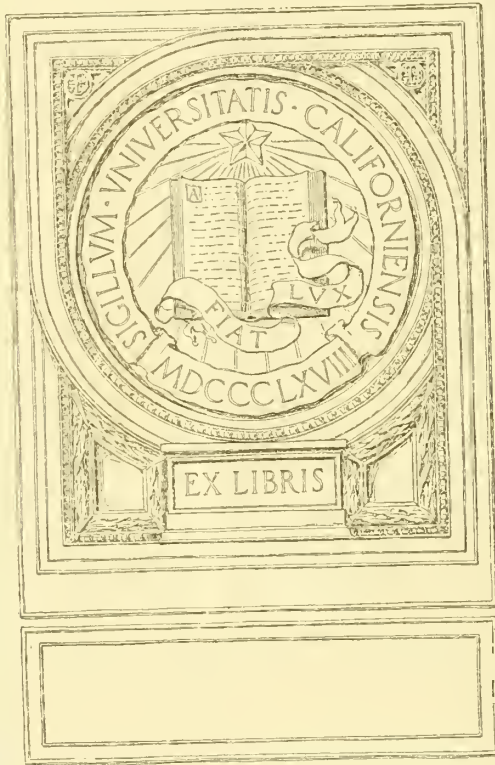





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# Minnesota Medicine

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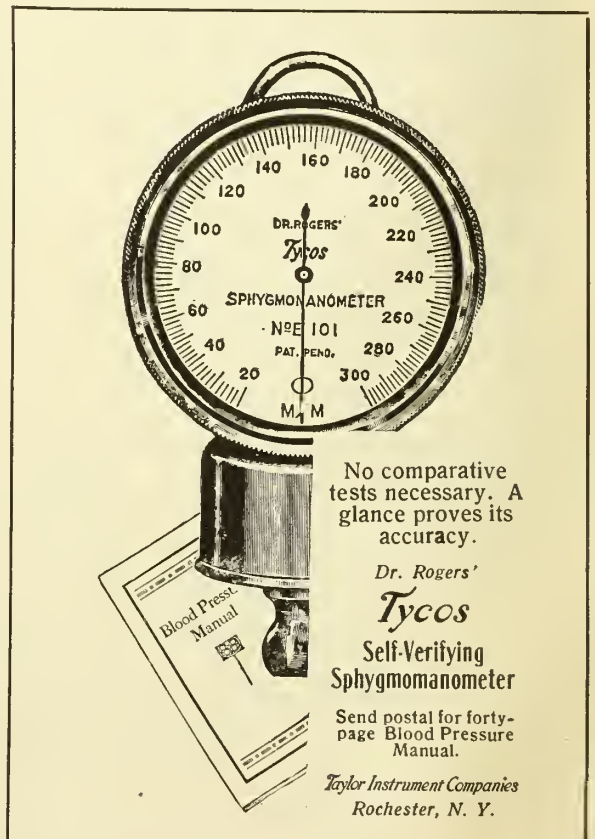
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# Minnesota Medicine

Journal of the Minnesota State Medical Association

Vol. I

JANUARY 1918

No. 1

## ORIGINAL ARTICLES

### THE ORTHOPEDIC TREATMENT OF DEFORMITIES RESULTING FROM INCURABLE PARALYSIS.\*

ARTHUR J. GILLETTE, M. D.,

SURGEON-IN-CHIEF OF THE MINNESOTA STATE HOSPITAL FOR INDIGENT CRIPPLED AND DEFORMED CHILDREN;

AND

CARL C. CHATTERTON, M. D.,

ASSOCIATE SURGEON-IN-CHIEF OF THE MINNESOTA STATE HOSPITAL FOR INDIGENT CRIPPLED AND DEFORMED CHILDREN.

*St. Paul, Minn.*

This subject ought to be of special interest in Minnesota as the state legislature appropriated money last winter for the investigation of the subject of anterior poliomyelitis, and the State Board of Health is holding clinics all over the state. These clinics have demonstrated the advisability of this paper.

There are so many forms of incurable paralysis which can be helped considerably by mechanical treatment, and which are not cases of anterior poliomyelitis, that it would seem it might be of some benefit to these cases and also of assistance to the general practitioner to spend a few moments enumerating some of these.

It is to be understood that there is no reference made whatever to the true anterior polio-

myelitis cases, but to the various other forms of deformities of the extremities due to other forms of paralysis.

In the first place, most of these cases are incurable; many of them gradually get worse until the patient finally dies directly or indirectly of these forms of progressive paralysis. It is well to call the attention of the general practitioner to this for the reason that they are very likely to be confused with anterior poliomyelitis, and the parents are often told by the family physician that the child will never die of the disease but will have a tendency, for a great many years, to gradually improve, though probably never completely recover. This is true of anterior poliomyelitis, but not true of all the diseases herein enumerated. Then, too, from a physician's standpoint, these patients, unless they are correctly diagnosed, are told by the physician that this disease will not result in death, but that they will show considerable improvement and may in time recover ability to get about with orthopedic treatment. Thus, orthopedic treatment is often advised, the physician thinking he is treating a case of anterior poliomyelitis, when, as a matter of fact, he is treating a form of paralysis, some of which is progressive in character, and the patient gets weaker and weaker. At the same time, if it is thoroughly understood by the patient that the doctor has recognized an incurable progressive disease and yet one which can be helped for many years by mechanical appliances, the patient's life is made a great deal happier for a number of years. Therefore, as stated, if mechanical appliances are used, and the patient or parents are informed of the exact facts, the remaining years, which may extend over years of

\*Read at the annual meeting of the Minnesota State Medical Association, St. Paul, Minn., Oct. 11 and 12, 1917.

time, are made much happier than they would be if the patient merely sat about waiting for the end to come.

Take for instance, progressive muscular atrophy. As the term implies, this is a progressive disease characterized by wasting of the muscles and loss of power, terminating finally in deformity and later, death. The cause is some defect in development. There are two general forms of progressive muscular atrophy. One in which the disease is primarily in the spinal cord, the myopathic form, in which the disease appears primarily in the nerve terminals and muscle fibers. The second form is usually referred to as muscular dystrophy to distinguish it from the spinal form. The myopathic form usually begins in the small muscles of the hand and spreads from the periphery to the trunk. The other form is usually classed with muscular atrophy, and the paralysis may begin in the muscles of the legs causing deformity. This latter type is many times checked in its progress for years and years by orthopedic treatment, which checks the rapid increase of deformity and keeps the lower limbs capable of supporting the weight of the body, thus allowing the patient to go about for years attending school, etc. However, as soon as the braces are removed the patient collapses and is unable to get about. The sad part of it is that they go on living for years perfectly helpless unless assisted by mechanical supports.

Pseudo-hypertrophic muscular paralysis belongs to the type of cases under discussion. It is usually a hypertrophy in the calf muscles, "tea kettle legs," being largely due to a deposit of fat in the wasting muscles. Sometimes this form of paralysis affects the muscles of the shoulders, sometimes the face, but the supposed etiology, pathology and clinical course of the trophic and pseudo-hypertrophic paralysis do not differ much.

At a glance, one can see how these cases might easily be diagnosed all the way from "rheumatism" to true anterior poliomyelitis, and in this way lead to a great deal of embarrassment and confusion in later years.

These cases of incurable paralysis can be greatly benefited for years, but never cured, by applying braces and supports. The limbs are

very weak but the patient is able to get about, and the extra amount of work placed upon the weakened muscles causes pain which a brace relieves. Sometimes the discomfort is in the back due to the extreme lordosis from muscle weakness, and this can very often be relieved by a brace. Often a form of club-foot, hyperextension of the knee or gradual flexion of the knee prevents a child from getting about, and by the use of tendon lengthening and a slight support they get about for years with comfort and pleasure.

There is another form of progressive paralysis designated as hereditary ataxia or Friedrich's disease. This is an ataxia which is hereditary and is caused by sclerosis of the posterior and lateral columns of the spinal cord. The first symptom usually noticed by the parents is incoordination and weakness of the legs. This gradually increases until the upper extremities are involved, and the speech is affected. There is frequently distortion of the feet, or a posterior or lateral curvature of the spine. These patients, too, with the assistance of braces applied to the feet, legs and back, are often temporarily benefited for a period of many years.

It is not surprising that some physicians mistake a case of cerebral paralysis of childhood (spastic paralysis) for anterior poliomyelitis. As you know, we usually have cases of infantile paralysis in our midst most of the time, and have had for years; the newspapers are filled with articles on the subject of anterior poliomyelitis, usually designated incorrectly as infantile paralysis; and now and then we meet doctors who do not differentiate between a spastic and a flaccid paralysis. The spastic paralysis is often first observed just about the age an anterior poliomyelitis, which is a flaccid paralysis, appears; and we frequently meet cases who have gone for years, the parents and the doctor thinking that the child had the so-called infantile paralysis, really anterior poliomyelitis, which is never spastic. One is of cerebral origin, usually affecting the mentality of the child, while anterior poliomyelitis does not affect the mentality in any way. Spastic paralysis may be hemiplegic; it may be limited to the lower extremities; it may involve both

upper and lower extremities; and in rare instances there is but one extremity affected, and so on.

One thing is characteristic of all these cases of cerebral palsy or spastic paralysis and will differentiate it in every instance, so far as we have ever seen, and that is, there is more or less spasm in the affected muscle, while in anterior poliomyelitis there is never any muscle spasm except possibly for a few weeks following the acute attack. Also in the latter the reflexes are nearly always lost, while in the former they are always present and exaggerated.

Many of these cases of paralysis must be caused during difficult labor. We have seen many in the past years, both in our office and in the Minnesota State Hospital for Indigent Crippled and Deformed Children, who give a positive history of having had a long labor, and many, many times, a necessary instrumental delivery. A sufficient percentage of these cases of spastic paralysis of cerebral origin give a positive and accurate history of prolonged labor or instrumental delivery to indicate that there should be more care taken in the use of the forceps. General practitioners, for some reason, always resent this. However, if you could be in our office or at the hospital clinic and hear from day to day, not only from the family physician but from the parents as well, that this was an instrumental delivery, the obstetrician could not but help being more careful in his application of instruments and apply them less frequently, or possibly more frequently but with greater caution, with the above in mind, than they now do. This is a subject that we seldom refer to in conversing with the doctors, as they resent it so bitterly, but usually in getting the history of these cases we have for years made inquiry, either of the parent or doctor, so that we hope they will recognize the clinical fact, that we believe in many, many instances it is a causative factor and an important one to bear in mind in child-birth. One must remember also, with this causative factor in mind, that there are cases of paralysis which are acquired after birth, very early in infancy. For instance, meningeal, thrombosis, embolism, syphilitic, cysts, sclerosis, chronic meningitis, hydrocephalus, and primary encephalitis. All of these

conditions produce changes in the nervous system which in many cases interfere with mentality and, more especially in early life, give rise to the symptoms of spastic paralysis. Inability to get about is usually the first symptom noticed in spastic paralysis. Hence the reason so many of these cases are wrongly diagnosed as anterior poliomyelitis.

These cases are constantly being brought to doctors and clinics, and if one is not very, very careful indeed, and on the lookout for these possibilities, they will be diagnosed and treated, or advised to be treated by massage, electricity, etc., which is not only useless, but in many instances very serious results have been known to occur from the injudicious use of electricity and massage in these spastic forms of paralysis.

The greatest importance in differentiating these cases from anterior poliomyelitis lies in the very, very important and practical part of treatment. Certainly all of these cases, even progressive muscular atrophy, can be improved a great deal by treatment and by orthopedic treatment. Of course, if a child is a hopeless idiot it is useless to attempt myotomies and neurectomies as an ambulatory idiot is much more difficult to take care of than one whom you at least know where he is. Many of these cases, in fact a large majority of them, are far from being idiots. They are simple and backward, and yet many of them grow up to be very bright and useful men and women; and if they are not hampered by the inability to walk, through the assistance of tenotomies, etc., many can be made to lead useful and happy lives. Certainly it requires a great deal of patience and work to get them to walking, and seldom, if ever, is a physician ever thanked or appreciated for the time and patience he has taken with not only the parents, but the child as well, to bring about results. These children usually do better, after they are able to get about, if they are sent to a school for backward children. We have some rather indifferent teaching along this line in our public schools, but not enough attention is paid to it. We do not believe our state institutions for backward children are doing as much along this line as they could do if they had larger appropriations. We also believe the physicians in charge of these institutions should

take more interest in overcoming the deformities as much as possible in these spastic cases. We have an excellent private school for these children in this state. However, no one is particularly interested in backward children except the parents. Thank God there are not enough to attract special attention. When you have succeeded in convincing the parents of such children that the child needs special muscle training, special treatment and special school training, you have accomplished the most difficult part in helping these children get through life, able to get about and play; and you have assisted the teachers, who will later have them for training, in overcoming the prejudice of the parents toward them because they have informed them that their child is not bright. We know we are now getting into the field of the neurologist who knows more about this particular side of the care and training of these cases than any orthopedic surgeon or general practitioner possibly could. However, we really do not believe that the neurologist, as a rule, has an opportunity to treat and advise these children and parents of such children as much as they should. It is the same story; the parents resent it the very moment you tell them there is something wrong with the child's brain. Time and time again have we advised that before suggesting any orthopedic treatment for these children, the parents should take them to some brain specialist so that we could ascertain how much could be expected of the child in a mental way, and ascertain if the child was really bright enough to walk, in case we should get him on his feet. The result in many cases has been that they have left us in disgust and absolutely refused to go and see a brain specialist, stating that they knew without asking his opinion that their child was bright. The family physician, too, is at fault here. For many reasons he either does not know that the child is undeveloped mentally, or he does not "hanker for the job" of telling the parents so. We have known instances right here in St. Paul, where the parents have absolutely refused to have anything further to do with their doctor who frankly told them the truth. When we refer cases to a neurologist we not only ask him to help us classify the case but we inform him, and very truly, too, that we wish him to make

an exact diagnosis, and also give us some idea as to whether or not mechanical apparatus would have a tendency to irritate the child's already nervous condition.

We have not referred to the simpler forms of idiocy which interfere with walking, as this article is largely along the line of cases which are likely to be confused with anterior poliomyelitis, and some of which can be greatly benefited by orthopedic treatment.

In treating these cases of spastic paralysis, braces should never be used to overcome deformity, as it is simply a battle between the brace and the strength and spasm of the muscles. When there is an attempt made to overcome the deformity all contracted tissues should be divided, for any irritation, or anything that will increase spasm of the affected muscle, creates a battle between the brace and muscle and we have never known an instance where the muscle did not win.

Pseudo-rachitic paralysis is so frequently confused with anterior poliomyelitis that we cannot let it pass without referring to it, especially in these days of artificially fed children. In these cases it is a flaccid condition because of the extreme rachitic state, and they are frequently referred to us as being cases of anterior poliomyelitis, when they are simply cases of improper feeding. The one symptom ever present in pseudo-rachitic paralysis is that the reflexes are practically normal and the child can with effort move his extremities.

Scorbutic children, the condition occurring as it does in infancy, have been supposed to be cases of anterior poliomyelitis, especially as they resemble the early and painful stage of anterior poliomyelitis. Of course, the reflex, lack of atrophy, and spongy gums will differentiate this condition.

Volkman's ischemic paralysis is another form of paralysis to which we wish to refer today. It may seem strange, but such cases have been referred to us for infantile paralysis cases or spastic paralysis, some physicians going so far as to say that this case of spastic or infantile paralysis occurred while the patient was wearing the cast. A moment's thought, however, will differentiate these cases, as the paralysis is so local. However, they hold the hand and arm in typical position of a spastic paralysis,



but the knowledge that sudden injury does produce these typical deformities is sufficient to check one from falling into this error.

Erb's paralysis could also be mentioned in passing. This is a birth palsy but frequently is not discovered until a child is older, when it is noticed that he does not use his arm. This is another condition which is frequently found after difficult labor or the use of instruments.

We are anxious to refer to an incurable deformity here as it seems to be the proper place, and that is the so-called Charcot's joint. Charcot's disease, or a Charcot's joint, is a destructive arthritis which is nearly always secondary to locomotor ataxia. The cartilage degenerates, together with the bone, and is altered in its shape by the movements of the limbs. It is an exaggerated and irregular formation of cartilage about the periphery. All of the tissues entering into the joint are hypertrophied, and many times, please do not forget this, the deformed joint is often treated for months and even years, the symptoms of locomotor ataxia being so slight that they have been entirely overlooked. Some believe, and rightly too, that a Charcot's joint can develop even before the symptoms of locomotor ataxia are definite. In many cases, one we know of especially, the patients have suffered amputations and other excisions before the real spinal cord lesion was discovered.

Joint diseases may be secondary to other forms of diseases of the nervous system. Referring to locomotor ataxia reminds us that we have had one case of Charcot's joint which occurred in a case of paralysis of the spinal cord from tuberculosis of the vertebrae. We know this is true as a post mortem was made. Fortunately, from a clinical standpoint, there is one marked and ever present symptom, and it is the only symptom we call to mind now, which will differentiate a Charcot's joint from any other joint disease, and this is that instead of the joint being fixed, as it is in all other forms of joint disease, a Charcot's joint is extremely loose and lax. This brings us to the point of treatment of Charcot's joints. Excision is out of the question as the bones will not unite. Amputation is useless as the inability to locomote is due to the disease in the spinal cord affecting the entire extremity, and a patient

with locomotor ataxia cannot get about on crutches as well as on a stiff limb. We have a number of cases, in the neighborhood of ten, who are wearing braces on their legs to steady the ankles or knees and are able to earn their own living, and can walk and get about and have for a number of years. One man has been under our care in the neighborhood of sixteen years. He is wearing a brace which holds the knee perfectly stiff. The knee dislocates when the brace is off although he has no pain. The man is a ticket agent in a country railroad station and does his work satisfactorily to the railroad and is able to support himself and his children, of whom there are many.

We are anxious to get on record of having it known that we do advise braces in Charcot's joints, especially as we frequently receive letters from doctors who have examined these cases of ours, stating that we probably did not recognize that we had applied a brace to a Charcot's joint. We always feel like labeling these patients in some way so that the doctors may know that we know we have applied a brace to the Charcot's joint. We are inclined to do this just for the protection of our reputation.

The sub-division of the various deformities according to the etiology and pathology we are sure is far from correct in this article, as an orthopedic surgeon is not expected to make such divisions as accurately as a neurologist would be able to make them. However, we find that in looking this subject up, surely the neurologists must be very much confused as their books and articles differ so in regard to the division and sub-division. All we have attempted to do is to regard them clinically and suggest the orthopedic treatment for the same.

Finally, there are two reasons why this article is presented to this society. First, to bring to the minds of the general practitioners that there are many forms of children's diseases causing inability to walk which are not in any way connected with, and ought not in any way to be confused with, anterior poliomyelitis. Second, in these incurable cases, life and happiness can be prolonged in many instances, and in many cases useful men and women develop who otherwise would be hopeless, dependent cripples.

## DISCUSSION.

DR. WALTER R. RAMSEY, St. Paul: Mr. President: I wanted just to say a word, particularly about this wonderful clinic that is going about the state in the interest of these crippled children. I did not hear all of Dr. Gillette's paper. He probably told you about how it happened that the state legislature gave \$25,000 a year for this work of preventing and studying, and also doing something for these crippled and deformed children.

I was very much afraid when I did what I could to get that passed, that it might be like a lot of other funds that might be used to little purpose, and so I was very much interested in going to the clinic when it came here, and I must say that I never was so much impressed in my whole life as I was at that demonstration at that clinic.

