that all injuries to the elbow should be subjected to a Röntgen examination.

Discussion.

Dr. S. Stillman, San Francisco: I think this subject is a very proper one to bring before this society for discussion, and I think that these pictures exemplify very well the proposition that there is no one position which is suitable for fractures of the elbow; and that treatment of fractures of the elbow without the aid of a radiogram is impossible, except by resorting to violent passive motion whereby the fragments and newly formed callus are mechanically crowded out of the joint during the two weeks immediately following the fracture. I am perfectly in accord with Dr. Hunkin in condemning this procedure. My own feeling is that the additional trauma produced by surgical intervention in these cases is hardly worth considering and that the result is better than can be obtained by any mechanical retention of the fragments by apparatus. I think that there is less harm done to the joint by immediately opening it, replacing the fragments accurately and retaining them in their proper place by suitable means than by endeavoring to replace them by manipulation, and the more I see of these cases and the more I see of the late results, both in my own practice and in that of my confreres, the more I am led to believe that while there are many cases that can be treated without operation, with the aid of the X-ray, without the aid of the X-ray, I think that as operations are done nowadays, in the hands of the average surgeon, the results will be better by the open method of replacing the fragments. There will be no need of any forcible passive motion afterwards because the necessity for such arises from the fact that the fragments have not been properly reduced. If they are in place the function of the joint may be assured.

Dr. J. Henry Barbat, San Francisco: Several years ago, in discussing this subject, I mentioned that in any case in which the fragments cannot be kept in proper position by the proper external mechanical apparatus, the fragments should be kept in position either by wiring or steel plates with screws. The operation in many cases is comparatively simple and especially in the two fragments of the humerus, and unless we get splintering, they can be maintained by steel plates and screws. You will find very little callus formation in cases properly fixed, compared to cases treated by external splints only.

Dr. T. W. Huntington, San Francisco: I conform to the treatment made by Dr. Stillman that in a large percentage of cases of fracture at or near the elbow joint, operative treatment offers the best results. Furthermore, it is to be remembered that operative treatment should be undertaken, when conditions indicate operation, much earlier than is the ordinary custom. In a word, operations should be undertaken before faulty union entailing malalignment, joint blocking, and permanent fixation has occurred.

Dr. H. M. Sherman, San Francisco: I would like to voice my appreciation of the treatment of these injuries in the position of acute flexion for the reasons expressed by Dr. Soiland. In this instance we have the forearm bound to the arm, and the point lies in the fact that the lower fragment follows the forearm and will be in normal relation to the rest of the shaft of the humerus, when the forearm is in a normal anatomical position. I say this on the basis of an examination of a case through an incision where I could see what happened to the lower fragment where the forearm was put in various positions, even a little better than a radiogram could have shown it. If you start after holding the joint in a position of full flexion you are certain to get full extension because gravity is aiding the action of the extensor muscles. If you start from full extension you are working against gravity with an effort. I agree with Dr. Stillman, if you cannot put the fragments into proper position so that you are absolutely sure that they are in proper position, make an incision. The incision must be made with the same asepsis as when you try to suture a blood vessel, otherwise you have infection of the elbow joint and even a mild infection which would interfere with the superficial process, gives a good deal of stiffness and trouble afterwards.

Dr. A. S. Lobingier, Los Angeles: A little over fifteen years ago Arbuthnot-Lane called attention to the treatment of fractures in certain bones by the open method. He has since that time, laid emphasis on this method, and the point which has been made by Dr. Sherman of absolute asepsis in the management of these cases is one that he has constantly emphasized. His very latest contribution speaks of it repeatedly, so that not only will there not be the superficial evidence of infection, but there will not be the synovial evidence which is manifest by adhesions. If we could possibly have any more graphic evidence for the necessity of this style of mechanics in the reduction of the displaced fragments in a fracture, these pictures shown by Dr. Soiland certainly offer it. These radiograms convey their own instruction, and I am glad this matter has been brought before the society. The position of acute flexion should be observed even after reposition is effected by these mechanical methods. How many of these cases we should operate on may be a problem, but those who have advocated the open method have not been restricted in this matter, and I have felt that practically every case of fracture at the elbow joint which showed any serious displacement of fragments should be operated by the open method. There are some few cases which may be an exception to this doctrine, but it is clear that the majority should be operated upon, and operated upon early.