In the first place, it was interesting to me to see how an intelligent trained nurse could become so wonderfully efficient in the work of testing out the muscles of these children. I went up there very frequently. There were a great number of children who came, and many came accompanied by their doctors, and it was interesting to watch the faces of those doctors when the nurses, with Dr. Greene in control of the clinic, went about it in the A, B, C method, rapidly testing out those groups of muscles and dictating the muscle tone, to determine whether it was normal or abnormal, and all the things that were involved in it, to a clerk. It was done systematically, and it was perfectly surprising to me in how many of these cases it was demonstrated definitely what groups of muscles were involved or what muscle; and the definite prompt instructions, with a little demonstration, that were given to the parents, to do something for those children.

Also it was a wonderful education to the doctor usually. Ordinarily, he knew the child had some paralysis but what muscle or group of muscles were paralyzed, he had not thought much about. And he generally also thought that there was not much to be done about it.

I remember several cases, and one in particular, for instance, where the deltoid muscle had been somewhat involved, and simply owing to the disuse, that hand hung just like a flail, and the muscle had almost entirely atrophied. Mrs. Greene, who, by the way, was wonderfully efficient and had trained some others who were soon equally efficient, in a very few minutes demonstrated that there was a certain amount of function in that muscle, and that the tremendous atrophy had been simply due to disuse. In a very few weeks, by the simplest instructions to those parents—a little given exercise, to be increased every day and week—the result was a very good functioning muscle.

I happened to know of a number of patients whom I had seen in Northern Minnesota for the last ten years. I had just seen them to make a diagnosis

then, and had not seen them since, but I took it upon myself to write to those people, and tell them to be sure to go to Duluth or any other place, so that they would surely get to that clinic; it made no difference whether they were rich or poor, they ought to go, and I really think it was the most wonderful thing that could have been done.

DR. W. P. GREENE, Minneapolis: Clinics were held in sixteen places in the state. There were examined, stripped, 1,051 children and adults. Out of that number 462 of the cases were before the year 1916. Four hundred and seventy cases were in 1916. In 1916 we had 912 cases of poliomyelitis in the entire state; but there were a large number of mild cases reported, with many recoveries. One hundred and ten of those examined in 1917 were found not to be poliomyelitis. Forty-two had a spastic form of paralysis. Seventeen gave a history of meningitis. Seventeen were cases of birth palsy. There were 2 cases of muscular atrophy, 1 of congenital hip, 1 of tuberculosis of the hip, and several of osteomyelitis. In 12 cases we were unable to make any diagnosis.

Diagnoses were made from the history of the case, given by the mother, by the doctor, and from a complete examination of the case, including testing the muscle reflexes.

A good many cases were not stripped because we found that there was a spastic condition present, or because we were positively sure it was not infantile paralysis. Probably in all, there were 10 per cent of them that were not poliomyelitis.

There were very few, even in the old cases, that the examiners thought could not be benefited by some sort of exercise. One hundred and fifty-four cases were either hopeless or had entirely recovered. One hundred and forty-eight were referred to their physician who was to operate them or refer them to an orthopedic surgeon for operation.

We did nothing along the line of braces. Sometimes the examiners would suggest to the family physician that they might need a splint.

I think this coincides with Dr. Gillette's opinion that a good many of the cases are not poliomyelitis, and it would be much better to use the term anterior poliomyelitis instead of infantile paralysis. The mother or the father thinks that if it is an infantile paralysis clinic, that all of these other cases must be that. Of course we could do nothing for them. Generally we referred them to an orthopedic surgeon or a neurologist.

DR. E. J. HUENEKENS, Minneapolis: I have enjoyed this very instructive paper very much. After such a paper there is very little that can be said.

There is one thing I am sorry the writer did not say much more about, which is very interesting to us, and that is the obstetrical paralysis that does occur rather too often, and unfortunately is a very embarrassing thing to the physician and the pediatrician.

There are two forms of it. The paralysis of the seventh nerve of the face is one; this gets well of itself.

Another distressing and much more common form of paralysis during delivery is paralysis of the arm. This last form of paralysis is divided into the upper arm and the lower arm type. We can all recognize that deformity by the peculiar curve of the hand, just like a policeman holding out his hand for a tip. Unfortunately, it gives us much trouble to treat this condition. There are at present two forms of treatment; one is immediate operation; and the other is to let the condition wait until nature has done all that she can to correct it, and then to try to help it by nerve anastomosis, muscle cutting, and muscle transplantation.

Another form of so-called paralysis which I do not think was mentioned, is the so-called pseudo-paralysis of Lewis. We often see those cases. They are often sent to us as cerebral palsy. An infant during the first few months of life holds its hand and leg in this way (illustrating). It is sometimes taken for infantile paralysis. Sometimes and oftener it is diagnosed by the general practitioner as cerebral palsy. It is very important to recognize this, because if properly treated they will get well, and get well very promptly. If improperly treated, the process goes on and causes considerable destruction. I have seen complete destruction of the lower end of the radius and ulna, and dislocation of the wrist.

Another form which I do not think the doctor went into in detail is the so-called myotonia congenita. That is the form the neurologists tell us about where a child is born with a relaxed muscle. I will not go into the pathology of the condition, but will only mention that this is a field where the orthopedist can help a great deal.

DR. C. E. RIGGS, St. Paul: It is well to remember that spasticity does not necessarily eliminate infantile paralysis. While the force of the virus is usually spent upon the cells of the anterior horn of the cord, the infection in rare cases involves the whole cord, and in occasional instances there will be a spasticity present. This is such a practical paper that I hope we will not allow it to pass without more being said upon it.

DR. W. E. RICHARDSON, Slayton: The essayist advocates that braces should not be put on in spastic cases. I would like to ask if there is any harm in putting on the old-time Buck's extension? Also, in

cases where paralyzes have occurred from the use of instruments on children's heads, how long after the instruments have been applied can you blame the instruments for the paralysis? In some cases the paralysis does not come on until eight or ten years afterward. Can you then go back and blame that on the instrumental delivery?

DR. GILLETTE: No, sir.

Q. Will you tell us a little more about the muscular atrophy? Is it hereditary, in your experience? Do you know where entire families have had it?

DR. GILLETTE: Yes, sir.

DR. A. J. GILLETTE (closing the discussion): I want to get in a word in regard to Charcot's joint. I am anxious to get on record on that, because I have had some doctors drop me a line telling me that a case of mine had come into their practice and that I was about to put a brace on a Charcot's joint. I simply state that I have put it on in ten different cases anyway, knowing full well what I was doing. You cannot amputate these. The paralysis exists just the same farther up in the body where they are not able to lose the limbs. And the incisions will not unite. You can put on braces and hold the joint perfectly stiff, as this joint always is lax and loose and easily dislocates, and they will get about for many years with that stiff joint in a brace, which they would not do if they did not have this.

I wanted to call special attention to that fact, that I was putting braces on Charcot's joints.

Then in regard to Buck's extension; do you mean in spastic paralysis, doctor, or in infantile paralysis?

DR. RICHARDSON: No; spastic.

DR. GILLETTE: If the case is so mild that you can cure it by weight and pulley extension, you can easily put on plaster of Paris, and my experience is that it is better to have the muscles divided; and that you will have difficulty with a cast and with the weight and pulley, and that a division of the tendons is better, because with a pulley off, the spasms again begin, and even with it on, unless you have a very little weight.

Of course, the cases of obstetrical paralysis—is that what you asked about?

DR. RICHARDSON: Yes.

DR. GILLETTE: They appear right at the time of birth, or right after, but frequently it is not observed until the child is five or six, or sometimes twelve months old; but there is no occasion for it to be confused with the other form.

## HARELIP AND CLEFT PALATE.\*

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Harelip and cleft palate are congenital malformations due to the failure of union of the parts that form the lip and the palate. The palate is formed from the globular and the maxillary processes of the mandibular arch; the lip is formed from the globular, the lateral nasal, and the maxillary processes. While several theories have been advanced for the lack of fusion of these parts no definite cause seems to be known.

Heredity may have some bearing on the condition since in a small percentage of cases a hereditary tendency to deformities is noted in families. Sometimes a parent and child are deformed and, again, different children in the same family may have harelip and cleft palate. In 14 per cent of the cases of harelip and cleft palate seen in the Mayo Clinic there is a family history of the occurrence of the condition. In 4 per cent a brother or sister has a harelip or cleft palate and in 10 per cent the parents or ancestors have been so deformed. In one family three children had harelip and cleft palate.

Many types of both harelip and cleft palate are seen. The lip may be fissured on one or both sides, and there are all grades of deformity. In a slight deformity the musculature of the lip may be thinned out, a groove being formed from the nostril to the vermilion border with a slight notch in the lip, or there may be a complete unilateral harelip with flattening on one side of the nostril and separation of the alveolar process. The double complete harelip presents a marked deformity in which the nostrils are flattened. The filtrum and the premaxilla extend forward and are attached to the tip of the nose. The palate also may vary in the type and in the extent of the cleft. The alveolar process may be notched or the cleft may extend completely through the hard and soft palates; the uvula may be bifid or the soft palate may be cleft. The parts of the palate

may be widely separated as seen in a double cleft palate.

The age at which the child with a harelip and cleft palate should be operated on and the operation which should be done first, are much debated questions among the various men performing these operations. Moreover there are many types of operations for these deformities. I will not attempt, at this time, to discuss the advantages and disadvantages of different methods, but I will describe the procedure which, with slight minor modifications from time to time, has been employed for many years at the Mayo Clinic.

We prefer to close the lip first when the child is between three and four months old, if he is gaining weight and doing well. Children are operated on earlier than this, but results are not so satisfactory. From three or four days to a week before the operation the child should be fed with a spoon or dropper to accustom it to this method of feeding, since of course, after the operation, it is not allowed to nurse from the bottle or the breast. When there is a cleft of the alveolar process, as in the complete single harelip, the lip is brought together over it, but no attempt is made to approximate the alveolar process. The same procedure is used in the treatment of the premaxilla. In a case of double harelip the lip is brought together over the premaxilla and its normal rounded appearance is maintained. If the alveolar process is forced back in the single harelip or if the premaxilla is removed in the double harelip or a wedge-shaped piece is taken out of the vomer and the premaxilla forced back, the lip will be flattened and it will be almost impossible to correct the deformity. When united, the lip gradually presses back the alveolar process or premaxilla into its normal position, giving the normal rounded contour to the face and the correct alinement to the teeth.

A satisfactory cosmetic result is obtained only when the nostril has been shaped to correspond to the normal side. To do this the nostril should be made a little smaller than seems best at the time of the operation, since the cartilage tends to spread a little within a few days. It is also essential that a line drawn underneath the alae of both nostrils shall be at right angles to the mid-line of the face. The ver-

\*Read before the Southern Minnesota Medical Association, Fairbault, Minnesota, July 24, 1917.

milion border must present a continuous line without a notch and there must be as little scarring as possible on the outside of the lip. To prevent the scarring it is best to avoid tension sutures which pass through the skin on the outside of the lip. The lip and cheek on both sides should be well freed from the underlying bone so they will fall together readily without tension.

The time for closing the palate is when the child is from a year to a year and a half old,

before it has begun to talk. Many operations are performed much later, however, with quite good functional results. Adults from 20 to 30 years of age have had their palates closed, and the functional results have been very good. If the lip has been approximated at the proper age the alveolar process will have become approximated; the cleft of the rest of the palate will thus be narrowed and made easier to close.

The edge-to-edge approximation or the Langenbeck operation is the operation of choice for

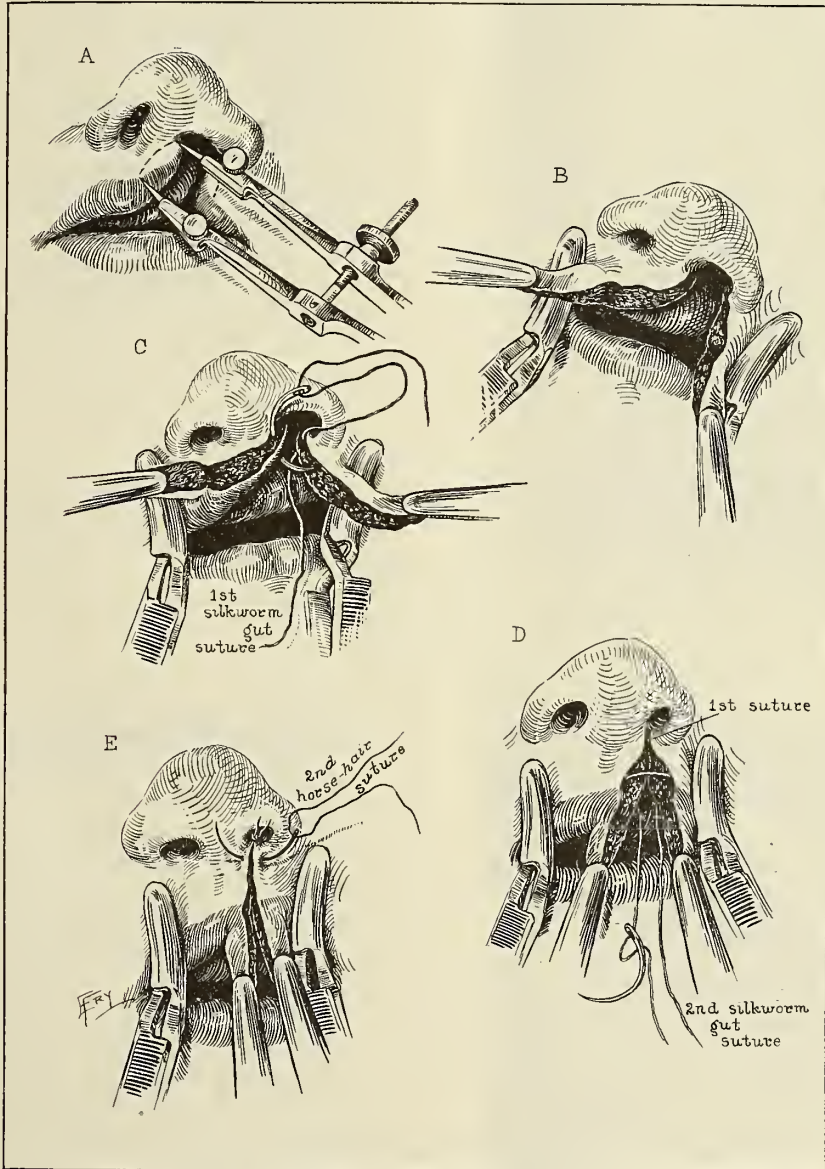


Fig. 1. A. The calipers determining the length of lip on either side and the points on the vermillion border to be approximated. B. The muco-cutaneous margins have been pared and the lip freed from the bone. Small clamps on either side of the lip to control bleeding. C. First silk worm gut suture inserted from the inside. It does not pass through the skin. D. First silk worm suture tied approximating the nostril. The second silk worm suture in place. E. Horsehair sutures approximating skin.

the closure of cleft palate. With this method as much of the palate is approximated as may be accomplished without tension at one operation, the remainder being closed later either by an edge-to-edge method or by turning a flap. Failures are frequently due to the attempt to close too much of the palate at one time; in such cases tearing out of the stitches results. When the palate begins to pull out with tension, the tear may often extend into the part of the palate that would otherwise have held together. It is sometimes possible to close a soft palate with the edge-to-edge approximation method, but the hard palate may require a flap operation. We do

not like to use the flap method primarily except in certain wide clefts, usually double clefts that cannot be closed satisfactorily in any other way.

It would seem that the most important factor necessary to success in operations on cleft palate is a thorough knowledge of the blood supply. In making the lateral incisions it is essential that they be made as close as possible to the teeth or to the alveolar process, so that the main branches of the great palatine artery may not be injured. These are not the long lateral incisions to which the term is usually applied but are just long enough to admit the palate elevator for elevating the palate. It is also necessary to thoroughly free the mucoperiosteal flaps. In doing this the posterior margin of the hard palate must be freed from the soft palate so that the two portions of the palate may be approximated without tension.

In closing a cleft of the soft palate the same principles hold good as are used in closing the complete cleft palate. Also in these cases the posterior margin of the hard palate should be freed from the soft palate.

#### Technic of Harelip Operation.

The child is anesthetized with ether by the drop method, and is kept asleep with chloroform administered on a gauze sponge. Older children are given ether vapor through a cannula at the side of the mouth.

In operating on the single harelip a point is selected on the median portion of the lip at the vermilion border where the lip should join the opposite portion. The location of this point depends on the type of the lip as regards its thickness and the amount of tissue present, and on the experience of the operator. A small nick is made with a knife in the skin at this point. Calipers are then used to measure the distance from here to just inside the ala of the nose on the same side. This distance fixed, one point of the caliper is placed just inside the ala of the nose on the outer side and the other point at the vermilion border. In this way the points of the vermilion border which are to be approximated are definitely fixed and the two margins to be approximated are made the same length. Thompson, I believe, was the first to suggest the use of the calipers for the purpose of meas-

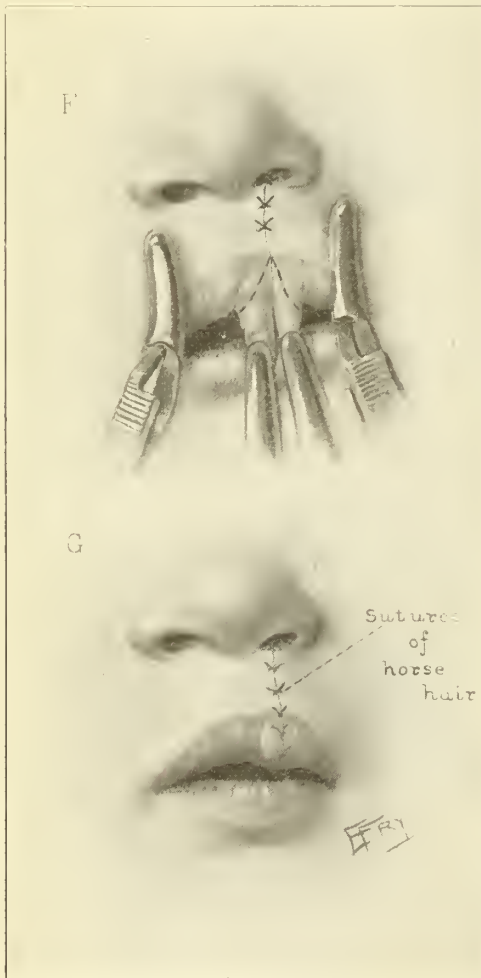


Fig. 2. F. The lower lines show approximately where the parings are cut. G. Lip completed with horsehair sutures. Note the fullness of the lip along the suture line and the slight pouting of the vermilion margin.

uring definitely the free margins to be approximated. A curved incision is made through the skin on either side, the mucocutaneous border being pared from immediately within the nostril down to the fixed points on the vermilion margin. The parings are left long, and their

ends are fixed with small stomach clickers. The use of traction and pressure, applied on either portion of the lip along with small clamps applied about an inch back from the freshened margin, is the best method of controlling bleeding. It is essential that the lip



Fig. 3 (192255). Harelip incomplete before operation.

Fig. 3A (192255). Same as Fig 3. After operation.

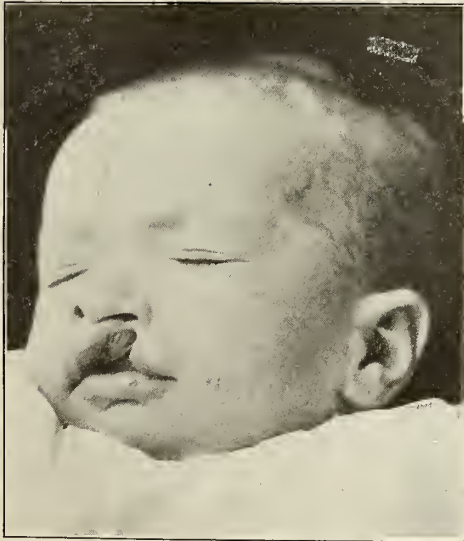


Fig 4 (177516). Hairlip. Note marked flattening and deformity of nostril.

Fig. 4A (177516). Same as Fig. 4. After operation.



Fig 5 (181430). Front view. Note unsightly notch and flattening of nostril.