Dr. S. J. Hunkin, San Francisco: If we could always get pictures such as these shown by Dr. Soiland, the practice of surgery in these cases would be decidedly an art. It would be easy in a number of these cases to know just what to do with them. The doctor, in fractures of the humerus, advocates putting up in acute flexion except in one case, in which the radiogram shows anterior dislocation of lower end, in which case he suggests extended position. In such a case as that pictured I would have redislocated backwards and then have put it up in acute flexion. The greatest thing I think in the promise of motion, is function, and when the arm is put up in full flexion you may have only 10 degrees to 15 degrees of motion when the splint is removed, but the patient can at once feed himself and fix the hair and do many things, and thereby do a little passive motion himself, and you will soon find that freer motion is quickly developed, whereas if you put it up in a right angle, he gets 10 or 15 degrees but in a position where it is not much use to him. The motion between the 10 degrees over a right angle and the 10 degrees less is out of the functionating position, and he gets so little use of it that it favors ankylosis. I agree that when the position cannot be fixed then it is wise to cut down and put it in apposition. If they cannot be kept in position from splinting the outside, they must be kept by a splint on the inside. I put in staples when they are near the joint. I have put wire in the joint within the capsule, in the elbow, and it stays there without trouble. It does not matter what you put there so long as you hold it. In the shaft of long bones I put in wire. At the joint, in fixing the neck of the femur, it is impossible to put in the plate or wire. We would have to lift the head of the bone out and in that position by holding the head up with a nail driven in, it is easy to get enough room for the staple and two staples will hold the thing firmly.

THE SEVENTH ANNUAL MEETING OF THE PACIFIC ASSOCIATION OF RAILWAY SURGEONS, SAN FRANCISCO, CAL., AUGUST, 1909.

Minutes.

Meeting called to order at 2:30 p. m., President McCleave in the chair.

Address of President McCleave, "Railway Hygiene."

It was moved and seconded that the reading of the minutes be dispensed with. Carried.

Applications for membership were read.

It was moved and seconded that Secretary cast the ballot.

Secretary cast the ballot and the applicants were duly elected to membership. (*Vide infra.*)

Announcements were made with regard to the changing of the banquet night from Saturday to Friday night.

It was moved and seconded that the President be requested to furnish the *State Journal of Medicine* with a copy of his paper.

Scientific program was proceeded with according to program.

The question regarding the publication of the proceedings of these annual meetings was brought up, the question being whether this Association should control the publishing or the Editor of the Journal.

It was moved and seconded that this matter be left to the decision of the Executive Committee. So ordered.

The matter of affiliation of the Pacific Association of Railway Surgeons with the American Association of Railway Surgeons was discussed and the President suggested that this matter be left to the action of the Executive Committee.

The death of Doctor Frank Adams was spoken of and the President announced that he had written to the family, also Doctor Carson, as Secretary.

In deciding upon the meeting place for 1910 it was moved and seconded that the meeting be held in San Francisco.

Election of Officers.

Nomination for president: Dr. Carson nominated Dr. Carl Kurtz of Los Angeles; nomination seconded. It was moved and seconded that nominations be closed and that Secretary cast the ballot. So ordered.

Secretary cast ballot and Dr. Carl Kurtz of Los Angeles was announced duly elected president.

Nomination for first vice-president: Dr. Dillon nominated Dr. O. D. Hamlin. Nomination seconded. It was moved and seconded that nominations be closed and Secretary cast the ballot. So ordered.

Secretary cast ballot and Dr. O. D. Hamlin was announced duly elected first vice-president.

Dr. Reardon of Oroville was nominated for second vice-president. Nomination seconded. It was moved and seconded that nominations be closed and Secretary cast the ballot. So ordered.

Secretary cast ballot and Dr. Reardon was announced duly elected second vice-president.

Dr. Keys of Alameda was nominated for treasurer. Nomination seconded. It was moved and seconded that nominations be closed and secretary cast the ballot. So ordered.

Secretary cast ballot and Dr. Keys was announced duly elected treasurer.

Dr. Carson, incumbent, nominated for secretary. Nomination seconded. It was moved and seconded that nominations be closed and secretary cast the ballot. So ordered.

Secretary cast ballot and Dr. Carson was announced duly elected secretary.

Nominations for the executive board to succeed E. A. Bryant. Dr. Powell nominated. It was moved and seconded that nominations be closed. Secretary cast ballot. Dr. Powell announced duly elected.

The following applicants were duly elected:

E. T. Dillon, Los Angeles; H. E. Morrison, Niles; R. T. Legge, McCloud; S. K. Morrison, Reno, Nev.; A. C. Olmsted, Wells, Nev.; S. Iglick, Orland; R. L. Ramey, El Paso, Texas; F. C. E. Mattison, Pasadena; J. I. Beattie, Santa Clara; H. P. Palmer, Vacaville; O. B. Doyle, Fresno; H. W. Oakley, Porterville; C. R. Mowery, Wallace, Idaho; W. A. Reckers, Placerville; N. H. Hamilton, Santa Monica; McMillan Jones, Carlin, Nev.; L. R. Willson, Fresno; Geo. Ainslie, Portland, Ore.; F. W. Whiting, Elgin, Ore.; C. H. Fairchild, Winters; A. H. Peek, Palo Alto; Jas. H. Worth, Albuquerque, N. M.; J. W. Colbert, Albuquerque, N. M.; A. C. Seely, Roseburg, Ore.; W. S. George, Antioch; W. W. Beckett, Los Angeles; E. F. Wing, Los Angeles; H. G. Willson, Gallup, N. M.; W. N. Brown, Bakersfield; G. M. Baumgarner, Imperial; W. J. Wickman, San Rafael; H. Garcelon, Los Angeles; G. H. Fay, Auburn; Redmond Payne, San Francisco; H. D. Fletcher, Rocklin.

RAILWAY HYGIENE.*

By T. C. McCLEAVE, M. D., Berkeley.

It is with great pleasure that I welcome you to this seventh annual meeting. The affairs of the society have prospered during the year. Some thirty new members have been added to our rolls, and considerable interest has been manifested in our work. You have noted that a section of the *California State Journal of Medicine* is now devoted to the publication of our proceedings and I take this opportunity to express our indebtedness to the *Journal* for this courtesy.

Again, as last year, we mourn the loss of one of our most valued members, Dr. Frank Adams, for some years our treasurer, who died on November 19, 1908. To you who knew him I need not extol his virtues. He was an eminent physician, a good citizen, a stanch friend and every inch a man. In common with other members of the profession he adorned, we have sustained in his death an irreparable loss.

The recent completion of the new Southern Pa-

* President's Address—Seventh Annual Meeting of Pacific Association of Railroad Surgeons, San Francisco, Aug. 27-28, 1909.

cific General Hospital in this city, inaugurates an era in railway medicine and surgery on this coast of which we may well be proud, not only the surgeons of the company whose interest in the physical welfare of its employees is thus indicated, but those of other companies, and also the profession at large, for this institution exemplifies the highest type of hospital construction and equipment yet seen in the West, and not surpassed elsewhere. An opportunity will be afforded during our meeting for our members to visit the hospital and it is hoped all will avail themselves of it.

The high plane reached by railway medicine and surgery is, however, not attained by railway hygiene and it is particularly to this phase of the work of our association that I wish to direct your thoughts to-day. I do not propose to burden you with any extended discussion of the subject, but merely to voice a few ideas that have come to me from time to time, as I have traveled about the country.

I suppose it would be difficult to persuade a luxury-loving public to accept in standard sleepers the rattan seats of tourist cars but certainly equal comfort could be secured and cleanliness promoted, if the heavy plush upholstery were replaced by some material which would less readily hold dust and which could be more easily cleaned or renewed, and if in our dwellings we think it wise to supplant heavy carpeting with hardwood floors and rugs, what can be said in defense of the floor covering of our railway coaches? And while on this subject of dust, if passengers, before leaving the cars, must have their clothing renovated by the porter as a reminder of his expectation of a farewell fee, would it not be well if he could be provided with some form of compact compressed-air cleaning apparatus by which to extract the dirt from our garments and a coin from our pockets. The present method, where the victims stand in the aisle while the dusky functionary whisks the dust of one over the persons and into the faces of his neighbors, is an unmitigated nuisance and a veritable danger. In some places the practise has been forbidden by law and we should endeavor to have it everywhere suppressed. The work of the porter in caring for his car is often most inadequately performed, the toilets especially being frequently unfit for use. A stricter discipline in dealing with delinquencies of this character would improve the service, and lessen the risk of infection which now threatens.

I have often wondered to what extent the water supply of railroads endangers the health of passengers. The water and ice, especially in country districts, are surely often of dubious origin, judged from the sanitary viewpoint; and with what carelessness are they often handled. I have seen an icer spit upon his already filthy-looking gloves, grasp the handles of his barrow filled with ice, wheel it to the car and then with those same gloved hands carry in the ice to be deposited in the water coolers and refrigerators. He may have had no pathogenic bacteria in his saliva, but why expose hundreds to the possible risk? The common drinking glass, however, constitutes a menace which may not be disputed. It is always with horror that I watch the constant pilgrimage of little children to the water cooler, especially in day coaches, where to give the child a drink every few minutes, seems to be one of the expedients for relieving the monotony of the journey. As one sees the variety of persons, many manifestly diseased, who use the glass, or worse yet, the metal cup, with an occasional woman dipping into it her dirty handkerchief to mop some infant's face, it is hard to comprehend that any mother, however ignorant, could put so filthy an object to a baby's lips.

There are now on the market several devices for supplying cheaply paraffined paper cups, and they are beginning to be used in schools, railroad depots, theaters and other places where public drinking fountains are maintained. Their use should become general, if necessary by compulsory laws. The Kansas State Board of Health has adopted a rule, effective September first, forbidding the use of common drinking cups; and doubtless a similar rule will be widely adopted in other states. Every railway coach and depot should be provided with these paper cups, and if it be considered by the operating department to entail too great additional expense, then the passenger should be given the privilege of buying them, which he may do if the car be equipped with a device by which in return for a cent piece dropped in a slot, a cup is supplied. The necessary apparatus is compact, simple, and inexpensive, and its installation, as suggested, would surely be welcomed by the public and would be the means of preventing a vast amount of disease, suffering and death, for which the common drinking cup is now responsible. If, in addition, filtered water were provided, practically all danger from this source would be obviated.