Fig. 5B (181430). Same as Fig. 5 Front view. After operation.



Fig. 5A (181430). Same as Fig. 5. Side view.



Fig. 5C (181430). Same as Fig. 5. Side view. After operation.



portions on either side should be well freed from the bone so that the two portions fall together quite readily, but it is not advisable to cut into the septum to do this.

Tension sutures of silkworm are used. The first suture is placed just inside the nostril, being passed in through the mucous membrane and brought out beneath the skin or the outer portion of the lip just inside the ala of the nose. It is then put in again just beneath the skin and passed out through the mucous membrane on the central portion of the lip close to the septum. When this suture is tied the flattened nostril is rounded up into shape. Two silkworm sutures are used to approximate the lip and these are tied on the inside of the lip. As they do not pass through the skin there is no scarring from the tension sutures. Horsehair

sutures are used to approximate the skin. After the upper two-thirds of the lip is approximated the surplus of the pared edge is trimmed off and the lip closed with horsehair. In order to avoid an unsightly notch, it is necessary to leave a little excess of tissue at the lower part of the vermilion border so that the lip pouts a little. This is best accomplished by leaving the parings long until most of the lip is closed, when one is better able to judge how much should be excised. (Figs. 1, 2, 3, 3A, 4, 4A, 5, 5A, 5B, and 5C).

**Technic of Cleft Palate Operation.**

After the child is anesthetized the head is brought over the end of the table and allowed to rest in the lap of the operator, who sits on a stool at the end of the table. A Whitehead

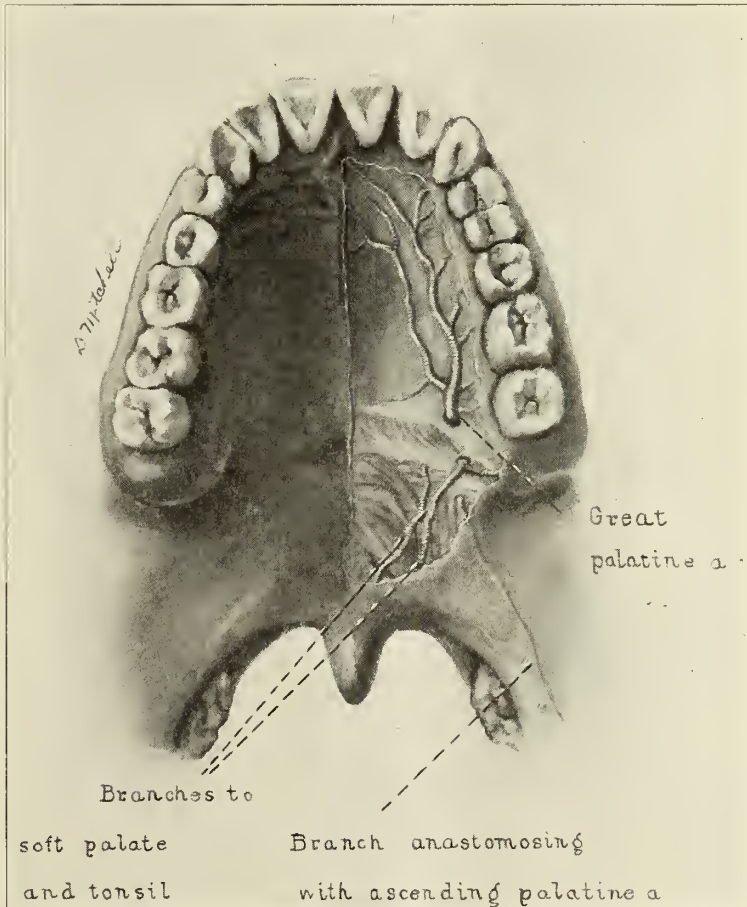


Fig.6. Blood supply of the palate. Note the relation of the great palatine artery to the alveolar process, also the branches to the soft palate.

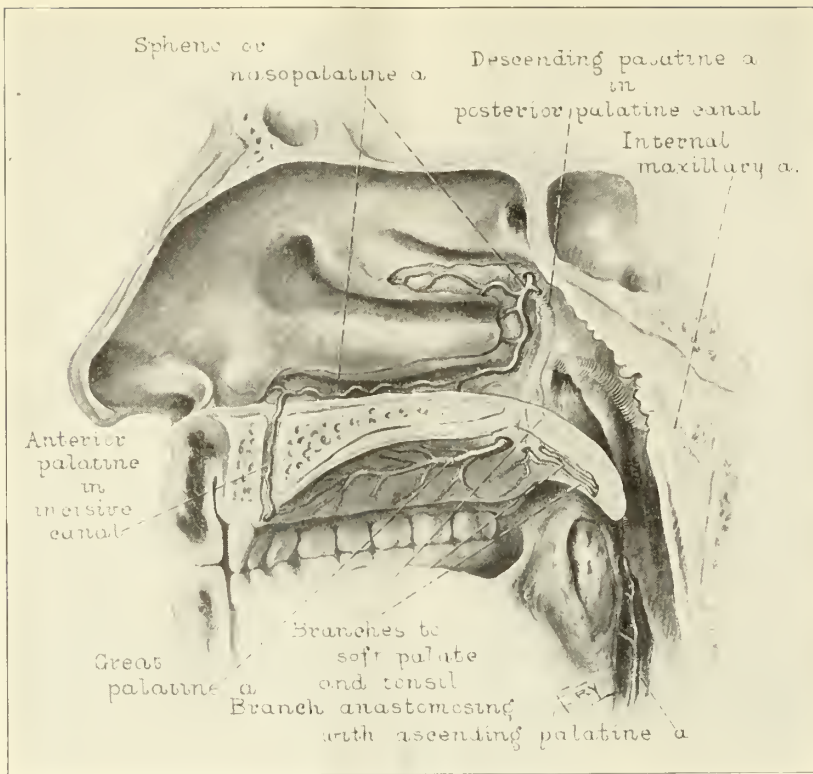


Fig. 7. Blood supply of the palate. Note the position of the great palatine artery and its anastomosis

mouth gag is used and with a tongue depressor the tongue is lifted giving a good exposure of the palate.

In closing a single cleft palate an incision is made on either side close to the alveolar process or teeth, and carried down to the bone. It is just long enough to admit a thin, blunt periosteal elevator. By keeping the incision close to the alveolar process or teeth the posterior palatine artery is avoided. Injury to this artery may interfere with the blood supply of the flap.

With a periosteal elevator the mucoperiosteum is elevated over the entire hard palate down to the cleft. With a scissors the soft palate is liberated from its attachment to the posterior margin of the hard palate, and the entire mucoperiosteum of the palate margin is freed as much as possible. The soft palate is attached to the hard palate margin by the palatine aponeurosis and there is no danger of cutting any important vessels at this point. The freeing of the posterior margin of the hard palate from the soft palate is very important either

in closing a cleft of the soft palate or in a complete cleft palate, since it is advisable to sever this aponeurosis in order to approximate the margins of the palate. The mesial margins of both sides of the palate are freshened by fixing the uvula with a stomach clicker and trimming the mucous membrane from the free margin with a scissors or knife. The procedure is begun posteriorly and extended forward.

Silk sutures are used, the first one, a mattress suture, being placed at the juncture of the hard and the soft palates. From this point the rest of the soft palate and uvula are closed by interrupted sutures along the oral and nasal mucous membrane. By leaving the ends of the sutures long and fixing them with forceps as they are put in, the uvula is brought up into the mouth and the insertion of the sutures is made easier.

The completion of the closure of the hard palate is accomplished by mattress sutures, usually two, and occasionally an interrupted suture. It is best not to use too many sutures in approximating the margins of the palate; if the

tissues have been thoroughly freed they usually come together of themselves.

If it is necessary to employ the flap method to close part of the palate the technic employed by Lane, or that of turning a flap and suturing it under the opposite side of the palate with mattress sutures is used. (Figs. 6, 7 and 8).

#### Post-operative Care.

Following the operation for harelip a strip of adhesive plaster is placed across the cheeks

over the nostril and another one across the cheeks over the chin in order to relieve the tension on the sutures in the lip. Horsehair stitches in the lip are removed in about four days and silkworm stitches in about a week. In cases of cleft palate the patients are not allowed to have anything but fluids which are given with a spoon or dropper. The sutures usually slough out but if some remain at the end of ten days or two weeks and the child is leaving for home, they are removed.

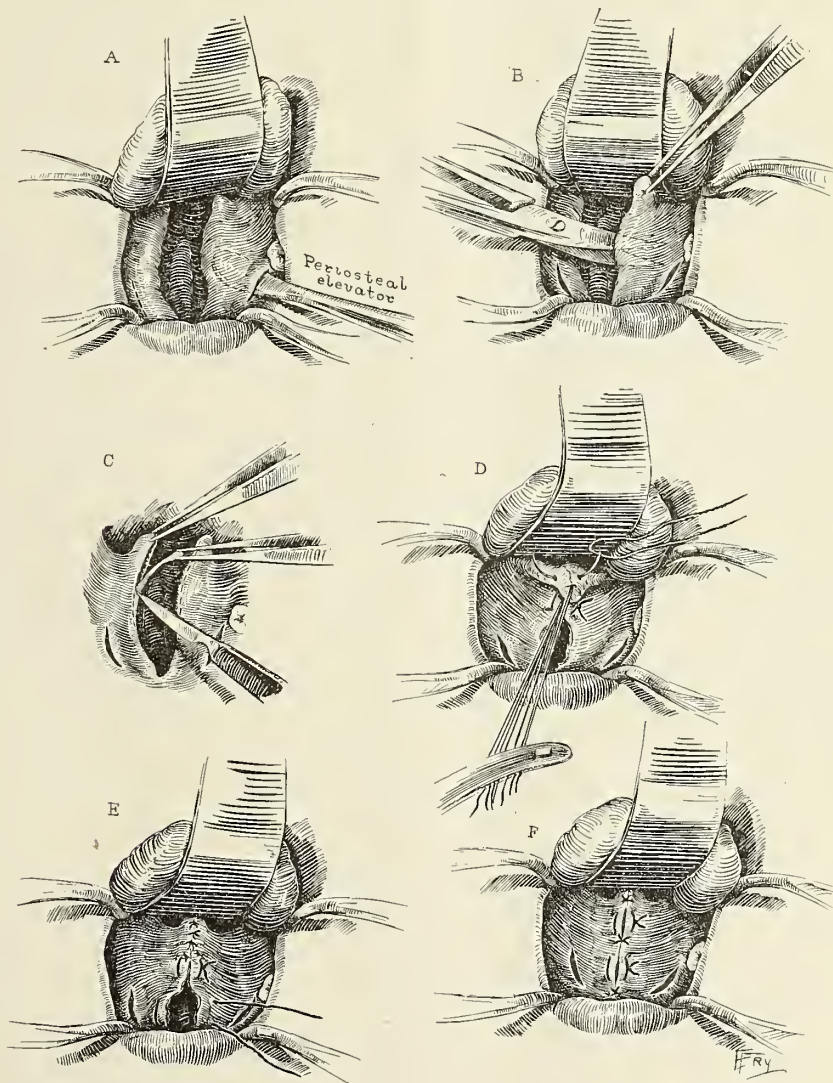


Fig. 8. A. Periosteal elevator freeing muco-periosteum from hard palate through incision in alveolar process. B. Scissors separating posterior margin of the hard palate from the soft palate. C. Paring the mesial margins of the palate. D. Soft palate and uvula approximated. Sutures left long and fixed with a forcep. Suture in place on the nasal surface of the uvula. E. Soft palate completed. F. The palate completed. Mattress sutures and occasional interrupted sutures.

## DISCUSSION.

DR. R. E. FARR, Minneapolis: Dr. New has given us as comprehensive a resumé of this subject as is possible considering the time consumed. He has called attention to many of the essential principles which must be adhered to in order to obtain results which are at all satisfactory.

I do not believe there is as large a percentage of failures in any other field of surgical endeavor as there is in the treatment of these cases. In my experience it is the rarest thing to see a satisfactory result. The closure of the lip is a simple plastic operation. Secondary operations upon the palate present such a diversified array of conditions that it is difficult to lay down rules to fit them all, but in general they should be treated on the principles laid down by Dr. New.

I shall limit my discussion to the child born with a complete cleft between the alveolar processes. With regard to the method of handling these cases I must disagree somewhat radically. In the tripartite type, you remember, the nose remains in the center line and the premaxilla protrudes. I agree with Dr. New that the removal of the premaxilla is nothing less than a calamity. I also agree that it should not be forced backward between the alveolar processes with the inevitably resulting fish mouth. I do believe, however, that it is desirable in these cases to establish a bony union between the premaxilla and the two alveolar processes after the latter have been approximated to a proper degree. A nearly normal bony roof may thus be formed. The simple closure of the lip—while it does narrow the arch somewhat—never gives a bony union between the parts, and leaves a much more difficult operation when the palate is closed. An examination of the bipartite cases will show that the midline of the face divides the ala of the nose at about the mid-point, whereas it should divide the nose in the center. In every case of this type that I have examined, where the lip was closed in infancy, the nose shows this deformity to some degree. The alveolar arch does not unite in front and I believe does not develop as well when there is no bony union between the alveolar processes. On the other hand, early reposition of these processes with the establishment of bony union between them allows one immediately to close the hard palate, brings the nose at once to the mid-line of the face, makes the lip operation more simple and easy, and, what is most important in view of the failures that occur, overcomes the almost unsurmountable obstacles to later closure of the palate. In cases that are handled this way there is always more soft tissue than is necessary and lateral incisions need never be made.

The plan I advocate, therefore, is as follows: The immediate reposition of the displaced parts, which may be bent with the thumbs during the first few days or weeks of the child's life; closure of the lip from six to ten weeks later, and a closure of the pa-

late as Dr. New states, between the ages of twelve and eighteen months, preferably just before the child begins to talk.

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 SOME POPULAR FALLACIES REGARDING PEDIATRICS.
 

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WALTER REEVE RAMSEY, M. D.,  
*Assoc. Prof. of Pediatrics, University of Minnesota.*

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To say that the child is the most important element in the future of the state is axiomatic. There never was a time when this fact was so apparent as now, and yet there is no department in the whole field of medicine which is so neglected by the medical profession generally as that of pediatrics.

Up to a few years ago there was little exact knowledge concerning the fundamental principles underlying the field of pediatrics, but today the care and feeding of infants and children rests upon as solid a scientific foundation as does general surgery.

There is perhaps no department of medicine where tradition still plays so prominent a part as in the care of children. The fatalistic and to a great extent false doctrine of "the survival of the fittest" has been slow to be discarded and rational science applied in its place. It is an every-day occurrence to hear statements made by prominent physicians relative to pediatric subjects, which in the field of surgery would be comparable to a return to the carbolic spray of Lister.

The common error in believing that new-born infants must be bathed as soon after birth as possible is responsible for many deaths. This is especially so in those who have been subjected to a long labor, to considerable exposure in the process of artificial respiration or for some other reason. Young infants lose body heat rapidly when exposed to cold, resulting in subnormal temperature, a marked lowering of vitality and frequently in pneumonia. Such new-born infants should be rubbed with warm oil, wrapped in warm blankets and allowed to remain from twelve to twenty-four hours in a uniform temperature of from 75° to 80° F.

without bathing. The diffuse intense redness of the skin so frequently seen after the second or third day usually results from too much friction in the effort to remove the vernix caseosa, and the use of improperly neutralized soap.

Another popular fallacy is that the mouth of the infant beginning with birth should be daily swabbed, the common technique of the nurse being to stretch a piece of gauze over the index finger and with more or less force wipe the inside of the mouth as thoroughly as possible. This is perhaps the most common cause of stomatitis. The gauze removes portions of the delicate epithelium and wherever removed a white patch of exudate results. The mouths of infants do not need swabbing, unless they are already diseased, until the teeth come through, after which the teeth should be brushed daily.

The practice of putting the baby to the breast every two or three hours during the first days is also erroneous and responsible for many failures in nursing. The colostrum is laxative in character and usually, although not always, scant in quantity. In cases which are fed frequently during the first days a diarrhoea with curdy green stools often results. A dyspepsia which occurs at the onset, often results in a marked intolerance to food which is difficult to overcome and frequently leads to weaning.

The common practice of ordering a dose of castor oil for the baby on the third day cannot be too strongly condemned. Its effects are more or less irritating, it sweeps the intestinal canal clean so that no natural movement can logically be expected for several days, since the secretion of milk has hardly been established at that time. Owing to a lack of knowledge on the part of all concerned the first dose of oil usually leads to a second and third to be followed by enemas and suppositories when the bowels fail to move on the succeeding days. Finally serious intestinal irritation is set up with green, frequent, curdy stools. After a short time the milk is adjudged "bad" by the physician and the baby is weaned. Injections, including enemas and suppositories should almost never be given young infants. Breast-fed babies may go several days without a movement without any disadvantage and if allowed to do so will rarely suffer from constipation. The stools in breast-fed infants are rarely even

semiformed so that a sufficient effort will be made to produce an evacuation when enough fecal matter has accumulated in the rectum to produce sufficient stimulus.

The prevalent idea among physicians that many mothers cannot nurse their babies is false. At least 90 per cent of mothers can nurse their babies in whole or in part for the whole or a part of the first year. Because a mother has insufficient milk is no reason for weaning the baby. It should be given all she has and the remainder of the meal made up with properly modified cow's milk. The failures in nursing are nine times out of ten due to faulty technique and a lack of observance of the simplest and most fundamental rules.

There is, practically speaking, no such thing as bad breast milk. A baby which is having frequent green curdy stools on breast milk has simply been having "too much of a good thing."

An analysis of a portion of the milk, or even the whole content of one breast gives usually fallacious information. The fat content of different portions of the milk from a breast differs widely. It differs widely at different nursings and on different days depending on the food of the mother, whether she is tired or rested, as well as upon her mental condition. Such examinations frequently result in the milk being adjudged "too rich" or "too poor" and the baby weaned.

Infants who are gaining properly in weight are always getting enough food and frequently too much. Many cease gaining until the amount of food has been properly reduced.

Before weaning a baby remember that the death rate in artificially fed infants is from seven to ten times greater than in breast-fed babies and that by proper technique babies may be kept on the breast at least partially in almost all cases. Open tuberculosis of the mother is one of the few things which will excuse her from nursing her baby.

Regarding the artificial feeding of children, which too often becomes necessary, many erroneous ideas are prevalent. That cow's milk or any other food, patent or otherwise, can be juggled in its percentages to even approximate

human milk in its effects, is false. Clean cow's milk when properly modified, is the best substitute for mother's milk. The patent foods with high sounding names which are used to modify cow's milk or used alone, are almost invariably some form of carbohydrate, usually malt sugar, starch and dextrine, and have no advantages over these simple, easily and cheaply obtainable, articles. Any food which has not milk as a base is a dangerous food for infants for any length of time and frequently produces a type of baby seen on the bill-boards but nevertheless *usually suffering from rickets*.

The common belief that the curd of cow's milk is the element most difficult of digestion is erroneous. The fat is the element producing most difficulty in digestion, the curd giving trouble in a mechanical way only if unboiled or undiluted. Many of the cases of malnutrition in infants begin from overfeeding with fat. The pale, hard stools so frequently seen in children fed on cow's milk, and thought to be due to an absence of bile, are made up largely of fat, in the form of calcium and ammonium soaps. Such infants when put on a fat-free diet with carbohydrates, usually improve rapidly. The acute intestinal diarrheas of infants during the summer months are usually due to overfeeding and are primarily an intoxication but have nothing to do with teething, contrary to what grandma and some physicians would have us believe.

That infants should be fed wholly upon milk for the first year and largely for the first two years is also fallacious. Infants fed exclusively on milk for the first year are usually pale, flabby and lacking in tone, and will be much improved if given some extra food after the sixth or seventh month. After the first year the child should have a good mixed diet and this diet may be supplemented by milk in limited amount.

There is no other animal except the human who has an exclusively milk diet for even seven months and none who have any milk at all (from the mother) after the first year.

The giving of sweets in the form of candy in any amount is, contrary to the popular idea, usually injurious to children especially if given between meals. They stimulate a craving for

highly seasoned foods which tickle the palate, rob them of their appetite for the plain things upon which their nutrition depends, and frequently set up serious gastro-intestinal disturbances.

The almost universal idea that heating or boiling milk destroys, or at least injures it seriously as a food for children is also erroneous. Pasteurizing at 160° F. or boiling milk for three minutes, does change it somewhat, but does not seriously detract from its food value. When boiled milk is given, some uncooked fruit or vegetable juice should be given daily. That milk is one of the most common carriers of disease has now been definitely proved and there is no cow's milk wholly safe as a food for infants unless it has been first properly pasteurized or boiled.

I have mentioned only a few of the hundreds of fallacies so prevalent among the profession, simply to emphasize the necessity in the interest of public health and the physician himself, of eliminating them. Much of the work now being done by pediatricists should be done by the general practitioner. There is no department of medicine which will pay such high dividends in results to the patient and the community, nor one which will cover the physician with more glory in the knowledge of real achievement, than the careful, scientific study of the children in his practice.

#### DISCUSSION.

DR. J. T. CHRISTISON, St. Paul: Mr. Chairman and Members of the Medical Section: I think Dr. Ramsey ought to be thanked by the pediatricists for his mild mannered roast, so to speak, of the general practitioner.

We are accused wrongfully, most of the time, of attempting to interfere with the general practitioner's method of handling, especially the feeding, of infants. One might cite instance after instance, where the general practitioner, owing to a lack of time or a lack of interest, if you please, says to the mother who complains about the food not agreeing with the child, "try this," or "try that," and puts on his coat and goes about his business.

We see every day, infants suffering from indigestion, bad stools and vomiting, simply because of the fact that the general practitioner has overlooked the simplest methods that the pediatricist of today employs in infant feeding.

Combinations of foods, top milk, ordinary milk, lime water, milk sugar, in the most wonderful mixtures, are given to children, with the idea that the breast milk is not good for them because of the mother having too large a supply, overfeeding results and consequently the milk is not good, and they resort to those things. And they are not wholly to blame. The mother frequently asks the pediatricist if there is not some patent food that she can give the child. And who is to blame for this? Largely the food manufacturer. When the new baby comes to the house, that mother, within the next few days is flooded with all sorts of circulars and samples of this, that and the other food; and she reads them and becomes imbued with the idea, "that there is no use of my nursing my child when one of these foods, mixed up with a little water, will be infinitely better for the baby?"

I would say right here, and without any fear of contradiction, that the greatest value possessed by the patent foods of today lies in the money that accrues to the manufacturers of those foods.

The simpler the method employed in the feeding of the baby, the better for the child. If the infant is unable to digest the fat of milk, give it skimmed milk. We have more cases of rickets and things of that sort as the result of these patent foods and the feeding of them, than we do as the result of all the other causes combined.

Dr. Ramsey has also mentioned a number of other things that I would like to lay a little stress upon if I may be permitted. One is the frequent washing of the child's mouth. You do not find any nurse or any mother turning down the eyelids of the child and washing out the eyes every day. Nature provides a secretion which thoroughly and completely takes care of that; and so it is with the mouth.

One might dwell at length upon a number of fallacies. The doctor mentioned the hurry-up question of bathing the baby. It is our practice, as a rule, not to do this until the child has become accustomed to the change in temperature. Remember, if you please, that infant has lived for nine months in a temperature closely approximating one hundred degrees. It comes into an atmosphere with a temperature varying all the way from sixty-eight up, and it has to accustom itself to these differences, and if it be put into water and allowed to remain uncovered for any length of time, the body temperature goes down, and it is a very hard thing to get it back again.

I did not come this morning prepared to discuss this paper, but it impressed me as being one of the best things we have had for a long time, and if you will only stop and give these matters a little consideration it will be so much the better for the baby and the child, as they grow up and develop into proper manhood or womanhood.

DR. J. W. ANDREWS, Mankato: I have only a word to say upon this. There are some new ideas here, to me.

I do very little obstetrical work now. Unless I am rather forced into it I do not do it at all; but I have done a great deal, and I have given instructions very often as to the care of young babies. I never have followed out in detail the instructions suggested here this morning. Some of them are new to me. But this thought occurred to me, and I am not criticising the essayist a bit. The profession is to blame for two things; and sometimes I almost get out of patience with my professional brethren for these things.

First. If a woman has a hard labor, the attending physician will tell that woman that she ought never to have another. That is all wrong. It is bad advice, and I think there is no physician here present but who has met with that difficulty. A pregnant woman comes to the doctor's office and wants something done because "I am not going to have a baby again. My physician has told me I must not have." Such advice should be very carefully given by a physician.

Another is: "You are not able to nurse your baby. You ought to wean it." A physician should feel his responsibility and be mighty careful about how he gives advice of that kind. We all know, and we are coming to know more and more, that the baby should have the mother's milk for at least the first six months if not the first year.

As to bathing the baby in oil for the first twenty-four or forty-eight hours and not washing it, that is new to me, but the reasons given seem to be good. I do not know whether, in the country, we can induce the mothers or rather the nurses, to wait that long or not. The nurse generally wants to take the baby just as soon as it is separated from the mother, and take it into the kitchen where it is warm, and wash it. That is bad practice, is it? So we learn this morning; and probably it is. I believe it is. I am willing to accept the new teaching if it seems reasonable.

DR. WALTER R. RAMSEY (closing the discussion): I did want to simply emphasize the importance of the general practitioner fitting himself to do pediatric work, just as well as he fits himself to do surgical work and work in other departments of medicine. The average man thinks that he must go away and take some post-graduate work every year, and he will, if he is the right sort of a chap, but he ought to devote as much time to the subject of pediatrics as he does to any other department, because there is no other department in the field of medicine which is so important, so fundamental, as the care of these children.

Somebody—I think it was Dr. Sedgwick—used the phrase, that the baby was a by-product of the practice of obstetrics; and that is perfectly true in many cases.

I think the doctor said that I did not get many of her cases, and that is very good, but it would be a good thing,—I do not mean in her case, but I mean

it would be a good thing in many other cases that doctors either fit themselves to take care of these children properly or else turn them over to somebody who does know how. We have that experience every day at our "Child Welfare." There is not a week when I am on service that the head nurse does not bring me a patient and show me the history card; the woman is well dressed and so is the child. And this history says that the husband of this person is getting \$75 or \$85 a month. Are these people to come here? It is designed of course for poor people. I say, "Send them to their own physician." We have done that consistently for years. What happens? We send them back to their own doctor, and in a week they are back to us again for free treatment. And why? Not because they are too poor to pay their doctor, and they are willing to, but they do not get results. The doctor does not examine that baby. He writes a prescription for calomel and tells them to give it a dose of castor oil; and they go back home and the condition is not righted; and they come to us again for treatment, and we take care of them, and after that we do not feel any obligation at all towards the doctor who does not fit himself to take care of children.

About this question of bathing, which Dr. Andrews mentioned, I did not say in my paper that all cases should go for from twelve to twenty-four hours. I said this, that many of the cases that have had long labor, and where the conditions were not favorable, and where for instance the whole body was covered with a thick covering of vernix caseosa, which adheres as firmly as cheese, that those children should be put away for from twelve to twenty-four hours, and anointed with warm oil, and that it is not necessary to remove all of the vernix caseosa at one bathing. It may take a week.

And just now, at the University Hospital, where they have many new-born children,—I told one nurse to observe so that the obstetrical nurse would not know that she was being watched, regarding the handling of these cases which have developed an acute dermatitis after bathing,—they look like broiled lobsters. They are covered with a little fine rash, and the skin is intensely red. In other words, they have an acute dermatitis. And in every case, as I have suspected, I have learned that those were cases which were covered with vernix caseosa; the nurse used a lot of friction to get it off with water and soap, and it resulted in a dermatitis.

My idea was not to say that all children should go from twelve to twenty-four hours, but that these cases which are covered with much vernix caseosa and those which had a long labor should be anointed with warm oil, and they may go from twelve to twenty-four hours to great advantage.

## A CONSIDERATION OF THE TONSIL QUESTION.\*

NORVEN H. GILLESPIE, M. D.,  
*Duluth, Minn.*

To bring more closely to your attention the anatomical aspect of the tonsil region, I will ask you to look with me into the pharynx of a patient when in the act of swallowing or gagging, and note the fineness of adjustment and smoothness of movement of each department in its contribution to the complex musculature of the throat. The palate is drawn upward by the levator muscles, and the posterior pillars or palato-pharyngei assist to hold it against the posterior wall, then the superior constrictors push in the folds of the posterior pillars to close up the pharyngeal isthmus. The anterior pillars or palato glossi act as supports to hold the palate tight and to pull it down again quickly at efforts of speech, assisted in this action by a backward and forward movement of the tongue, to which it has attachment. The tonsil on either side, divided into upper and lower lobes, lies in a triangular fossa with the superior constrictor muscle as a base below and behind, and the two pillars on the sides. It appears, therefore, to have a mechanical duty to perform. Together with its fibrous capsule, it supports the action of these muscles, keeping them separate and taut as their fibres ply over and around it.

While it is important in tonsillectomy to preserve the pillars intact, the superior constrictor muscle deserves the greatest respect, it being frequently injured when the tonsil is pulled up and a cutting instrument used. The posterior pillar is then limited in action, the isthmus improperly closed, and, as a result, the voice nasalized.

The superior constrictor also carries the important vessels to the tonsil. These vessels divide on the capsule before entering the gland, and an intimate knowledge of their location enables the operator to break them up in their smaller divisions by keeping on the capsule surface.

\*Read at the Annual Meeting of the Minnesota State Medical Association, St. Paul, Minn., Oct. 11 and 12, 1917.



The faucial tonsils have no function, as this term is ordinarily used—one should speak of them in their relation to the process of immunity and infection. The tonsils are lymph nodes or modified lymph glands, so constituted as to be especially liable to the invasion of bacteria. All food passes between them, and impurities from the air, gases, etc., have access to them.

Bacteria and foreign substances pass through the tonsil crypts; this is definitely proven; even primary tuberculosis of the tonsil is not so rare as usually believed. This is due to the inability of the tonsil epithelium to hold the tubercle bacilli, allowing them to pass into the deeper lymph glands of the neck. The rapidity and measure of invasion is in proportion to the depth of penetration and severity of insult to the tonsil. For example, crypts that have been curretted, punctured, or interfered with surgically, offer a favorable avenue for organisms to pass through the injured and less resisting epithelium into glands beyond. Surface epithelium is tolerant and has a selective action to dust and organisms; it becomes tolerant by habitual environment. This tolerance is lost in the deep portion of the gland. The streptococcus is commonly found in the tonsil crypts of patients, both in health and disease. In most instances, in order to induce an attack of tonsillitis, auto-infection is necessary, together with a sort of molecular disturbance of the sympathetic induced by fatigue, exposure, and some systemic disorder.

The most convincing evidence we have that the tonsils are among the most important of the primary foci of systemic infection is derived from the post-operative results of tonsillectomy. Joint, heart, kidney, goiter, and glandular conditions, show such marked improvement after tonsillectomy as to leave no doubt whatever as to the source of infection. Not alone where the attention is called to tonsillar symptoms, but also when the tonsils are small and without demonstrative lesions, in these cases the clinician is often unable to say with certainty that the fault lies in the tonsils. But if cryptic retention and chronic toxemia, associated with general malaise, anemia and loss of weight, are manifest, without other definite localized lesion, the tonsils should be condemned.

The infection may be divided into two groups: that due to a chronic condition in the tonsil itself; and that reaching the tonsil from without, through the medium of water, milk, and other articles of food.

It is my opinion that the various forms of septic sore throat looked upon as different diseases, are in reality identical—merely representing degrees of virulence of the same process. During the epidemics of this disease in Boston and Albany, Drs. Smily and Smith isolated a variety of streptococcus common in all the cases, calling it the streptococcus of Smith. The streptococcus pyogenes group is usually associated with septicemia, erysipelas, etc., while the streptococcus angiosus group is associated with endocarditis, adenitis, otitis, etc. In all the epidemics of septic sore throat occurring in Boston, Albany, Illinois and Wisconsin in the past few years, milk was the most common carrier favoring the development of the streptococcus and giving it added pathogenic power.

Since vicious organisms may pass from tonsils so readily into the lymph stream, it is not difficult to understand the present prominence given to focal infections in the causation of many internal maladies. Dr. Frank Billings, in a study of 70 cases of arthritis, found the center of infection was most frequently a streptococcus focus from the faucial tonsils. A hemolytic streptococcus was found in most of the cases.

In the Toronto Hospital for sick children it is reported from a large number of tonsillectomies that 4 per cent of the children showed albumen in the urine, and 2 per cent albumen and tube casts, which conditions cleared up after tonsillectomy. Dr. Charles Mayo reports, in reviewing several thousand operations on the thyroid gland, that the beginning of thyroid hypertrophy may be a defensive effort of the organism to resist toxic invasion.

In experiments conducted by Roseneau, the streptococcus viridans was found in the tonsils of a large percentage of his cases of endocarditis. In Roseneau's reports on poliomyelitis cases, the tonsils and naso-pharynx supposedly contain the active-producing organism for a long time after convalescence; and in cases where temperature was high and paraly-

sis progressive, improvement was noted after tonsils were removed.

In rheumatic conditions, especially of long standing, where the joints have been sensitized by a primary focus, a very slight additional infection is necessary to produce a recurrence of the joint symptoms; and when results are not satisfactory following removal of the tonsils, it may be explained by the infection having passed to the deeper lymphatics, or to the presence of some overlooked focus elsewhere.

In the majority of cases in adults where removal of tonsils is indicated, the question is usually not one of local annoyance to the patient but of systemic poisoning.

Apart from the active varieties of bacteria, many non-pathogenic ones are found; they as a rule are not active, but their toxins are positive in their production of blood changes. It is the slow, constant absorption of these toxins that is injurious. We are indebted to Billings, Roseneau, Pynchon, Ballenger, and Shueder for brilliant contributions to the store of knowledge on the tonsil question. As to the indications for the operation of tonsillectomy, whether children or adults, with but few exceptions every tonsil is better out than in, and I have no knowledge of a single instance where a patient was made worse by a properly performed tonsillectomy. If at any time of life tonsillectomy is to be criticised it is in children under 6 years of age. Until that age the tonsils exert a mechanical influence in supporting during development the complex musculature of the throat, the muscular function of which is not fully developed; and also the mechanical adaptability of children to deformity, if it should occur from the operation, is not good.

An exquisite tonsillectomy is not beneath the dignity of the most highly gifted surgeon; in fact, with so much respect does he hold the operation that he refers the work to a laryngologist to do. Following the example or inherited instinct of a few of his older confrères, the young operator of today feels perfectly confident to perform an enucleation of the tonsils as one of his first surgical triumphs. Consequently much poor work is being done. Many cases come up for re-operation two and three times. Appalling post-operative conditions are found, and as a result tonsil surgery does not

occupy the rank it deserves. Those familiar with after-results will agree with me that the operator requires a special skill and training to perform it acceptably. This is not to be wondered at, as although we have what might be called a standard operation in instrumental dissection, we are by no means agreed how it should be done. When we can agree upon a technique which completely removes the tonsil in its capsule, does not open or wound fibers or the aponeurosis of the superior constrictor muscle, does not injure the palato glossus or palato pharyngeus muscles, which conserves every bit of membrane over the tonsil, prevents fusion of the muscles named, and leaves a linear scar in a rudimentary fossa, with the movements of the tongue and the voice unimpaired, we will have achieved the ideal, in the light of present knowledge.

I will give you briefly the technic of a simple dissection operation which seems to me to fully accomplish the desired features enumerated above.

I would not have you think I regard it as better than all others, but I hope it is at least worthy of your consideration.

Besides a mouth gag, two other instruments only are used; a long dressing forceps as a dissector, and a blunt tonsil punch as a tractor or volcellum. If the operation is done with general anesthesia the patient should have the usual surgical preparation with a liberal hypodermic of morphine and atropine. The anaesthetist should be one constantly familiar with every detail of the work. The anesthesia should be deep, beyond any murmurs and resistance of the patient.

The operative technic is as follows: The protruding portion of the tonsil is grasped by the tractor at the supra-tonsillar fossa and pulled forward. At this point the anterior pillar is picked up by the forceps and stripped outward, exposing the white, smooth surface of the capsule. The point of the forceps is inserted along the outer margin, and with a firm stroke downward, the anterior pillar is separated off. Starting at the point of insertion again, the forceps is worked around the upper lobe and down the inside, separating off the posterior pillar.

The tonsils now being free, are grasped high up and as far back as possible on the upper lobe, and pulled and stripped down to the base of the tongue. The body of the tonsil is then grasped firmly in the tractor and, with the aid of the dissecting forceps, is forcibly pulled and stripped off the side of the tongue, taking with it a portion of the capsular attachment known as the lingual tag. When this operation is carefully done every portion of the tonsil is removed, with slight disturbance to the muscles; and as the dissector follows the line of the capsule, the vessels are broken up in their small divisions, with a minimum loss of blood.

Some of the advantages:

1. Its simplicity.
2. No chance of wounding the structure of the tonsil bed, as with a knife or snare wire which cannot be guided.
3. There is no stump left at the base of the tongue, as is the case when the tonsil is removed by a snare or other cutting instruments.
4. The lingual tag is removed in a manner which cannot be done by any cutting instrument. This tag contains follicles and in time will replace tonsil tissue in the base of the fossa tonsillaris.

Post-operative deformities of the palate and pillars should not occur. Contraction of the cicatrix may pull the pillars together. Careless or incompetent operating may be followed by almost any degree of deformity of palate or pillars, or of loss of the uvula.

Provided no undue injury is done to the palate or faucial arches the singing voice is not injured; on the contrary, a marked improvement results. Any injury that results in cicatricial contraction interfering with the movement of the palato pharyngeus, or any injury limiting the backward or upward movement of the palate, is injurious to the voice, nasalizing the tone. One of the functions of the palato-pharyngeus is to tilt the thyroid onto the cricoid cartilage, stretching the vocal cords. This is important in regulating the pitch of the voice.

An important factor in the comfort and well-being of the throat is a normal amount of secretion, especially in the naso-pharynx, as in the nose an over-abundant nasal space induces dryness. Likewise the pharynx suffers when

there is a lack of application of one mucuous surface to the other. When, owing to adhesion or contractions of the pillars, and most particularly, destruction of the posterior pillar or pillars, the palate is drawn forward or contracted upwards on one or other side, its application to, or moistening of, the posterior walls is prevented when swallowing or phonating.

One of the functions of the soft palate and uvula is to receive the brunt of air when breathing through the mouth, and to moisten and filter it before it passes to the chest. Consequently, when the palate is drawn up by contractions, injury, or deformity, the posterior pharyngeal wall suffers and soon becomes glossy, dry, and often, cracked, producing great discomfort, and inducing an almost constant effort on the part of the patient to relieve this condition by swallowing.

(See page 27 for discussion.)

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#### TONSILS A CAUSE OF, AND TONSILLECTOMY A CURE FOR "RHEUMATISM."\*

J. H. JAMES, M. D.,  
*Mankato, Minn.*

Mr. President and Members of the Association:

The writer has no new theories to expound. He wishes to picture some fallacies that have arisen in the minds of many of the medical profession as to the cause and the cure of rheumatism.

While it may seem presumptuous and foolhardy in this enlightened medical age to question, it is my sincere belief that the profession have gone "plumb locoed" on the tonsil question, and that they are barking up the wrong tree.

While writing this paper a hospital superintendent made this statement to me: "Almost all patients entering this hospital want their tonsils out."