Of minor importance but worthy of consideration, I would suggest the abolition from the toilet rooms of the public hair-brush and comb, no more necessary, or proper than a public toothbrush, and also the replacement of the present soap by a liquid antiseptic soap.

In the matter of the disposal of sewage waste from the cars, railroads are fearful offenders against decency and public safety, if not actual violators of the sanitary laws of certain districts through which they pass, and with the increasing interest in hygienic questions among all classes of people, it seems impossible that the present methods will be much longer tolerated. Among the thousands constantly traveling over the roads, there are of course numerous typhoid carriers, and the dumping of their excreta along the right of way means in many instances water pollution, and affords an ideal opportunity for dust and fly infection. To what extent passengers are thereby endangered would be hard to determine; but how often typhoid patients give a history of a recent journey. In these cases, the possible source of infection under consideration is only one of many, but we cannot afford to disregard it. To the farming communities and towns along the railroad lines, and to train-men and track laborers especially, the danger must be very

considerable. The obvious remedy is to equip the cars with suitable containing tanks, to be emptied at convenient points, preferably after disinfection of the contents, which may be cheaply and efficiently accomplished by means of copper sulphate.

So much has been written in regard to the transportation of the sick, especially the tuberculous, that I will not occupy your time on that topic. Suffice it to say that the problem is far from a satisfactory solution, and that we must still regard railways as probably prolific disseminators of the great white plague. Other matters might be suggested where sanitary improvement would be possible, but I have enumerated those I believe to be most important. I am well aware that I have said nothing new or original, but we are such creatures of habit that even as medical men we are too prone to accept without efficient protest such conditions as we are accustomed to, however wrong we know them to be, and as this innate tendency to regard the habitual with complacency is the strongest sort of an obstacle to progress in any line of endeavor, I have thought it worth while to-day to redirect your attention to these questions of railway hygiene which you have doubtless often before had under consideration. The problems presented are some of them difficult, others easy, but in no case do I regard the solution as impossible of accomplishment or impracticable in application, and I believe that, from the standpoint of the general good, there exists no higher field of usefulness for such a society as ours than in the promotion of such much-needed sanitary reforms.

SOCIETY REPORTS

BUTTE COUNTY.

The regular monthly meeting of Butte County Medical Society was held at the office of Dr. Gatchell at Chico, Tuesday evening, Oct. 12th. Dr. Enloe president, in the chair. Members present, Drs. Enloe, Browning H. Morel, W. L. Gatchell and E. F. Gatchell.

An exceedingly interesting translation from the French of 16. Robin on "An Easy Diagnosis and Treatment of Menstrual Troubles," was read by Dr. H. Morel and discussed by the members.

ELLA F. GATCHELL, Secretary.

POLYCLINIC GATHERING.

Dec. 9, 1908.

Presentation of Cases by Dr. Chipman.

Herpes Zoster: In the absense of Dr. Regensburger I will present a few cases from his clinic before presenting my own. The first case is a simple case of Zoster, the one remarkable feature being the somewhat unusual distribution. As you all know the more common distribution is between the ribs but this is rather higher and goes up the neck. The case was first seen on Monday last, when it was purely vesicular, but with local application of aristol and zinc stearate the vesicles have all dried up. It is remarkable that the lesions in this case have crossed the middle line of the back. The patient says that for the last week he has had a great deal of pain in his case.

Scabies: The second case is very commonplace but is a fairly typical case of scabies. The patient has complained of itching for a week or ten days. From the appearance of the lesions one might judge that the duration has been somewhat longer than ten days. It is typical in its distribution, the axillae, wrists, thighs and usual places being involved. The diagnosis is easily made by the distribution and the itching night and day. Generally the patients complain of itching more after going to bed. There is nothing atypical in this case. In these cases very often the question is raised with regard to the prophylaxis. What should one do with the bedclothing to prevent reinfection of the patient or infection of some other party? Should it be burned or destroyed? Both are unnecessary because if the bed is left alone for ten days the acarus will die of starvation.

Seborrhoeic Eczema: This case appeared at the Clinic just as we were finishing this morning. It occurred to us that the lesion was worth showing to-night because at first it resembles so much an entirely different affection. I refer to the lesion on the man's lip. It is somewhat infiltrated. At first sight this would appear to many as epitheliomatous or beginning epithelioma, and we have this to consider. He has had this lesion for only ten weeks. In the first place an epitheliomatous lesion would be single, whereas these lesions are multiple, and in the next place the evolution has been very rapid. The patient had a sore on the penis fifteen years ago. There is no history of any eruption, but that is lacking in so many cases that we need not consider it. Another thing is the fact that he presents over the sternum a patch of seborrhoeic eczema. This is a typical location, the favorite sites being the scalp, the sternal and the interscapular regions. As showing that one can find dermatological lesions in anybody if one hunts for them, we see in this patient a collection of lesions. On the lower abdomen are common warts; on the back we find pigmented moles, and lesions resembling macular syphilodermat. In addition we find an urticaria factitia which is rather marked.