I regret that one of the latest fantasies in the treatment and the prevention of rheumatism seems to have been found in "tonsillectomy," which has followed fast the rapidly disappearing vaccine fad; therefore a brief history, together with some discussions upon the

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characteristics and nature of what we call "rheumatism," may not be amiss.

The term "rheumatism" dates back from about three centuries ago, previous to which time this malady was comprehended under the term "arthritis," and it included with gout all inflammations of the joints, ligaments and muscles.

Anciently, the words "Rheuma" and "Rheumatism" embraced all those diseases in which it was supposed that the blood became impregnated with acrid humors, phlegm, bile and other noxious materials.

Hippocrates states that the bile mingles with the blood in the veins and articulations, causing swelling of the joints, and may extend to the whole body, producing acute pains.

This view was followed by later writers with some modifications, in which disease of the mucous membranes was divided into separate groups under the general head of catarrhs.

In 1610, William de Balliou published his thesis on rheumatism in which he showed the distinction between this disease and gout.

Sydenham fifty years later divided these two diseases even more distinctly. In earlier times, after the separation of rheumatism from gout, the terms "Rheuma" and "Rheumatism" were applied to maladies which affected the exterior of the body; but many ailments wholly dissimilar as, for example, phlebitis, pyemia, neuralgia, coxalgia, certain scorbutic and serofulous diseases, and some puerperal conditions, were included. Thus all diseases characterized by pain and supposed to be due to cold were called rheumatism, so that the brain, the lungs, the heart and the kidneys, etc., were all supposed to be the seat of rheumatism, and the morbid changes that are now recognized in these organs as a result of rheumatism, and many others, were ascribed to this poison. In spite of the fact that the acute and chronic forms of articular and muscular rheumatism were pathologically dissimilar, they were, nevertheless, joined together under the one common symptom, pain; and it is no wonder that the term as handed down to us has a vague significance. It has been shown that it is impossible to regard all diseases classed as rheumatism as identical, either in causation or pathology, and it would seem best that each should be

designated by its own pathological signification; but, alas! even the German attempt resulted in failure, and our own met with no better success.

While the definition of rheumatism does not add much to our knowledge, it has been referred to as a constitutional disease attended by a febrile disturbance of structure and around joints, and often other organs of the body, especially those of connective tissue groups.<sup>1</sup>

When our latest and best known writers assert that the etiology of rheumatism is still unknown,<sup>2</sup> but believe it to be caused by an infectious specific micro-organism, while some believe it to be non-specific, and still others, despite the findings of our bacteriologists, believe it to be a disease of metabolism, and that bacterial infection does not explain the phenomena, may we not be pardoned for asserting our belief that the disease is one of the latter, and that pyogenic bacteria have nothing to do with it?

These non-pyogenic advocates base their contention on the **fact** that no other disease presents such absolute pathognomonic symptoms as does rheumatic fever, and assert that every disease in its most pronounced typical form has one unequivocal, absolute diagnostic, pathognomonic symptom; that the profuse, drenching, sour smelling, acid perspiration, normally alkaline saliva and feces acid, urine hyper-acid, is a conjuncture of acid phenomena, which is pathognomonic of rheumatic fever. Its subjugation by a vegetable product from nature liberating a base in the blood, the powerlessness of every other known treatment, and the uselessness of this remedy in any other morbid state, constitute positive chemical proof that the poison of rheumatism is acid.<sup>4</sup>

Such symptoms are not produced by any known bacterial or other disease, and the further proof is that no pus is ever found in joints affected by rheumatic fever, and that all such joints attacked by rheumatism recover perfectly when the disease is cured.

I wish also to state what I believe to be another fact in this connection, and that is that there is no such thing as rheumatic iritis and will venture the assertion—which is contrary

to the general belief—that rheumatism is never a cause of iritis.

Iritis is never present during the course of the disease, nor does it follow convalescence, as is often the case from bacterial invasion and the diseases produced thereby.<sup>7</sup> That septicæmia, or lung abscesses or any other complications such as follow pyogenic bacterial infections are ever present or follow attacks of rheumatism, or lung abscesses, or any other complications as a result or sequela, and that these are easily explained by the increased blood pressure, the result of increased mechanical attrition on the valves, which causes a vast formation of new cells immediately organizing into connective tissue, seems evident.

Further still, these advocates claim that statistics show, that since the advent of tonsillectomy to prevent or cure rheumatism, that the death rates from rheumatism and heart disease have enormously increased.

That some of the forms of **so-called** rheumatism may be caused by pyogenic bacterial infection, there may be little doubt, for instance, gonorrhoeal rheumatism which is no rheumatism at all. Certain joint diseases which result disastrously to their cartilages may possibly be of bacterial origin, but I have grave doubts as to their ever being the exciting cause of rheumatism *per se*.

None of these have any counterpart with rheumatic fever except in the symptoms of pain and fever. This is true, I believe, in all joint affections which come under a specific nomenclature, and therefore the term "**rheumatism**" which covers so many varieties should be made specific. So-called rheumatic arthritis, or rheumatic arthritis deformans which attacks the joints themselves and produce deformity and disability have no business to be called rheumatism, or even rheumatic.

Such is not the outcome of rheumatic fever which, when it disappears, leaves no trace of having existed in the joints themselves.

This germ theory has taken a firm hold on the profession and it will be hard to shake it off. It has been instilled so firmly into the minds of the profession by our bacteriologists, and into the minds of the public through the reading of newspaper articles that the tonsils

are a menace to health and have no right to exist, that one who doubts is now considered a fogy.

The King-Connellan bacillus discovered in the throats and around diseased teeth, when cultivated and introduced into animals has seemingly produced joint lesions, but experimenters have as yet been unable to discover these bacilli in such diseased joints; and it was also found that where these bacilli were found in the throats of patients suffering with joint lesions that when the tonsils were removed, the patients rapidly grew worse.

The "Diplococcus Rheumaticus" was discovered some years ago in the blood of rheumatic patients and first gave the clue to the possibility of its being the active agent producing rheumatism.

We hear little of this organism now, but it is the streptococcus that is being boomed since they have been discovered to reside in the crypts of the tonsils, and that tonsillitis has **sometimes** preceded attacks of so-called rheumatism.

Is it not possible, I would ask, that tonsillitis may be one of the manifestations of a rheumatic diathesis and that it is a precursor of what is going on in the system by false metabolism?<sup>7</sup> Why are not all cases of tonsillitis followed by rheumatism? "A tonsillitis, in the majority of instances, is not a local disease, but merely an expression of a systemic condition; for all we know the tonsillitis may be an expression of nature's method of combating an untoward systemic condition, and to remove the tonsil may be like killing the goose that lays the golden egg. A mere tonsillitis, therefore, or even recurring attacks of tonsillitis, may not be, and are not an absolute indication for the removal of the tonsils, and to regard it as such would be something like advising the removal of the entire pharyngeal walls to insure against a recurrent pharyngitis."<sup>7</sup>

So said Dr. G. Hudson-Makuen before the Philadelphia Laryngological Society in January, 1916.<sup>8</sup> In his concluding remarks he also said: "In its normal state the tonsil is not a menace, but a probable protection, and its presence is helpful in both phonation and articulation. It is my earnest conviction that the fau-

cial tonsil rarely becomes a focus for serious general infection."

Rheumatic fever used to be treated by the alkaline method with fairly good results, and in preventing heart lesions more recently salicylic acid has been the physician's standby, but apparently it gave place to vaccine treatment by some, and later by the removal of the tonsils; whether diseased or not makes little difference.

"Cases, however, who after having tonsils and teeth removed, then treated for months with vaccines without benefit, are reported eventually cured by anti-rheumatic diet. Cases of acute rheumatism subsequently attacked by typhoid fever, when placed on a milk diet and the fever has subsided, have found themselves free from their rheumatism," says a noted author and teacher,<sup>4</sup> "and when they have resumed their former diet they have again contracted rheumatism." What are the logical conclusions which follow such experiences? Can bacterial infection explain? I think not.

The writer suffered from rheumatic attacks at intervals for years during which time he had neither tonsils or teeth. The studies of Swift and Kensella to determine whether any constant cultural or immunological type of bacterium was associated with acute rheumatic fever was carried out in eighty-five blood cultures on fifty-eight patients with only seven positive results. In all joint exudates the cultures were sterile. Similar non-hemolytic streptococci were recovered from endocardial lesions in only one-half of the fatal cases of acute rheumatic fever. **They** therefore do not feel that the etiological relationship has been proved.

Comparatively recent reports in the Johns Hopkins Bulletin state that in one thousand cases of tonsillectomies analyzed, there were nine who had rheumatic arthritis, and only two were improved, two unimproved and five were made worse.

There were twenty-five who suffered from rheumatic fever, and four of these had recurrence before leaving the hospital. I found no mention of the other twenty.

Cases of chorea, the origin of which we have been lately taught is due to the diplococcus rheumaticus floating in the blood and lymph stream were twenty-four, and the results of ton-

sillectomy were far from pleasing. Two of these cases died with chorea the year after operation, in one the symptoms were still present after three years, and one was worse than at the time of the operation; one of the cases operated on had no symptoms at the time of operation but has had two attacks since.

Of twenty-three cases of Sydenham's chorea in which tonsillectomy and adenectomy was done, eight have had recurrences, and the authors consider it a dangerous operation to perform during the acute stage.<sup>5</sup>

Dr. A. J. Gillette of St. Paul, in a paper read before the Southern Minnesota Medical Society some years ago, exploded the idea of sciatic rheumatism. He then asserted that he had never seen a case of so-called sciatica in which he was not able to find some local cause which, when it was removed, the trouble ceased. He said that a partial dislocation of the iliosacral joint had been demonstrated to be the cause in a number of instances. Pressure on the nerve from pelvic growths he found were not uncommon local causes.

What would removal of the tonsils in such cases avail may I ask, and how would bacterial infection explain sciatica?

Is it to our discredit that so many are sent to mud baths and water cure establishments to rid themselves of so-called rheumatism? What good can these establishments do in cases of bacterial infection other than to stimulate organs of excretion and place the system in a better condition to withstand and antagonize the poisons? Would you expect material benefit from such treatment in a case of septicemia, in tuberculosis, in syphilis, in pneumonia, in gall-bladder infection, in peritonsillar abscess or in guinea, or any of the sinus infections, or in fact any other bacterial disease? Would they be of benefit in poliomyelitis? If rheumatism is a bacterial disease then why are so many benefited by these baths? These baths stimulate into activity sluggish and inactive eliminating organs of the body and stagnant refuse matter is thereby washed out of the system; but the patient is immediately placed on a **non-rheumatic diet** which changes the abnormal chemical metabolism, and nature does the rest. The patient improves and in a short time is cured be-

cause the cause of his rheumatism is thereby removed. It is my belief that if we are to treat these cases successfully we shall have to abandon our beautiful bacterial theory, and avail ourselves of other means at hand which will wash out the sewers of the body, and administer such remedies as will change the secretions from an acid to a non-acid, and prescribe such diet as will supply and maintain a proper and healthy metabolism.

“Accelerated protein metabolism produces an excess of acids over salts; with every loss of balance between supply and demand of salts, one of the numerous minor forms of rheumatism appears. Vegetables are 23 per cent. salts, cereals, potatoes, bread, green vegetables, debar child rheumatism,” says a noted child specialist and dietitian. “Broths and sweets in children, sweets and alcohol in adults are dominant causes of rheumatism,” says the same author.<sup>4</sup>

Nature's salicylic acid is said to be a three-fourths cure for an attack of rheumatism, but to complete the cure or the other fourth we must resort to non-acid producing foods which are the remaining antidote. The former will remove the disease from the fluids, but it requires the latter to change those in the tissues themselves.

With all due honor, respect and admiration for our eminent bacteriologists and their painstaking and conscientious work, when they advise removal of the tonsils asserting that infection therefrom causes rheumatism, I for one believe them to be in error. Joint lesions, appendicitis, inflammation of the gall bladder, tuberculosis, poliomyelitis, and many other diseases may have their source in bacterial infection, but as a cause of rheumatism they have not a single pedestal to stand on for support.

Diseased tonsils that cannot be cured should be removed, tonsillectomy for prevention or as a cure for rheumatism is a delusion and a snare.

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#### DISCUSSION.

DR. FRANK E. BURCH, St. Paul: I have listened with a great deal of interest to these papers, especially that of Dr. James. I believe he is partially right but mostly wrong. There is no doubt there is developing a wave of conservatism about tonsils, but tonsillectomy has come to stay as a fixed operation (it is today the most commonly performed operation in most of our hospitals), just as appendectomy and cholecystectomy have become established procedures.

For my own part I feel that the wholesale massacre of the tonsil, especially of the juvenile tonsil, is already a thing of the past.

The reason for this was that there had been a decided lack of discrimination in deciding what types of tonsils require removal and what types are harmless. Some of this has come about because of the tendency of school nurses and school physicians to recommend removal of practically all hypertrophied tonsils in children. I see a great many tonsils recommended for removal by physicians, school nurses, and by parents themselves, that do not require removal.

The tonsil operation is not without its dangers. The danger from infection following tonsillectomy is slight and I have seen only a few cases of severe infection, these occurring in association with decayed teeth or pyorrhea. The danger from hemorrhage, however, is not a thing to be passed over too lightly. I can recall three deaths from hemorrhage in this city. I have my share of hemorrhage following tonsillectomy and am becoming more concerned about the question of bleeding following every operation I do. The time to control the hemorrhage after tonsillectomy is before the patient leaves the operating room. It has become my custom as a precautionary measure in cases where the tonsil beds are very large to pass a No. 1 catgut ligature through both pillars and to bring them in apposition, without tension. This suture slips out within a few days, and this method is followed by less hemorrhage than when the wound is left open, and it hastens healing very materially. As to when to do the operation, or how to do it, each one learns by personal experience the methods best adapted to himself which give him the most satisfactory results.

Tonsils that are prominent or not too adherent I do not hesitate to remove by the Sluder method, and I have found that a dull blade and slow work are followed by comparatively little hemorrhage. However I usually use the snare after dissecting the mucous membrane thoroughly off the tonsil, separating it from the anterior and posterior pillars and the supratonsillar fossa, then using blunt dissection. This method I have come to adopt as a routine procedure where local anesthesia is employed. As to what type of tonsil should be removed in children, there is no doubt that tonsils which are hypertrophied and are sufficiently large to act as mechanical obstructions to swallowing, breathing or speaking, should be removed. Perhaps we are not doing a prophylactic

thing in every case, but in some of them we know we are, because we see less serious trouble with throat infection in those cases which have been operated upon when infectious diseases are epidemic. Naturally those children who are subject to recurrent attacks of inflammation are most benefitted by our efforts.

Tonsils which are chronically inflamed, filled with cheesy matter, which have a chronically injected, deep purplish-red appearance, and which are imbedded and cannot drain themselves, require removal and the patient is almost always benefitted by their absence rather than by their presence. Cases with chronic catarrhal otitis from involvement of the Eustachian tube, where the drainage is imperfect, with suppurations of the ear persistently recurring, are in the great majority of cases greatly benefitted by the removal of the tonsils together with the adenoids.

Removal of the adenoids alone, leaving the tonsils, is frequently insufficient to relieve the ear symptoms, and these patients return after a year or two for further relief, and the parents invariably question the previous procedure, if they have had anything to say about it.

There is a fourth class of cases, namely, children with asthma, enuresis, the so-called reflex neuroses, which is sometimes benefitted by tonsillectomy. I can testify to this from a considerable experience with cases in which the general tone of the child has been markedly improved by tonsillectomy, and the enuresis especially has been relieved. I have seen two cases diagnosed as *petit mal* very much improved by tonsillectomy.

When it comes to the great problem of systemic infections and the cases of infectious arthritis, neuritis, and heart lesions, we need to discriminate and we need the aid of the internist and the family physician in determining whether or not the tonsil is an actual factor in causing the conditions for the relief of which these patients are referred. Sometimes we cannot discriminate. If the patient is suffering from a serious condition, I have little hesitancy, providing it involves no unusual operative risk, in recommending tonsillectomy with the hope, rather than with the promise, that it will relieve the secondary condition; at the same time I also advise these patients to seek further for the cause of infection in the teeth, the sinuses, the prostate, a salpingitis, cholecystitis or an appendicitis. Many of these patients have other foci of infection, which from our narrower view, we are apt to overlook. In such cases I think consultation with the patient's physician is the thing we need. I have never seen any benefit from tonsillectomy in chronic rheumatoid arthritis. I have operated upon a good many such cases, more in previous years than recently, and can truthfully say I have never seen one single case of chronic rheumatoid arthritis benefitted in any way by the removal of the tonsils. The type of tonsil that should not be operated upon is that in which the tonsils never become acutely inflamed, the

patient being in perfect health, even though the tonsils are enlarged or contain secretions in the crypts. We should never operate upon tonsils during the acute stage of tonsillitis or during the febrile stage of arthritis or in very acute chorea. Patients with extremely high blood pressure are occasionally referred for tonsillectomy. They involve great risk. I have in mind, for example, cases in which the systolic pressure is 225. Diabetics are extremely bad subjects, as are also cases with enlarged cervical glands with active chronic pulmonary tuberculosis. Again referring to the technic of tonsillectomy, I think it is fairly well established that the main criticism in connection with the removal of the tonsils is the injury to the posterior pillar. I have seen many tonsils removed by blunt dissection in which the pillars have been very seriously damaged. This occurs less frequently following the Sluder method. Some of these patients develop troublesome adhesions, nasal voice, ear symptoms or a chronic laryngitis. I would like to sound a word of warning about adenectomy. I am convinced that we are going to discontinue the scraping operation for adenoids and personally I am exercising more care in **cutting** adenoids out with the adenotome and then using my gauze covered finger. Every little while I see a case where damage is done to the hearing of patients who have been operated upon primarily on account of their ears and who are actually made worse by faulty adenectomy. The adhesion between the posterior pillar and pharyngeal wall, and the resulting improper drainage of the Eustachian tubes are possibilities we have been overlooking.

DR. CHARLES N. SPRATT (Minneapolis): As to the part of Dr. Patterson's paper which I heard, I think it is the consensus of opinion that we are in perfect agreement with it. What he has outlined is standard practice with practically all of us.

Dr. James brings up several interesting factors in his paper and, like Banko's ghost, the tonsil question is ever before us, and it is still unsettled. I think we must agree with Hippocrates, who has said "experience is difficult and judgment fallacious." Possibly Dr. James is right in the main; possibly he is not.

I divide my tonsil cases into two classes, those in which I make a diagnosis at the office from the appearance of the tonsil, and those in which I make the diagnosis over the telephone or from what the patient tells me. The first variety is the large hypertrophied tonsil, diseased or not. Such tonsils ought to be removed on purely mechanical grounds. In the second variety, one makes the diagnosis from the history, namely: repeated attacks of tonsillitis or of rheumatism. I believe that in any person who has had two or more attacks of tonsillitis, the tonsil should be removed. I realize, of course, this is a very general statement. I also realize that arthritis deformans will not be benefitted by the removal of tonsils. I have yet to see a patient of my own who has given a history of tonsillitis who has not been benefitted by the removal of his tonsils. Possibly,



some have not been benefited that I have not seen since the operation.

As Dr. Burch has mentioned, we often see injury to the pillars. I know that all of us who are honest have destroyed the posterior pillars and other parts of the throat when we should not have done so. Many people who have good singing voices hesitate very much when the question comes up of having their tonsils removed on account of the possible change in their voices, and I do not blame them as frequently, the scarring following the removal of tonsils stiffens the throat and may materially interfere with the use of the voice. In 1903, when I was house officer at the New York Eye and Ear Infirmary, I was impressed at the apparent unsurgical methods used in the removal of tonsils, as free hemorrhage cannot be considered good surgery.

In 1903, I devised a snare with a ring, through which the tonsil was forced, and a concealed wire loop was used to cut the base of the tonsil. This instrument was described in *American Medicine*, April, 1903. (I could never get my instrument to work to my own satisfaction.) The same principle has been used in the past few years in the Beck snare. I feel that we should try to remove tonsils with a minimum amount of hemorrhage especially since one member of my own family had a severe post-operative hemorrhage after a nice blunt dissection. I may say that I have tried practically every method from the old finger enucleation to the various sharp and blunt tonsillotomes and the Sluder method. To my mind the last method is by far the best one that has been devised, were it not for the bleeding.

For the past year I have been experimenting and trying to devise a sort of angiotribe. This same problem has been in the minds of many others. Dr. La Force has devised an instrument developing the same thing, but unfortunately he has done the unprofessional thing of patenting it. In my instrument, I have taken the Sluder tonsillotome and had a blunt blade placed in the groove in addition to the sharp blade. This blunt crushing portion is about one and one-half mm. ( $1\frac{1}{2}$  mm.) thick. The tonsil is forced through the opening in the instrument. The blunt blade is then forced home, and by means of a screw an immense amount of pressure is applied to the base of a tonsil. After from four to five minutes this blade is loosened and the sharp cutting blade is pushed home, and the tonsil is cut beyond the crushing portion (just as in removing an appendix the base is first crushed and then the appendix is cut off with a sharp knife). I can do a tonsillotomy much cleaner than I can with the blunt dissection and with practically no bleeding, especially if the instrument is left on four or five minutes.

This morning I had a secondary hemorrhage in a little girl on whom I had operated on one week ago yesterday. The right tonsil was removed clean with the crushing tonsillotome. The left tonsil was not completely removed with the instrument, and the scissors were used to remove the lower portion. The

hemorrhage occurred from the left tonsil, that is, the one removed by scissors.

Another point the doctor brought up is that it is an absolutely wrong surgical principle to scrape or hoe an adenoid out. Twenty-five years ago the late Dr. C. J. Spratt purchased a Gradle adenotome. He never was able to use this instrument with any satisfaction. At first, I did not find it very satisfactory on account of the difficulty of introducing it in the post-nasal space. I now, however, use this old Gradle adenotome in practically all adenoid cases, as it removes the mass in one sweep of the knife, leaving a clean base. Many modifications have been made of this instrument, but in my hands the original is the best one yet devised. The bleeding from the adenoid with this sharp knife is five to ten times as much as what one gets from the two tonsils when they are crushed with the tonsillotome. If one would do as Beck of Chicago has suggested, apply a piece of gauze in the post-nasal space after adenoidectomy, there would probably be much less hemorrhage from the adenoid.

DR. NORVEN H. GILLESPIE, Duluth (closing the discussion on his part): I am pleased indeed to have heard such a splendid discussion on this subject. It is one in which we are all vitally interested.

Nearly every instrument for the removal of tonsils in a mechanical way has done harm. There has been a great deal of harm done by the Sluder instrument, although it impresses the amateur as a convenient method of removing the tonsil. It belittles the operation. It puts into his hands an instrument which is of value only to its inventor and much harm results.

A great deal of discussion has taken place from time to time regarding the removal of tonsils for rheumatoid arthritis. The point I wish to make is this: a great many of these cases have not been benefited, and invariably a portion of the tonsil has been left, and that emphasizes a part of my paper, that any interference with the tonsil whatever that does not remove it is an injury because the tonsil crypt becomes more active. You increase the possibility of focal infection by interference with the tonsil in any way whatever.

Lastly, with regard to this great bugaboo of post-operative hemorrhage of the tonsil. I am truthful when I tell you I have not had a large experience in this work; I have been practicing 21 years to be exact, and I have not yet had a serious case of tonsillar hemorrhage, and particularly since I began to remove tonsils with the two simple instruments I have shown. I can go home and rest perfectly after such an operation, being assured that I will have little trouble. I could not say that when I removed tonsils with any sort of mechanical instrument.

Another point which I wish to make is that in removing the tonsil with any instrument the tonsil cannot all be taken out. The point I made in my paper was that the lingual half, or that portion of the tonsil attached to the margin of the tongue, cannot be removed with any cutting instrument; it cannot be removed with the shears. The tonsil is continuous up

under the base of the tongue, and if you put in a snare, or a Sluder, or any other instrument, you cut the tonsil out before the tonsil tag is removed, which can only be done about the dome of the tonsil and tag.

Another point in the control of the hemorrhage is anesthesia. When I attended the Congress of Surgeons in London I had the pleasure of listening to Mr. Lane. He told the surgeons present this and that, and I came back with the conclusion that whatever a doctor said we ought to do, was invariably wrong. That has been my experience relative to anesthesia. The text books tell us that we must put the patients deeply asleep; that if we get blood in his lungs we will get gangrene of the lungs or other trouble. I would like to ask you which patient is likely to get blood in the lungs, the patient fighting you at the time of operation, or the patient who is quietly asleep? Furthermore, what sort of an operation on a complex muscular throat can you do if that patient is gagging or yelling out? Hemorrhage is greater because he is struggling. He must be thoroughly asleep. You must have a competent anesthetist when you operate on these cases. If the patient is profoundly asleep you do not get as much hemorrhage as you would if the patient is only partially or quietly asleep, and it is easier to pick up a vessel and clamp it when there is bleeding.

DR. J. H. JAMES (Mankato), closing the discussion: I do not want you to understand that I have reference to any rheumatic condition other than inflammatory rheumatism, which I assert is an acid condition of the system. All the secretions and excretions are acid, and you do not get that condition in any pathogenic bacterial infection. If rheumatism, as I described it, is a bacterial infection, it is not necessarily due to pathogenic bacteria. The other point is that tonsillectomists lose sight of the factor that patients on a rheumatic diet have not rheumatism until they stay off of that diet. When they return to a certain diet they will have rheumatism. If bacterial infection causes that form of rheumatism, why don't these patients have it in the interval?

DR. H. A. BEAUDOUX, St. Paul: I wish to congratulate Dr. Spratt on his instrument. I think it is a good one, and it is a great improvement on the Sluder instrument, as it does away with a great deal of bleeding that no other instrument, except the La Force instrument, can possibly control, and can be used in about 90 per cent of the cases.

In regard to tonsillectomy, there are two kinds of tonsils, one kind should be taken out, and the other which should not be taken out. The tonsil that should be taken out is one that is demonstrably or suspectedly diseased, and can be easily dissected by any instrument you may wish to use—the Sluder, Ballenger, Beck, or any other instrument, remembering that a tonsillectomy is not a pharyngotomy nor pharyngectomy. That settles it so far as the operation and I are concerned.

The kind of tonsil that should not be removed is the tonsil that one cannot take hold of and move

freely under the anterior pillar. That is the sclerotic tonsil, with capsule, fascia and the adjacent muscles merged together into a cicatricial whole. When such a tonsil is removed by dissection, one cannot help but get some cicatricial contraction and do harm. It should be bitten with an appropriate rongeur and the soft tissues of the tonsil removed down to the capsule, but the capsule itself should be left intact, because if you attempt to remove it, you will remove a part of the fascia and adjoining muscular tissue, and subsequently deformity will take place. If there is any change in the voice brought about through this operation, it will be in those cases. This kind of tonsil is better left untouched unless the patient suffers from periodical inflammation and infection. I have taken out a great many tonsils, but with no injury to the voice as yet, as far as I know.

In regard to hemorrhages, apparently our results are at variance. I have had bleeding after the first few hours following the operation, some of these being due to overlooking a bleeding vessel in the operating room, others caused by repeated vomiting. Vomiting is the cause of recurrent hemorrhages in a large per cent of the cases. I have had no deaths, and only 11 such hemorrhages.

In regard to the second paper, I want to congratulate the essayist on bringing up the subject of focal infection. We all know about it, but I feel many of us do not bear it in mind all the time. We bear it in mind as far as one or two things are concerned and then let the others go undiagnosed. Focal infection not only exists in the tonsils or in the sinuses or in the ear, post-nasal space or pharynx, but it exists in other places, such as the prostate gland, the genito-urinary tract of the male and female, and probably much more frequently than we have heretofore supposed in the intestinal tract, which is the hardest tract to get at to form a correct conception of it and make an accurate diagnosis and successfully treat it.

In regard to Dr. James' paper, I cannot agree with him. He has already told you that someone handed him a series of lectures. I am the guilty party. Billings gave a series of four lectures on focal infections in the University of California in 1916, and after reading them I do not see how anyone can take the position that Dr. James does. Either Billings and other men who have written on the subject are wrong, or Dr. James is right. Clinical experience does not substantiate his position. Bacteriological research certainly contradicts it emphatically.

He speaks of rheumatism as a disease. Rheumatism is only a symptom. There is no such thing as rheumatism as a disease. One may have germs in the nose and throat which have passed down to the alimentary tract, or through the blood stream, and produce appendicitis, ulcers of the stomach, gall-bladder infection, etc. Removal of the tonsils in such a patient may improve the condition of the patient, but if the focus of infection is not removed the symptoms of rheumatism will go on. Until you remove

the appendix he will not be cured of his rheumatism. If a patient suffers from some other infection, he will keep on having his attacks. Acute rheumatic fever is a disease of the young, and I am prone to say that most of it lies in focal infection due to hidden foci. In rheumatism which occurs in people of middle age or who are past middle age, the focus of infection is more likely to be in the thoracic region or abdominal cavity than in the head. There may be bronchial trouble, bronchiectasis, inflammation of the prostate with or without previous gonorrhoeal infection, or the focus of infection may be in the intestinal tract. Some of you may remember the researches of Elliott. In one of the November numbers of the *Medical Record* for 1916, he has a comprehensive article, and another article in 1911 on the differentiation of arthritis deformans. He divides arthritic conditions into two classes, the proliferating and the ankylotic, and, with those, others with enlarged joints without the sheaths and tendons being involved. Extensive experiments were carried on in many of these cases; cultures were made of the bacteria found, and when injected into animals produced the same conditions. And so it is with Rosenow's work, with the work of Payne and Poynton, and so forth.

We have known of focal infection for hundreds of years, but a culmination of this question came with the work of Pasteur and Lister; Pasteur, establishing the theory of focal infection, and Lister following him by his demonstrations.

Focal infection starts from the roots of the hair to the toes, and unless we are keen enough to make our diagnosis as to where focal infection takes place we will fail in curing the rheumatism.

Salicylic acid is a specific for rheumatic fever. Billings says in his book, we have known it from practice, but that it is only palliative, it is not a cure. One may develop an antitoxin from cultures taken from the sinuses, the tonsils, or the gall bladder, and do good with it for the time being, as soon as reaction has taken place and immunity is established. The minute immunity passes off, the selective arthritis returns according to the pathogenicity of the strain, and you have pain recurring in the shoulder or knee joint, etc., as before.

So far as the removal of tonsils being a cure for rheumatism, it is such only in cases where the infection is solely in these tissues, and personally I have not the least doubt about that. With our present knowledge, gotten from men who are working independently of each other in their different laboratories—Muller in Germany, Rosenow in Chicago and Rochester, Payne and Poynton in England, and so on—all arriving at the same conclusion, there must be some truth in it. There must be some other evidence besides that furnished to fortify the position Dr. James takes, as it is contrary to the position which these men have taken through their painstaking studies and the positive results of their experiments, as well as our clinical experience.

As far as the tonsil and rheumatic symptoms are concerned, if you have a case of rheumatism preceded by an attack of tonsillitis, you may be almost certain that the infection is from the tonsil, but if that patient has rheumatism without tonsillitis, or without ever having had tonsillitis, there is no use in removing the tonsil, because the focus of infection is probably somewhere else, and the tonsil should be last to be dealt with. I have personally guarded my own reputation by saying to the patient who has had rheumatism, "you are undoubtedly getting an infection from your tonsils, and while you are not having any rheumatic symptoms now, if I take your tonsils out you will perhaps have a recurrence of the rheumatism immediately after the tonsillectomy, as it does take place almost invariably in my experience." Shortly afterwards, or before leaving the hospital, rheumatic symptoms develop sometimes very severely.

Another proof of rheumatism being a bacterial infection is that we know the streptococcus rheumaticus grows in low temperature. You all know that when a man is exposed to cold or inclement weather, he is much more likely to have an attack of rheumatism. That goes hand in hand. The body temperature being lowered and the individual resistance less, the lowered temperature favors the growth of that particular germ, and you have the whole cycle at hand to explain how and why a man who is exposed to wet and the inclemencies of the weather should have an attack of rheumatism under such circumstances.

The papers we have listened to are timely. I do not think we can talk too much about these things. We should bear in mind, however, that one organ alone or one sinus should not be held responsible for an attack of rheumatism, if rheumatism is the symptom we are dealing with, without demonstrating the source of a possible toxemia from some other organ or tract.

DR. WILLIAM R. MURRAY, Minneapolis: I have listened to these papers with a great deal of interest. There are several points that occur to me, which have been emphasized by the speakers, and there are a few of them to which I wish to refer.

I think we all agree with everything that Dr. Patterson has said. There are only one or two points that might be emphasized, and one is the great importance of deviated septum in the causation of sinusitis and interference with the drainage and ventilation of the sinuses. I believe that deviated septum is the most frequent abnormal condition we come in contact with within the nostrils, and since the results obtained from the operative work on deviated septum are satisfactory, it seems to me that the operation should be quite generally performed.

Dr. Patterson spoke of sacrificing in some cases the middle turbinated bone. I would emphasize the point that we should be very careful and cautious about removing the middle turbinated bone, because there is no doubt that the removal of a portion of the

middle turbinate is frequently the cause of sinusitis, and yet the anterior portion of the turbinate is frequently removed for the purpose of relieving sinusitis. But we should bear in mind that we should not sacrifice the anterior ends of the middle turbinated bones unless there are clear indications for doing so.

With regard to the operative treatment on the maxillary sinus, Dr. Patterson has referred to the different methods of operating on the maxillary antrum, and it resolves itself into the indications in the particular case, depending upon the amount of chronicity within the maxillary sinus, and that means from simply washing out the sinus and establishing free drainage to the most radical operative work on the sinus. My experience has been that where a radical operation upon the maxillary sinus is indicated, it is better for us to proceed at once to the radical method of operating, and that I think is preferably the Denker operation rather than the Canfield operation, although the latter operation is ingenious and gives good results in many cases.

The term rheumatic iritis is a misnomer and should not be used in connection with any form of iritis. However, that does not mean that iritis may not be due to the same infective focus or to some cause which may be present and causing some form of myalgia or some form of arthritis. It is an infective iritis and may be due, and very often is due, to infected tonsils and to infected teeth.

In regard to the etiological relationship between the tonsils, chorea, sciatica and so-called rheumatism, I do not intend to discuss that subject particularly except to say that I listened to Dr. James paper with a good deal of interest, and yet I am still of the opinion that there is considerable connection and relationship between the tonsils and myalgia and arthritis, and I would also include chorea. I know I have relieved some cases of sciatica by removal of the tonsils.

In regard to the tonsils and involvement of the ear, the tonsils are frequently the cause of ear involvement, and yet I think we have all had the experience that after the removal of the tonsils in some cases the deafness has been increased. That has occurred, but in these cases I think it is largely a question of proper diagnosis of the ear lesion as to whether removal of the tonsils is going to be of any benefit to the ear involvement, and in those cases where it is indicated the results may be extremely beneficial.

Just a word or two in regard to hemorrhage after tonsillectomy. I think that most of us who do tonsillectomies dread the possibility of a hemorrhage. I think we should all realize that there is probably always a possibility of hemorrhage after any tonsillectomy. However, I think a great deal depends upon the method of operating, and a great deal depends upon the method of stopping the bleeding which occurs at the time of operation, and I am very strongly in favor of immediately grasping any bleeding point which appears in the course of a tonsillectomy or following it, and assuring myself that there is not going

to be any further bleeding from that source. In that way I get very few cases of hemorrhage following tonsillectomies, particularly tonsillectomies done under general anesthesia. I believe there is no question that hemorrhages follow local anesthesia more frequently than general anesthesia. When you have a patient under general anesthesia, the conditions are favorable for bleeding at the time you operate, and if you have bleeding you can ligate the vessels and assure yourself that the bleeding has stopped, and the probabilities are that there will not be any more bleeding. This is not so in cases of local anesthesia because there is more or less ischemia at the time and you may get the bleeding after relaxation of the vessels. Personally, I have had some hemorrhages, not any bad ones fortunately, after local anesthesia, but I do not recall a single hemorrhage that has occurred in my experience within the last three years following tonsillectomy under general anesthesia.

The method of operating for removal of the tonsils I believe is one of individual preference, and it makes no particular difference how the operator removes the tonsils, what method of procedure he follows, he will develop his own method anyhow. We all have our particular method and the man who can remove tonsils properly without injury to the surrounding structures is doing it in the proper way, I do not care how he does it, provided he removes all of the tonsillar tissue. The method of doing it is very immaterial.

DR. J. D. LEWIS, Minneapolis: I am pleased to avail myself of the opportunity to discuss these excellent papers. It is my belief that tonsillectomies, as usually performed, are complete only in 25 per cent of the cases. I do not believe that by any blunt or sharp dissection method, one is always able to escape rupture of the capsule, and, therefore, to remove the tonsil completely. Few surgeons will claim that a tonsil can be completely removed, i. e., histologically removed. Many surgeons frequently visit the various clinics in this and other countries for the purpose of improving their technic for other operations in general surgery, yet seem to have little regard for the importance of the operation of tonsillectomy. Why should a laryngologist advise a general surgeon to continue a method for tonsillectomy if there is a better one? Such advice applied to other operations—appendectomy or any other operation the general surgeon does—would be just as sound. Few of the general surgeons doing tonsillectomy keep up with the newer technic of this operation as they do in other operations.

As to the LaForce instrument, referred to by Dr. Spratt, I have been using it for several months. The technic is similar to that employed in the Sluder operation. The tonsil is lifted out of its bed and forced through the fenestra of the instrument; the base of the tonsil is crushed by the blunt surface; the instrument is left on five minutes, then the knife is screwed home, severing the tonsil at its distal end. This method removes the tonsil in its capsule in children in 100 per cent of the cases, and you do not have

a drop of blood. The Sluder method is followed frequently by a sharp hemorrhage, and I believe in many instances, a crescent-shape piece of tissue is removed from the anterior pillar. One cannot always escape the anterior pillar. Tonsillectomy performed with the Sluder instrument leaves a broader fossa than that by the LaForce hemostat tonsillotome. Some of the members have seen the LaForce instrument used at the Minneapolis City Hospital, and I have yet to find one who was not greatly impressed with the method.

As regards sewing the pillars to control tonsillar hemorrhage, I have never been obliged to resort to this. It is not surgically sound, any more than it is to sew the abdominal wall over a bleeding surface beneath. If the bleeding point is deeply crushed, the muscular tissue is thereby included with the bleeding vessel, and this will control even the worst forms of tonsillar hemorrhage I have seen.

With reference to Dr. Patterson's statement concerning vaccine treatment, we have used vaccine treatment in some 60 cases in our clinic at the Minneapolis City Hospital, and the only result we obtained from any vaccine was in cases of staphylococcus infection. All others were failures.

Just a word concerning the maxillary operation. I agree with Dr. Murray. If the pathology is extensive you cannot hope to cure the patient by mere puncture and irrigation. The ideal of operation, while it is considered quite radical, is that of open-

ing the canine fossa, visualizing the pathology in the maxillary sinus and removing it completely, making a large opening beneath the inferior turbinate (leaving the turbinal intact) so as to provide for adequate ventilation and drainage. These cases will clear up quickly and remain permanently cured.

I do not know of anyone who has claimed to cure chronic rheumatism by tonsillectomy. I have not seen any such claims—not to say cures. We do relieve and often cure the acute cases. That has been demonstrated beyond the peradventure of a doubt, but as Dr. Murray has said, I have performed tonsillectomy in a hundred cases of chronic rheumatism and have followed them as closely as I could, yet I have failed to see any one of the series who has been in any way benefited.