Ichthyosis: This is a case of my own which I am presenting with the permission of Dr. Regensburger, one of universal ichthyosis. In ichthyosis there is no question of differential diagnosis; there is nothing with which it can be confounded. It is universal in this patient, involving the scalp, face and not only the extensor surfaces, but in fact the entire surface of the body, both trunk and limbs. This is a pronounced case of ichthyosis simplex. On one knee there is a patch which is more marked and almost approximates ichthyosis hystrix. The patient says that he never perspires. Some one suggested the use of thyroid in this case. Theoretically it is indicated. The usual treatment is to soften the skin with baths and salicylic acid, resorcin or some other reducing agent.

Demonstration of Urethroscope, by Dr. Silverberg: This urethroscope is somewhat on the style of the Cooper instrument, but differs from Oberlander in the position of the light which is external to the tubes. The light is caused to pass through a bull's eye condenser to a concave mirror, whence it is reflected down the tube to its extremity. The tube is first inserted into the urethra and after removing the obturator and swabbing, the light-bearing portion of the instrument is applied. The connection between this portion and the tube is air-tight. A glass lid sinking into a soft rubber gasket closes the end of the tube. The urethra may then be inflated with air pumped by a Davidson syringe.

Exhibition of Sections, by Dr. Leo Newmark: These cases had been reported and the specimens presented to the Polyclinic gathering at a previous meeting.

Demonstration of Syphilis of Palate and Larynx, by Dr. Henry L. Wagner: Here is contraction and formation of dangerous stenoses, due to probably successive attacks of tertiary ulceration (based on mixed infection). The voice is permanently impaired and there is a chronic inflammation of the membranes, not showing any specific appearances. Treat-

ment of syphilitic stenosis based on dilatation; perhaps combined with fibrolysin injection.

Discussion.

Dr. Levison: At one of the previous meetings of the Society I made mention of several experiences that I had with thiosinamine. I had used this drug in several different conditions. I first used it in a case of pyloric stenoses consequent upon a gastric ulcer but without any apparent result. I employed the drug because it has been reported to have been used with success. The next patient was a woman who had suffered severely from a reflex disturbance as a result of an old cicatricial contracture following a perineal operation. I used a 15% alcoholic solution. I injected this into the perincum and finally applied it on a vaginal tampon and by this means softened the tissue. I have also used it in Duypetren contracture with excellent result and also in several cases of keloid. I remember one case in particular where a girl had been operated upon twice for a very large thick scar with a typical hypertrophic keloid. Under the influence of this injection the tumor subsided, the scar tissue was absorbed and by the time she was through with her treatment she was practically well. So far as I can recall this constitutes my experience. I have been impressed with the effect of the drug upon scar tissue and should be inclined to use it under any circumstances. I have also seen the X-ray used with excellent result. I can recall one case of a child with a large burn of the abdomen where the abdomen was one mass of scar tissue. Under the X-ray this subsided almost entirely.

Renal Decapsulation for Nephritis, demonstration by Drs. Victors and Barrett: This patient gives a history of having had a fistula three or four years ago at the sacro-coccygeal junction, which persisted for some time. He had an operation and various scrapings, always with recurrence. Diagnosis was made of tuberculosis or a syphilitic condition. The patient, however, denies a syphilitic history. He has been at the genito-urinary clinic and was referred to us for treatment. During the treatment for the condition of the sacrum a mercurial ointment had been applied. We found that the urine at that time was scanty with 3/10 albumen and hyalin casts. We have kept him for almost a year under observation thinking the condition a toxic one. After elimination this increased if anything. He had been in bed once for six weeks on rigid diet without any results. We finally referred him to the surgical service. Usual kidney incision was made. We had intended to do a double decapsulation at one sitting, but found in attempting to deliver the kidney that it was high up under the twelfth rib, which had to be resected before we could get at it. The fatty capsule having been separated from the capsule proper, it was stripped back to the pelvis and sutured to the muscle with forty-day gut. The patient was doing very well under the operation and we might have done the other kidney, but we thought we would rather have him return to bed and come for operation again, which he did the subsequent week. We found the other kidney just as high up as the first one, and the twelfth also was resected and the kidney sutured in the same manner. He had presented the pallor, anaemia, headache and anorexia, which are all associated with this nephritic condition. Since that time he has improved in color, has been gaining in weight at the rate of one pound for five weeks, and has improved markedly. Prior to the operation he excreted 2½ pints of urine in 24 hours, and that was while he was drinking two quarts of fluid, one quart of water and one of milk in the same period. Since that time he drinks not more than one pint per day and has been excreting 3½ pints of urine. Keyes, in his discussion of this procedure, criticizes the reports because the majority have been made in the first six months. He said further that eight out of ten succumbed in the first six months and that a number of others did badly, due to the fact that the immediate improvement in circulation which first took place was lost in the fibrous contraction subsequent. There has been a great deal of experimentation to determine whether there was improvement in the circulation of the kidney following this procedure. I remember that Dr. Johnson presented at the Academy of Medicine the result of his work on dogs, and the results were that in the beginning, there was decided increase in the circulation in the new capsule but that later the capsule became thicker than the normal capsule and the vessels diminished in size. There has been a question as to whether there is an improvement in the collateral circulation of the kidney after decapsulation. Martini has been able after decapsulating the kidney of the dog to do a unilateral nephrectomy, the opposite, after allowing a little time for the circulation to develop; then ligating the renal vein of the decapsulated kidney which remained, and the dog survived. This procedure was always fatal in dogs with normal, that is, undecapsulated kidney. He demonstrated that there was a development of anastomotic rontes present by injecting gelatin so that it entered the circulation, and even after ligating the normal vessels of the kidney he found the gelatin had passed into the kidney. With regard to this patient, unquestionably he is better—better in his appearance and better as far as the urinary condition is concerned at the present time. The first examination after operation showed the urine to be about the same, it ranged between 3/10 and 1/10 albumen. Immediately after the operation it was 3/10, and of course the blood and serum due to the interference was present until about one month ago, when the urine showed barely a trace of albumen and practically no casts at all. He has now about ½ of 1% albumen and a few hyalin casts, but is continually improving. It is now three months since the operation.

Spindle-Cell Sarcoma of the Groin. Case report by Dr. Barrett: This man, age 46, a window washer, presented himself in June, 1908, with what he thought was a "boil" over the crest of the ileum. There was some pus in a little pocket and the specimen was reported upon as being due to staphylococcus. We made an elliptical incision and brought the skin together and it remained healed for about two and a half or three weeks. It broke down throughout the greater extent of the incision and we operated again, making a little wider removal, both times under cocain. It remained healed for about the same length of time. We then took a specimen from this area and the report came back spindle-cell sarcoma. We then sent him to the City and County Hospital, where we made a wide dissection, and to cover the extensive area denuded we made a sliding flap from the abdomen. This left an area uncovered about 2½x3½". Dr. Freytag has been giving this patient treatments with the X-ray, about two per week. The entire area is cicatrized and the patient has been gaining in weight and strength. At the present time there is no irritation. This case being a spindle-cell sarcoma and superficial, with such a wide dissection and the X-ray treatments continued for another nine months, it seems to me that the chances for his permanent recovery are pretty fair.

Discussion.

Dr. Freytag: The most operative X-ray treatment in sarcoma is especially interesting and important. I have followed the literature very closely and think that we are having more and more success in primary cases where the treatment is undertaken immediately after the operation. All the primary cases which I recall and which I treated immediately after operation, have done well. In recurrence cases, coming to me late, my experience has been discouraging. The patients whom I have treated with the X-rays when metastasis has already occurred, have died, so far as my experience

goes, even more rapidly than without treatment. But these patients died without any pain at all. I remember a case which I treated for a month, bringing three tumors down until they nearly disappeared, but subsequently another tumor appeared on the opposite side and I informed the physician that the treatments ought to be stopped. This patient died without any pain in a simple cachectic condition. So, in desperate cases, where there is no more hope of cure, X-ray can at least bring relief of pain and comfort to the poor sufferer.

SONOMA COUNTY.

The Eldredge meeting, held Sept. 2, 1909, in the afternoon, was well attended. W. J. Kerr, president; G. W. Mollary, secretary; Lizzie Lain, treasurer; W. J. G. Dawson, Edward Gray, Anna M. Gutzwiller, Zilda Turner-Pettis, Frederick Leix, Ira A. Wheeler, R. A. Forrest, E. M. Yates, A. McG. Stuart, W. C. Shipley; visitors, E. E. Briggs and Isabel Devenport, Chicago, Ill.

Dr. Dawson introduced his exhibit and read an account of symptoms while living of the following: "Hydrocephalous Brain, showing very large Poencephalic Cavities," "Foramen Ovale in girl 30 years old, opening never closed, also gall bladder displaced, completely filled with stones and duct greatly enlarged and filled with stones."

About two-thirds of brain substance had been absorbed; the skull was very large.

A few living hydrocephalic patients were exhibited, some of them very intelligent. The most interesting exhibit was Cretin versus Mongolin type of Quberility.

1. The Cretin shows no sign of its trouble before six months, the other shows its trouble at birth.
2. The Cretin is listless and few motions; the other full of motion and notices things.
3. Skin dry, fat pads over clavicle; the other has neither.
4. Normal skull; the other brachycephalic.
5. Palpebral fissures horizontal, lids swollen, epicasthus absent; the other palpebral fissues abligene, chicarsthis present, lids not swollen.
6. Protruding swollen tongue; the other non-swollen, but protruding tongue.
7. Thick evested lids; the other lids normal.
8. Short stubby fingers; the other short tapering fingers, very short curved little finger.
9. Thyroid absent or atrophied; the other has thyroid present.
10. Treatment may do good if begun early; the other, no known beneficial treatment.