As regards the removal of tonsils, a large tonsil may be an innocent one. Perhaps some surgeons are over-zealous and operate on cases that really do not require a tonsil operation; consequently, many tonsils are needlessly sacrificed. When in doubt, careful examination by transillumination should be made to determine the presence or absence of tonsillar disease.

A word in conclusion; since using the LaForce method, by which the tonsil is completely removed in its capsule, I am free to confess that many operations I have performed by blunt or sharp dissection were incomplete.



# Minnesota Medicine

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## EDITORIAL

### SALUTATORY OF "MINNESOTA MEDICINE" BY THE EDITING AND PUBLISHING COMMITTEE.

With this issue of *Minnesota Medicine*, the Minnesota State Medical Association has joined the ever lengthening line of states that own and publish individual monthly journals. State journals constitute a distinct class in medical journalism, and have certain functions that the many excellent special and general medical periodicals can not possibly fulfill. By their frequent appearance on the desks of the members of the State Association, the members are reminded that they are integral and necessary parts of a wide-awake organization and will be kept informed of whatever is happening in medical circles in their own state and, by their jour-

nal's close affiliation with the exceedingly efficient organization built up around the Journal of the American Medical Association at Chicago, with national and international affairs of importance in the world of medicine.

Thirty-five states are now officially represented by ethical publications; Minnesota, North and South Dakota, Montana and Wyoming constituted the largest block of states without official ethical state journals until *Minnesota Medicine* appeared on the horizon. May its example spread westward until this blotch is entirely removed from the map!

*Minnesota Medicine* is the twenty-eighth state publication to fall in line. Although a little late in coming into the ranks it is vastly better to be late than not to have arrived at all. Now that the Minnesota profession has taken this step it is a foregone conclusion that it will never regret it and will soon feel the value of the bond its own journal will make between its various component county and district associations, and above all, the bond that will bind the entire membership into a more homogeneous whole. There is no better instrument to do this thoroughly than a mutual interest in the success of an undertaking that requires team work from top to bottom for its success, and at the same time furnishes the measures by which the state organization and the profession of the state will be given its rating by the profession of the country at large. By what other means could the purpose of the Minnesota State Medical Association, as outlined by its founders many years ago, be as thoroughly or as effectively accomplished? They are:

To federate and bring into one compact organization the entire medical profession of the State of Minnesota;

To extend medical knowledge and advance medical science;

To elevate the standard of medical education;

To secure the enactment and enforcement of just medical laws;

To promote friendly intercourse among physicians;

To enlighten and direct public opinion in regard to the great problems of State Medicine; so that the profession shall become more capable and honorable within itself, and more useful to

the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

*Minnesota Medicine* will be under the control of the Editing and Publishing Committee of the State Association. The personnel of its Editorial Staff is given above. Mr. J. R. Bruce of the *Northwestern Druggist* is its advertising manager.

The policy of *the journal* on all questions will be to remain independent, not to be the mouth-piece of any individual or any group, and to work only for the best interests of the profession and the public.

The scientific papers read at the Annual Meetings of the State Medical Association will appear, as will many other papers read at the numerous meetings of the county, district and special societies of the state, subject to the approval of the Editorial Staff in consultation with the Editing and Publishing Committee.

There will be a department of medical news in which will be found from month to month items of general and local interest to physicians of the northwest.

The advertising policy of *Minnesota Medicine* will be strictly in conformity with the rules of the American Medical Association and its Council on Pharmacy and Chemistry,—everything appearing in the advertising pages being edited as carefully as the reading matter.

#### **ACTION OF THE HOUSE OF DELEGATES IN REGARD TO THE ESTABLISHMENT OF A STATE MEDICAL JOURNAL.**

After a free and general discussion, Dr. Buckley moved that the matter of publication of a state medical journal be referred to a committee of five, with instructions to report details before the final adjournment of the House of Delegates.

Motion seconded by Dr. Smith, and carried.

The President appointed on this committee Drs. W. J. Cochrane, Robert Earl, J. M. Armstrong, E. R. Hare, and M. W. Smith.

This committee reported to the final session of the House of Delegates as follows: (1) That an Editing and Publishing Committee consisting of five members be appointed by the President of the Association, two members from the Hennepin County Society and two members from the Ramsey County Society, and one from

the state at large. That the executive committee of the Hennepin and Ramsey County Societies shall each recommend to the President of the State Association the names of three of their members from whom the President shall choose his appointees, each member of the Committee to serve five years. The members of the first Committee to be appointed as follows: One member for one year, one member for two years, one member for three years, one member for four years, and one member for five years. Thereafter one member shall be appointed each year for a term of five years.

(2) That the Editing and Publishing Committee shall have full control of the editing and publishing of the journal, and the appointment of the editors and business manager, and shall determine their compensation.

(3) That the State Association pay the Editing and Publishing Committee the sum of one dollar per year per member in consideration for which each member of the Association shall receive a copy of the journal for one year.

(4) That an associate editor be appointed for each Councilor District.

(5) That the profits derived from the publication of the journal be paid into the treasury of the State Medical Association and any deficit arising from the publication of this journal be paid from the treasury of the Association.

(6) That the offer of the Editing and Publishing Committee of the Ramsey County Medical Society to turn their journal over as a free gift to the State Medical Association be referred to the Editing and Publishing Committee to be appointed.

Wm. Cochrane (Chairman).  
A. E. Spalding.  
Earle R. Hare.  
Robert Earl.  
J. M. Armstrong, (Secretary).

#### **ELIMINATING THE MENTALLY UNFIT FROM THE U. S. ARMY.**

The State Medical Association was fortunate in having as its guests at the Annual Meeting in October last, Captain S. E. Abbot and Captain C. C. Beckley of Fort Snelling. These gentlemen brought before the Association an interesting phase of the great problem now facing the United States in preparing its vast army, a

phase, in fact, so little known and of such great importance that we shall give *in extenso* the remarks of these medical officers.

Dr. C. E. Riggs, chairman of the medical section of the state meeting, in introducing Captains Abbot and Beckley, stated that he did not believe we realize what foresight and painstaking care the United States Government is manifesting in order to eliminate the mentally incompetent and nervously unfit from this great army that is in process of making at the present time. When we are told that next spring there will perhaps be two and a half millions of men under arms we can form some idea of what that great task is. One thing is very sure—and this war has demonstrated it perfectly—and that is that the psychopath and the neurotic are not wanted on the firing line.

Captain S. E. Abbot, of Fort Snelling: The United States is doing what I do not suppose has been done before. In all wars and in all time, I presume that the physically unfit, both officers and men, have been eliminated frequently. In this war, since the United States has entered it, they are trying to eliminate not only the physically unfit but the mentally unfit as well, and those whose constitutions are not equal to standing the tremendous strain which is greater in this war, with modern methods of warfare, than probably has ever appeared in any war before.

In order to help in this way, the Government issued in July a little circular which is called Circular 22, issued from the office of the Surgeon General, and the introductory paragraph of that I wish to read:

**“For the Safety, Efficiency and Economy of the Military Service.**

“It is highly essential that mental and nervous diseases be recognized at the earliest possible moment. Nervous and mental diseases may and frequently do exist in persons who are strong, active and apparently healthy, who make no complaints of disability. Such persons are however more than useless as soldiers, for they cannot be relied on by their commander, they break down under strain, become an incumbrance to the army and an expense to the Government.

“Disorders of this character are often demonstrable only as a result of painstaking and

special examination, directed toward the mind and nervous system.

“This circular is published for the special purpose of calling the attention of medical officers to the particular diseases most frequently overlooked on general examination, and the symptoms most important to their diagnosis and to certain characteristics in the personality and in the behavior which may raise the question of the existence of mental disease.”

In order to get at these men, not only are the physicians, psychiatrists and neurologists, who come to the camp, expected to go over the personnel, but the officers, both commissioned and non-commissioned, of the camp, are requested to notify the camp surgeon or these psychiatrists and neurologists of such men as in the course of their observation show these characteristics: irritability, seclusiveness, sulkingness, depression, shyness, timidity, over-boisterousness, suspicion, sleeplessness, dullness, stupidity, personal uncleanness, resentfulness to discipline, inability to be disciplined, sleep walking, nocturnal incontinence of urine, and any and various characteristics which gain for those displaying them the names of “boob,” “crank,” “queer stiek,” “gink,” and other such terms of derision.

Those are the characteristics that may lead to the detection of either mental defect or mental disease, or a predisposition to break down.

It is up to us, psychiatrists and neurologists—I do not regard myself as a neurologist—to find these people.

My own personal detail is to the reserve officers training camp, and the method that I have used, and which is recommended, is that at the various examinations we test each man for the pupillary reaction by flashlight; tremors of the face, of the facial muscles, the tongue, and of the extended fingers; the knee reflexes; and the station on one foot with the eyes closed. These we can do rather quickly while the men are being examined for other conditions, such as tuberculosis—not actually simultaneously, but without wasting their time.

Then any men who show these symptoms are listed, and we take each man separately for more intensive study. We go over him with more or less a fine toothed comb, to see if we can determine the existence of any organic



nervous disease, any mental disease in its incipency, or any mental defect.

It is not to be expected that we should find feeble-mindedness among the men who have entered the reserve officers' training camp. They have already been pretty well weeded out, and they are pretty intelligent men; all of them, I rather think, are high school graduates, many of them college graduates, and some of them are graduates from professional schools. So I have not thus far found any that I could call feeble-minded, although there are some men whose judgment is not very good and whom I have not eliminated, but the officers have eliminated because they are evidently not made up of "officer material."

The results in the different camps vary. Either I am incompetent or the quality of the men in some of the other camps is not as good as this group here that is now in training. I am told that from one to two per cent. of the men in training should be eliminated on the ground either of mental disease or of predisposition to disease, such as a psychasthenic make-up, or hyperthyroidism. I am not finding that proportion here.

In one of the big training camps, I do not know which camp it was, the examiners reported that they found from one to two cases of general paresis or of cerebro-spinal syphilis in each company of about 135 men. I am not finding any such proportion as that. It may be that the men from Iowa, Minnesota, North and South Dakota, and Nebraska, are cleaner living men than those from Massachusetts, New York, Pennsylvania, and so on. It was at the Plattsburg camp that that preliminary report was made.

That is what my work is. I think you will be interested to know that besides this, the American Psychological Society has formed a committee which has been at work to devise tests for mental defectives, which can be applied en masse, thus saving a great deal of time. It will be of help for example, in examining the enlisted men.

They are trying to devise standardized tests which can be applied to group after group, and which will not be affected by any coaching which one group can give to the next. Always the men talk these things over and try to coach

each other up, so a number of equivalent tests have to be devised. Some of the tests, for example, are like this: the men will all be grouped in a room, one hundred or two hundred perhaps at a time, or two companies at a time, and they will have a set of papers on which are printed a list of ten numbers, say of seven digits each, and the men will be told to arrange those numbers in the order of their size. That means that each man has to look at each of these seven digits carefully in order to determine its relative size as compared with the next number. He is given a definite time in which to do it. If he does not do it in a certain time he is not up to a certain standard. That is one type of test.

Another type of test is a problem something like this: a man is told that he has a seven-quart pail and a two-quart pail and he is to measure out water by means of these two pails so that he can get exactly six quarts, not by guesswork but by actual measurement. In a test like that, one has to have different numbers other than seven and two, so that successive groups of men will not coach each other on how to answer the problem.

Other problems will be something like this: a man is given a sheet of paper on which are printed certain directions such as, "If January is one of the summer months put a dot after the middle of your own name. If it belongs to some other season do nothing at this point (and then there is a blank) but go on with the next question;" and so on, giving them a number of mixed directions which are a little puzzling, and unless the man keeps his head he is going to make mistakes in it.

There are a number of tests of that kind, standardized and varied. You can put a large group of men through those in an hour rather readily, picking out those that fall down. These men can be studied more intensively for their exact development by other methods, or can be studied for any causes of backwardness. That is one of the ways in which they are trying to test out these men.

It is hoped that these psychologists will work in co-operation with the psychiatrists and neurologists.

At each of the training camps for men in the new draft and for the reserve officers, they are

trying to assign psychiatrists and neurologists, and where they can, psychologists. They already have been able to place in the camps about two hundred psychiatrists and neurologists. I do not know whether all the camps are supplied with them or not, but they will probably need some more.

I think that gives a little idea of what "Unele Sam" is trying to do to eliminate certain types of unfitness.

We have this advantage in this country in this work, that we can profit by the experience of the other nations who have been at war. France, England and Canada find that of the men who break down, and have perhaps shell shock, constitute about ten per cent. of the number of soldiers that are invalided home.

Now, upon examining these men and going into their histories carefully, they find a very large proportion of those who have shell shock showed certain neurotic antecedents long before the war. They find, for example, that they have shown fear: some kind of phobia, as of jumping off of high places, a little hesitancy to cross a high bridge, a fear of being crushed in a crowd; or impulses, the feeling that they must do some foolish thing; or that they have been subject to sleeplessness; or that they have recurrent nightmares; or that they are timid; or that there are certain physical neurotic symptoms, and so on. That helps us a great deal to pick out beforehand the men who are liable to do that. They did not have the chance we had, and so we can profit by their experience to do a little preventive work.

In this Government circular it speaks of the effect on the military service and the economy to the Government. What it does not mention is the individual himself, who has these disabilities. It seems to me that he, too, needs to be considered, and it is just as much for his benefit that he be eliminated. It is not quite right to send a hyperthyroid case into the front, where he is certain to break down, if there are plenty of men who do not have that disability. And so, in the case of the man with a bad heredity, who shows certain neurotic traits, although he may be a very keen, bright and intelligent fellow, yet is certain to break down, let us save him.

I think that we can do it also on the ground of the man's right to himself not to be unduly subjected to this stress and strain.

Dr. Beekley will tell some of the work that he has actually accomplished. He has been at the work a little longer than I have.

Captain C. C. Beekley, Fort Snelling: I have been at Fort Benjamin Harrison for two months. I was sent there from the camp in which I was receiving training in military matters. My orders read to proceed to Fort Snelling and report to the commanding officer, to make examinations in special work, in mental and nervous diseases. I had no other instructions. I got there and found some six thousand to eight thousand men whom I was supposed to look over and examine and pick out the incompetent from a mental and nervous standpoint. Lieutenant Truitt had been there for two or three weeks and had examined some of the first training camp, and he asked me to go over his findings and talk them over with him. So I know a little about the men in the first training camp.

The officers have given me every opportunity to examine and to pick out the men. The ward surgeons, the regimental surgeons and the line officers have all co-operated very well.

As has been told you, in devising the method, we have gone on rather slowly, and feel that as time goes on, and we get organized better, we can do more work. At first I trained the sergeant to test the reflexes, the station, the gait, the pupillary reactions, and to note the tremors; and he has in six weeks examined 3,297 men, and of this number has selected 184 to refer to me for further investigation. He has been at this work for about six weeks. Some weeks he examines a large number, as many as 800 or 900, and other weeks not more than 200 or 300. He takes the men as they come down for an examination of their lungs. After that he takes them into a tent and examines them in that way; so he does not disturb the routine of the regiment any more than can be avoided, and is also able to keep pretty well ahead of them in the work.

I have thus far examined more or less thoroughly 246 men. Of course, this is rather slow work, in going over the men and examining them fairly thoroughly, which we have to do,

to pick out some of the minor things. It has been quite a question in the border line cases as to just which men should be discharged and which men should be kept, to know just where to draw the line.

You might be interested in knowing about the conditions which we have found. Some of these should have been discovered by the man making the first examination, and the person never should have been admitted.

Dementia precox, five cases. Of these, two had escaped from some hospital where they had been detained, and had joined the army so that they would not be taken back.

Maniacal depressive psychoses, two cases; in both of these the condition had existed prior to enlistment. One of them had been in a hospital for the insane. The parents and the family physician of the other man recognized his condition, and they did not consider that there was anything in his being taken into the army, as they expressed it. They knew he could not pass the examination they said.

Epilepsy, grand mal, seven cases; petit mal, one case. There are undoubtedly other cases which have not been determined as yet, and which are still on my list, under observation. Before discharging a man for epilepsy we make sure that he is a real epileptic and that he has real epileptic attacks, and that such attacks are observed by someone who is competent to distinguish an epileptic attack from a simulated one.

Constitutional psychopathic state, three cases; psychoneuroses, two cases; defective mental development, eight cases.

In discharging patients for defective mental development and feeble-mindedness, I not only make the diagnosis, but I come in touch with the line officers and get reports from them and find out how the man does in his drills, whether he is competent to do the duties of a soldier or not. I send the sergeant whom I have working with me, to the sergeant of the company to get a report from the non-commissioned officers and to talk the man over with some of his mates. In that way I am trying to determine just where to draw the line in mental deficiency.

Most of these cases have been tested by the Yerkes-Bridges point scale. It takes consider-

able time to make an examination and to write up the histories, so that I am not doing it as rapidly as might be wished.

Exophthalmic goitre and hyperthyroidism, six cases, which have all been discharged. Neurasthenia, one case; narcolepsy, one case.

I have had two cases in men who have a psycho-neurosis, plus muscular spasm, with a long history.

Another case seemed to be classical myotonia congenita, dating from childhood, sometimes so severe that the spasms threw him off his feet. He has recently developed hysterical symptoms, and there is no question but that he needs to be discharged.

Multiple neuritis, one case; brachial neuritis, one case; multiple sclerosis, one case; and spinal syphilis, one case. This case of spinal syphilis had a positive Wassermann of the spinal fluid. Other cases which I have thought were not cerebro-spinal syphilis have been proved out when I have obtained the laboratory findings. I have one or two on my list under observation, and in one or two I have made some other diagnosis.

Those that I have spoken of are from the enlisted men. In other departments I have found, maniacal depressive conditions, two cases; general paralysis, one.

In the first training camp you will be interested to know what we found. I arrived there just before the camp was breaking up, so they were not entirely examined, but in the first officers' training camp there were found nine who were considered unfit to receive commissions on account of some nervous or mental condition. Included in this number were the following: multiple neuritis, one; constitutional mental inferiority, one, a very well marked case; history of past mental disorders, one.

Aside from these on whom I have made definite diagnoses, or have advised their discharge, I have written letters to the regimental surgeons asking them to observe, treat and report on certain other men. The list includes men with marked tremor and unsteadiness, with very little in the way of neurological findings that I have been able to bring out, four cases; men with moderate tremor, nine cases; alcoholism, three cases.

Many of these cases with moderate tremor or with marked tremor, I think are due to two or three causes. There are undoubtedly others that I do not know about. I am very much interested in the question of some of these tremors, and I have these men under observation, hoping to be able to determine just what has caused it in most instances. Some of them give a history of alcoholism for a long time or using tobacco to excess, including snuff, and probably they get up a toxic condition, which does produce a tremor. In others the tremor seems to date from some injury, an injury to the mind, in which they have received a good deal of a fright, and they give a history of having the tremor develop at that time. Two or three have tremors which they say they always had, which they have had from childhood, and I believe it is supposedly an inherited condition, as certain people do have these tremors.

Some of these tremors and unsteadiness are very marked, so that there is no question that these men will not be able to hit a very small mark with a rifle. I have considered and have talked with some of the officers, whether it was possible in some of these instances that the men might not be given special work, or whether it was necessary for every soldier to be able to do every kind of duty. Of course, many men with tremors and things of that kind, although they could not throw bombs and could not shoot straight, they could handle baggage or lay rails or dig trenches, and things of that kind; and if discharged, will come back doing that sort of work. That has not been worked out, and I do not know whether it is possible to work it out or not.

Men complaining of dizziness and faint spells, nine. Some of these I believe have epilepsy. Some of them give a history of having had one or two convulsions in childhood, and since then of having had recurrent dizzy spells. I have an idea that some of these cases are mild epileptic conditions. I am trying to get more facts on them; I am trying to have them observed by the non-commissioned officers, by the officers and the regimental surgeons.