Dr. Dawson was ably assisted by Dr. Edward Gray and Dr. A. M. Gutzwiller. The members agreed to meet in Petaluma Oct, 7, 1909; lunched and adjourned.

The society met in City Hall. Petaluma, Oct. 7, 1909. The following present: Drs. W. J. Kerr, president; G. W. Mallory, secretary; I. A. Wheeler, J. C. Condit, J. E. Huffman, Marion B. McAulay, J. T. O'Brien, S. Z. Peoples, F. N. Folsom, A. R. Graham.

We in Sonoma county would like to see our withdrawal cards honored in any county society of the state, and we recommend that each society adopt the rules for admission of State Society or American Medical Association. This thing was brought to our notice by one of our former members presenting his card to a society which did not even present his card to that society. This member was a graduate of the Homeopathic school and a good man. We hope that our great profession will enlarge in their views and abide by A. M. A. rules or rather more humane rules. We don't find fault with you but we want California to be great in her internal dealings.

Dr. Ira W. Wheeler introduced devices to show how he treated a stomach that was so dilated that it was in his way while removing a large, cystic ovary diagnosed three months before hydronephrosis, and now the patient had had three uremic convulsions, the cause of convulsions being pressure on uretera, for after removal of cyst the bladder immediately filled. Urine had to be drawn. Patient at operation weighed 80 lbs., now 15 months later 150 lbs.; well. After closing the incision for cyst, the abdomen was again opened below ensiform cartilage and stomach brought out, which reached the pubes. After manipulation in a warm towel, he took a plait in stomach anterior and surface, from cardiscend in a curve around to Polonic end so that no interference with circulation was had, scarifying the parts to be approcimated. Reducing size of stomach one-half; why he plaited the stomach was that patient had no chance to recuperate with such a dilated stomach.

Dr. S. Z. Peoples read a paper, "Prostate Gland Diseases and Treatment (surgical and medical)" He recommended massage and in suitable cases excision. Gave treatment of old gonorrhoeas, thought that too little attention was paid to the eradication of the gonoricci by the profession.

Dr. Marion M. McAulay exhibited a large cystic ovary removed by Dr. J. T. O'Brien at two and a half months' pregnancy. Dr. McAulay having delivered a fine baby boy six and a half months after operation. The mother declares now that she is better than since marriage four years ago.

Dr. J. T. O'Brien exhibited a skeleton fetus that he removed at what seemed ten months. The afterbirth was attached to underside of ovary. All the soft parts were absorbed, the cord completely gone. For three months the patient said she felt life, then she waited the full time, but her size was much reduced during the last four months. This extra uterine genitation came off luckily for the mother, as she soon recoved after operation.

Dr. O'Brien made this observation: That it would be a doubtful procedure to remove afterbirth at operation on an ectopic pregnant woman if fetus was older than two and a half months, cause hemorrhage; thought it would be well to leave placenta for a later operation or for absorption.

The society is to meet in Santa Rosa next time.

Nov. 6, 1909.

At the Sonoma County Medical Society's meeting last night, held in Dr. J. W. Clark's offices, Dr. J. W. Jesse, assisted by Dr. J. W. Clark, gave a clinic. They exhibited a case of tuberculosis of a young woman who had had the disease about eighteen months. Dr. Clark exhibited the bacillus. Dr. R. A. Forrest showed a case of an infected index finger in a forty-year-old man, which had been ankylosed in three months.

Dr. S. S. Bogle showed two cases of T. B.'s; one of pulmonary, and the other the femur. The last case had been troubled for some five years, had had five operations, seems to be about well, but it is too soon to tell, six weeks.

Dr. Edward Gray sent his paper on Zoster, which was read by Dr. R. A. Forrest.

The Society will meet in Santa Rosa Dec. 3rd, 1909, at which meeting the officers will be elected.

G. W. MALLORY, Secretary.

BOOK REVIEWS

Monroe's "Suggestive Therapeutics, Applied Hypnotism and Psychic Science." (Second Edition.) Publisher, C. V. Mosby, St. Louis, Mo.

The author of this volume has assuredly certain qualifications in marked degree that make the successful "psychic healer." The volume which he puts forth is an interesting personal narrative of his experiences. It makes no pretense to scientific study of the subject, and it is essentially a popular account of an interesting side of modern therapeutics of nervous disorders. The book will be read by a

good many people who will misunderstand the author's dogmatic statements; he writes the book as he talks to a subject, stating tersely a good many things as truths which may or may not be so—somewhat in accordance with your willingness to accept them. One gets a totally incorrect idea of the whole subject of psychic treatments, since after all the title is extremely misleading. The author deals chiefly with the hypnotic method, and, while one cannot doubt the value of hypnotism, its general use as advocated by the author and its wide applicability in his hands are certainly very questionable procedures. It is regarded as an accepted fact that hypnotism should not be used except by medical men who are advanced students of psychology, and as a rule, only when the more refined methods fail.

To a person who has studied the views of Forel, Bernheim, Dubois, Freud, Janet and others, it is inconceivable that this book can be regarded as anything but a dangerous thing to put into the hands of the laity, for whom it seems to have been written at least in part—or the unskilled practitioner for whom the author advocates hypnotism as a sort of dragnet, to catch and cure what the physician fails to reach by other means.

The well-established principles of suggestion direct and indirect, and of simple explanation and reeducation evidently are not thought worthy of consideration by the author. P. K. B.

The International Medical Annual. E. B. Treat & Co., New York.

The busy practitioner will probably continue to welcome works of this character. The present volume of 651 pages contains, in addition to the usual incoherent mass of sketchy notes, some very good dissertations by reliable authorities. The chapters on therapeutic progress (Charteris), surgery of the brain, fractures (Lucas-Chamtionnierre), gall bladder surgery (Deaver & Ashhurst), and nasal accessory sinuses are particularly commendable.

G. A. W.

Surgical Diagnosis. By Alexander B. Johnson, M. D.; in three volumes. D. Appleton & Co. 1909.

That three large volumes of 800 pages each should be necessary for an orderly presentation of surgical diagnosis seems at first blush to be out of the question, and a painstaking consideration of the first two volumes emphasizes this view. The work might easily be condensed to half its size, if anatomical, pathological and therapeutic matters were eliminated. As a matter of fact if more were to be said by the author on treatment, the title should be changed to "General Surgery." Full credit should be given to Dr. Johnson for his arduous task in writing this book, and but few exceptions can be taken to the accuracy of the subject-matter, which in general is in accord with the best modern surgical teaching, but the title is misleading.

The author has succeeded remarkably well in avoiding repetitions, but the numerous references to other chapters are annoying when one is endeavoring to get together all the diagnostic features of any particular surgical condition. Were the references given by volume and page much time could be saved.

The proportions of subject-matter and importance have been well preserved in the first volume, but in the second volume there is a sad lack of balance. For instance, 400 pages are devoted to the urinary organs, whereas only 40 pages are given to the injuries and diseases of the skull and the brain, while 280 pages suffice to cover abdominal conditions. There is one entire chapter of nearly 40 pages relating to congenital anomalies of the kidney and ureter which could well be omitted in a book of this character, as could also the history of the cystoscope and many minutiae of its construction.

It is hard to understand why the subject of delirium tremens should be put in the chapter on Diseases of the Soft Parts, the other articles in the same chapter being gangrene, burns, iodoform poisoning and orthoform dermatitis.

There is no mention made of blastomycosis or coccidiodes, although Madura foot is discussed. In view of the fact that the two former diseases are apt to be mistaken for other conditions, particularly tuberculosis, they should be included in any systematic work on surgical diagnosis.

The consideration of goiter is brief but quite satisfactory—the only omission noted was the blood findings in the exophthalmic form. It would seem, however, that some attention should have been paid to the pathology of goiter, in view of the large amount of space devoted to the pathology of many other conditions of equal or less importance.

The chapter on surgical tuberculosis is very well planned and written, as is also that on the breast.

The differential diagnosis of fracture of the skull is too brief to be of much value—no mention is there made of spinal puncture as a diagnostic measure.

The work is attractively printed and the illustrations are for the most part entirely new. Dr. Johnson is a pleasing writer and is in every way qualified to write an authoritative treatise on surgery. He states in his preface that the volumes under consideration are especially intended for the general practitioner, but they should also be of value to the surgeon.

The third volume is to be devoted to the spine, cord, pelvis and the extremities.

W. I. TERRY.

New Members.

Pickett, J. C., San Francisco.
Ball, J. D., Livermore.
Davis, Fred J., Oroville.
Karsner, J. H. M., Oroville.
Reardon, T. B., Oroville.
Craig, Thornton, Woodland.
Atkinson, Chas. E., Los Angeles.
Ledyard, C. C., Las Encinas, Los Angeles Co., Cal.
Barnhart, Wm., Los Angeles.
Pond, Chauncey P., Alameda.
Harker, Geo. A., Oakland.
Purves, John, Oakland.
Paroni, Romilda, Oakland.
Mansfield, Thos. D., Fruitvale.
Magee, C. L., Los Angeles.
Hagadorn, J. L., Los Angeles.
Sutherland, Robt. T., Oakland.
Dillon, E. T., Los Angeles.
Booth, Jas. P., Los Angeles.
Donnell, T. C., Long Beach.
Cerf, A. E., San Francisco.
Harris, June B., Sacramento.
Rutherford, W. S., Oakland.

Deaths.

Thomas, Edw. W., San Francisco.
Kahn, Samuel S., of San Francisco, died in Coronado, Cal.
Hallowell, Rebecca C., Los Angeles.
Grove, Edward, San Diego.
Booth, Jas. P., Los Angeles.
Hereford, Frank, San Diego.
Besson, Edw. A., San Francisco.