I have one man under observation, with a mild mental depression, more of a low spiritedness. It hardly seems that it is sufficient to discharge him or to warrant his discharge, it may

be due to something which has happened in his past life which has worried him.

Syphilitic conditions under observation, five. Enlarged thyroid, with no toxic symptoms, eight. Enlarged thyroid, with slight toxic symptoms, four. Those cases having slight toxic symptoms will probably have to be discharged.

In the discharging of men, the history has to be written up and filed, and a certificate of disability made out and signed by the examining surgeon and by the commanding officer. These have to be made out in a certain definite way, in order to prevent a person who was enlisted with a certain condition, a condition which existed prior to enlistment, coming back later and claiming a pension.

So, for those recommended for discharge on account of some certain disease, who become unfit for duty, from present disease or injury, of which we get a history and know that it existed before he came into the service, we put in there, "prior to enlistment," and that when the disability arose the patient was a civilian. Then we have to fill out on the other side the condition found, and how it demonstrates itself, and why it incapacitates the man from performing the duties of a soldier. We put in "Opinion," based on the history of the case, whether it existed prior to enlistment or not.

These papers go before a board of two medical officers, who review the case, and their attitude is as it should be: "You have to show me that this man has a disability, and that he does have to be discharged." If they consider that the man ought to be discharged, they recommend his discharge, and it has to go to the headquarters of the department before the man can be released, and before he gets his final discharge papers.

The officers and men in the training camp go before another board, and the procedure is somewhat different.

Dr. J. T. Christison, St. Paul: I think I voice the sentiment of this section when I say that we all feel deeply indebted to Captain Abbot and to Captain Beckley for bringing before us this new phase of army life.

It is especially beneficent, it seems to me, in eliminating the unfit. It does two things. It

saves that man for some future usefulness, where he might possibly go to pieces under the strain of army work, and it saves his commanding officer the chagrin that might accrue as the result of having such a man in his command.

I therefore, Mr. Chairman, move you that a vote of thanks be tendered these gentlemen by this section for their kindness in coming before us this morning.

(The motion was duly seconded and was unanimously carried by a rising vote of those present.)

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### EVERY DOCTOR IN THE MEDICAL RESERVE CORPS.

What an ideal situation it would be if every doctor in the United States who is mentally, physically, and morally fit, was in this Corps!

The time is coming, and in the immediate future, when the Medical Reserve Corps of the Army must be immensely augmented. Therefore, to enable the Surgeon General to have at his command for immediate assignment, as conditions demand, a sufficient number of trained medical officers, let us take the above thought seriously.

We all know from past history the conserving value of an efficient medical corps, and this means number as well as training.

A statement made by one high in authority in the Surgeon General's Office, "that our fighting forces would be decimated by sickness and casualties in six months, were it not for an efficient army Medical Corps," clearly emphasizes the importance of every doctor in the United States meeting the requirements above referred to and accepting a commission in the Medical Reserve Corps of the United States Army.

The struggle in which we are now engaged, and for which we are preparing to take such a prominent part, depends for its success as much upon the medical profession, as it does upon our combatant forces; and while we do not know that any such intention as herein suggested is in the mind of the Surgeon General, it would at least give him the necessary Corps of medical officers upon which to draw, and thus serve the best interests of our country, as well as the best interests of the medical officers themselves.

### DR. WEIL DIES IN SERVICE.

The loss of Major Richard Weil, who died of pneumonia on November 19th at Camp Wheeler, Macon, Ga., will be keenly felt in cancer research work. Dr. Weil was a valued member of the American Society for the Control of Cancer. He gave up his work, before war was declared by the United States, to enlist in the service, and was assigned after his training, as Chief of Staff of the Medical Reserve Corps at Camp Wheeler. Dr. Weil was prominent in the work for cancer research at the General Memorial Hospital and was Assistant Director of the cancer laboratories of Cornell University Medical College in New York.

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### APPOINTMENTS OF THE STATE BOARD OF HEALTH.

Gov. J. A. A. Burnquist made the following appointments on the State Board of Health to take effect January 7th, 1918:

Dr. George D. Head, of Minneapolis.

Dr. Neill M. Watson, of Red Lake Falls.

Dr. R. C. Hunt, of Fairmont.

These gentlemen replace:

Dr. W. A. Jones, of Minneapolis.

Dr. C. W. More, of Eveleth.

Dr. F. N. Hunt, of Fairmont.

Since the above, Dr. Head has declined to serve. Dr. J. G. Cross, of Minneapolis, was then appointed, but he has also declined to serve.

Dr. W. A. Jones was appointed as a member of the Board in 1906 and elected President in 1910, when that office became vacant by the death of Dr. Henry Hutchinson. He has been a hard working and valuable officer to the State Board of Health.

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### DR. C. W. MORE OF EVELETH IS GIVEN A PLACE ON THE ADVISORY COMMISSION OF THE STATE SANATORIUM FOR CONSUMPTIVES.

Gov. J. A. A. Burnquist has appointed Dr. C. W. More, of Eveleth, on the Advisory Commission.

Dr. H. Longstreet Taylor, whose term expired, has served on the Advisory Commission as its President since the Commission was creat-

ed by the legislature of 1903. He had also been President of the first Commission, appointed in 1901. Dr. Taylor has always been an enthusiast in anti-tuberculosis work. He has been instrumental in establishing fifteen public, one charitable, and one private institution, and has seen almost 1,500 beds dedicated to the consumptive population of Minnesota during his term of office.

## NEW AND NON-OFFICIAL REMEDIES

During November, 1917, the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

**Farbwerke-Hoechst Co., New York, Salvarsan.**

**Borcherdt Malt Extract Co., Borcherdt's Malt Sugar.**

**Paraffin for Films (Surgical Paraffin, Plastic Paraffin).—**Paraffin intended for application to burns, etc., should be more ductile and pliable than the official, paraffin, and be liquid at or below 50 C. Thin films should be pliable at or below 28 C. and ductile at or below 31 C., and somewhat adherent to the skin. Paraffin for films is used mainly in the treatment of burns. It is used also to prepare "paraffin covered bandages" and to seal gauze dressings. In the paraffin treatment of burns, the wound is cleaned and dried; a thin coating of liquid petrolatum or melted paraffin for films is applied, and is followed by a thin layer of cotton and another layer of cotton; another layer of melted paraffin is applied, and the whole then bandaged.

**Stanolind Surgical Wax.**—A brand of paraffin for films melting at 47 C., being pliable at or below 25 C. and ductile at or below 29 C. Standard Oil Company of Indiana, Chicago (Jour. A. M. A., Nov. 3, 1917, p. 1525).

**Silver Protein-Squibb.**—A compound of silver and gelatin, containing from 19 to 23 per cent of silver in organic combination. Like other silver protein compounds, it is used in from 1 to 25 per cent or stronger solutions for prophylaxis and treatment of the sensitive mucous membranes, particularly in gonorrhoea, conjunctivitis and other infections of the urethra and of the eye, ear, nose and throat. E. R. Squibb and Sons, New York.

**Arsenobenzol (Dermatological Research Laboratories).**—A brand of arsenphenol-amine hydrochloride. Its actions, uses and dosage are the same as those of salvarsan. It is supplied in ampules containing 0.6 Gm. The General Drug Co., New York City.

**Acetylsalicylic Acid-Milliken.**—A brand of acetylsalicylic acid complying with the standards of New and Non-official Remedies. It is sold only in the form of 5 grain capsules and 5 grain tablets. Jno. T. Milliken and Co., St. Louis, Mo.

**Acetylsalicylic Acid (Aspirin), Monsanto.**—A brand of acetylsalicylic acid complying with the standards of New and Non-official Remedies. Monsanto Chemical Works, St. Louis, Mo. (Jour. A. M. A., Nov. 17, 1917, p. 1695).

## PROPAGANDA FOR REFORM.

**"Patent Medicines" here and in Canada.**—The federal law governing the interstate sale of "patent medicines" prohibits false and misleading statements in regard to composition and origin and false and fraudulent therapeutic claims. The Canadian law offers no protection against false, misleading or fraudulent statements that may be made for products of this class. As a result, many claims made for "patent medicines" when sold in Canada are not made when the same preparations are sold in the United States. An examination of Dodd's Kidney Pills, Doan's Kidney Pills, Williams' Pink Pills for Pale People, Paine's Celery Compound, Hall's Catarrh Medicine, Hood's Sarsaparilla, Dr. Chase's Nerve Pills, and Gino Pills as sold here and in Canada leads to the conclusion that the "patent medicine" industry as a whole is founded on falsehood, and that misleading and false claims will be made for such preparations, at least in the majority of cases, just so long as manufacturers are subject to no restraint except their own consciences. (Jour. A. M. A., Nov. 10, 1917, p. 1636).

**Shot-gun Vaccines for Colds.**—There is no reliable evidence for the value of mixed vaccines in the prevention or treatment of common "colds" and similar affections. The Council on Pharmacy and Chemistry accepted for New and Non-official Remedies mixed vaccines only on condition that their usefulness has been established by acceptable clinical evidence. So far it has not admitted any of the "influenza" or "catarrhal" mixed vaccines. (Jour. A. M. A., Nov. 10, 1917, p. 1642).

**Iodeol and Iodagol.**—Iodeol and Iodagol (formerly called Iodagol) are the products of E. Viel and Company, Rennes, France. They have been widely and extravagantly advertised in the United States as preparations containing colloidal, elementary iodine, and with the claim, that, because of the colloidal state of the iodine, they possessed the virtues but not the drawbacks of free iodine. As the result of chemical examination, pharmacologic, bacteriologic and clinical investigation and a study of the submitted evidence, the Council on Pharmacy and Chemistry declared the products inadmissible to New and Non-official Remedies because they did not contain the amounts of iodine claimed; because the iodine was not in the elementary or free condition but behaved like fatty iodine compounds, and because the

therapeutic claims were exaggerated and unwarranted. The American agents, David B. Levy, Inc., announce that the sale of Iodeol and Iodagol has been discontinued. (Jour. A. M. A., Nov. 17, 1917, p. 1725).

**The Carrel-Dakin Wound Treatment.**—Arthur Dean Bevan holds that the value of the Carrel-Dakin method of treating infected wounds has not been established. He has been forced to the conclusion that Carrel's work does not meet the requirements of scientific research. Bevan believes that the choice of antiseptics in the treatment of infected wounds is of little moment, and that the use of the Carrel-Dakin fluid, like Koch's lymph, Bier's hyperemia and the vaccine therapy of acute infections, will have a short period of popularity. (Jour. A. M. A., Nov. 17, 1917, p. 1727).

**Sphagnum Moss, A Surgical Dressing.**—In England, sphagnum moss, or peat moss, is being used as a substitute for absorbent cotton. The dried moss is said to absorb twenty-two times its own weight of water, while absorbent cotton will not absorb more than six times its weight. For surgical use the dried moss is packed loosely in muslin bags which are then sterilized by heat or chemicals such as mercuric chloride. (Jour. A. M. A., Nov. 24, 1917, p. 1796).

**Adulterated Imported Drugs.**—The U. S. Department of Agriculture announces action against imports of adulterated drugs. Belladonna root was adulterated with yellow dock; cantharides was adulterated with so-called Chinese blister flies, and cinchona bark offered for entry was deficient in alkaloid. Other drugs were illegally labeled. (Jour. A. M. A., Nov. 24, 1917, p. 1792).

**Bell-ans (Pa-pay-ans, Bell).**—Bell-ans, formerly advertised as Pa-pay-ans (Bell) in medical journals, is now advertised in newspapers and in medical journals. Among the extravagant claims made for this preparation is the claim that there is no derangement of the digestive organs on which the proper dose of Bell-ans will not act quickly and pleasantly. Instead, proper treatment must aim to determine the cause and attempt its removal, the choice of drugs depending on the conditions that give rise to indigestion. The treatment of indigestion by a single prescription or combination is wholly irrational. While Bell-ans, under its old and new name, has been alleged to contain papain or to be some preparation of the digestive juice of the fruit of *Carica papaya* with other substances, chemists have failed to find papain or to determine the digestive power of the tablets. Bell-ans is essentially a tablet of sodium bicarbonate and ginger, and has all of the virtues, which are few, and all of the limitations, which are many, of a tablet of sodium bicarbonate and ginger. The Council on Pharmacy and Chemistry examined Bell-ans nearly eight years ago, and the statements made in that report are as incontrovertible today as they were then. (Jour. A. M. A., Nov. 24, 1917, p. 1815).

### The Handicap of Proprietorship in Medicine.

—Dr. J. J. Mundell protests because his article on the present status of pituitary extract in labor was abstracted in "Therapeutic Notes" in a way which appears to him a gross misrepresentation of his attitude toward the use of pituitary extract. Being a house organ, "Therapeutic Notes" contained only those portions of Mundell's article which may be expected to promote the firm's proprietary pituitary preparation. The references to the dangers and the limitations of pituitary extracts were not abstracted. (Jour. A. M. A., Nov. 24, 1917, p. 1818).

**Salvarsan, etc.**—Besides the German salvarsan and neosalvarsan, now practically unobtainable, the Council on Pharmacy and Chemistry has recognized diarsenol, neodiarsenol and arsenobenzol (Dermatologic Research Laboratories). It has under consideration salvarsan made by the Farbwerke-Hoechst Company, New York. Before accepting these preparations, the Council requires evidence to show that the products are manufactured under supervision which may be expected to insure their chemical identity and uniformity, and freedom from toxicity. However, in the past, untoward effects have been reported from German salvarsan and neosalvarsan, particularly with the last shipments of neosalvarsan. Recently untoward effects have been reported from neodiarsenol. It is expected that within a short time all salvarsan, neosalvarsan and the various products identical with these will be tested by the Government. (Jour. A. M. A., Nov. 24, 1917, p. 1819).

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### TEN YEARS OF THE FOOD AND DRUGS ACT.

Ten years of enforcement of the Food and Drugs Act of June 30, 1906, are reviewed in the current annual report of the Bureau of Chemistry, United States Department of Agriculture, which states that the Act's chief contributions to the safety of the people's health have been its corrective effect upon the drug and patent medicine industry, its control of trade in unclean milk, polluted, decomposed or filthy foods, and protection of foodstuffs from contamination with poisons likely to be met in manufacture.

The general effect of the Food and Drugs Act may best be estimated, says the report, by considering its effect upon food and drug control by the States; upon development of the food and drug industries, and by the principal abuses that have been corrected. But to illustrate the scope of the work through figures and facts the report points out that more than 6,000 prosecutions have been terminated in the courts in the first decade of the Act; that manufacturers have been cited at hearings more than 40,000 times, that many thousands of factory inspections have been made, and that more than 750,000 shipments of domestic or imported food and drugs have been examined.

Special attention has been given to shipments of polluted or spoiled food. Milk shipped in interstate commerce and imported from Canada has been im-

proved in cleanliness, purity, and the condition of sanitation under which produced. The canning of decomposed navy beans has been largely suppressed. Interstate shipment of oysters from polluted waters has practically ceased. Because of co-operation with State and municipal officials in controlling the shipment of bad eggs, it is reported that the quality of the eggs reaching the large cities is much improved. Other products, in whose handling and sale improvement has been noted, include mineral water, tomato products, fruit, vinegar and gelatin.

#### States Co-operate With Federal Laws.

One consequence of the enactment of the Food and Drugs Act was to encourage similar legislation in many of the States, the purpose of which is to control local traffic in food and drugs which, since no interstate commerce is involved, are not subject to the Federal law. For example, in 1906, many States had no feeding stuffs laws. A State could not prosecute a manufacturer unless he were a citizen of that State. The Federal law supplements the State law in this respect and now most of the States have similar laws.

In the beginning the confusion and apparent conflict between local and Federal laws and administration of laws not only made it difficult for the two sets of officials to co-operate, but often made it necessary for manufacturers to make special preparations for shipment to certain States at extra cost, the extra cost being passed on to the ultimate consumer. This evil has been remedied to a considerable extent by the organization of two agencies which in a large measure have removed some of the difficulties arising from the conflict of Federal and State jurisdiction. These agencies are (1) The Joint Committee on Definitions and Standards, and (2) The Office of Co-operative State, and Federal Food and Drug Control.

#### Development in Food and Drug Industries.

The Food and Drugs Act was one of the first laws which today would be classed as laws for the prevention of unfair competition. The report says that the suppression of fraud upon the consumer and of unfair competition among business rivals are "but the two faces of the same coin." In consequence the food industries are sincerely and actively helping the Bureau of Chemistry to enforce the law.

Frequently, the report says, the Bureau is appealed to by the industries to compel the cessation of unfair practices and to encourage the standardization of the products, when the industry is incapable by itself of bringing about these results. The Act is described as one of the influences which have helped to draw competitors together into association, like the guilds of the middle ages, although the modern associations lack the special privileges which the ancient guilds often enjoyed.

Some of the associations, understanding the value of constructive work, now devote considerable money to experimental research into technical problems. Thus is made available to the small manufacturer

scientific assistance ordinarily beyond his reach. Since the Bureau of Chemistry always has regarded it as its duty not merely to report violations of the law but also to prevent accidental violations, through constructive work in tending to improve methods of manufacture, it co-operates actively with such associations of manufacturers. Such co-operation, by the various Government agencies, says the report, is bound to exert the profoundest influence on the country's industrial and social development.

#### Abuses Corrected by Law.

The best evidence, according to the report, that many of the abuses formerly occurring in the food industry have ceased is found in the fact that the violations of the Food and Drugs Act observed today are hardly comparable, in degree, with those in the first few years following the enactment of the law.

Most of the staple-food products now found in violation either are of a higher grade than formerly or are products of clever adulterators who have more or less anticipated detection so that the adulterations have been found only by the most painstaking chemical analyses and factory inspection.

Consequently there has been a decided change in the direction of the work. In recent years it has developed quite noticeably in the direction of factory sanitation; of the study of spoilage and decomposition of foodstuffs, and of improvement through laboratory research of methods of detecting the more refined types of adulteration.

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## REPORTS AND ANNOUNCEMENTS OF SOCIETIES

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#### ACADEMY OF MEDICINE.

The regular meeting was held at the Town and Country Club, December 12, 1917.

Preceding the scientific part of the program, members and guests stretched their legs as usual for an hour under the dinner table, which, by the way, is a very enjoyable feature of our monthly gatherings. Indeed, it is so enjoyable that sometimes it is difficult to get the members to break away from the delights of social intercourse and settle down to business.

The meeting being called to order by the president, Dr. Cross, the minutes of the last meeting were read and approved.

The next order of business being that of election of new members, it was moved that there be no election at this time, but that it be made a special order of business for the next meeting.

Dr. Little gave a short report of three cases. The first was that of a child one month old on whom he had operated for intussusception. He made his incision through the right rectus muscle. Considerable trouble was experienced in locating the telescoped



bowel. It was finally found up under the stomach. Five inches of the ilium had turned into the caecum through the iliocecal valve. This was released and reduced. The freed gut was fastened by catgut so that its reinagination could not occur.

A second case was that of a woman hurt in an automobile accident. Besides a severe injury to the abdomen, she sustained a Pott's fracture of the right ankle. On opening the abdomen it was found filled with stomach contents, the rent being in the first part of the duodenum. In extent the wound was about one and one-half inches long. It was closed and the abdomen washed out. Thus far—the accident occurred the day before—she is doing well.

A third abdominal case was that of a man twenty-one years of age who was taken violently ill with pain in the abdomen. Upon opening the belly it was found that three feet of jejunum had telescoped into itself. Much difficulty was experienced in freeing it, some seven or eight hours having elapsed since intussusception took place. The gut was liberated, however, without cutting. The man made a good recovery.

Dr. Farr showed a carefully prepared specimen of the urinary tract, including both kidneys, both ureters, and the bladder. A suprapubic cystostomy had been performed eight days before death in a man of seventy who had for years suffered from an enlarged prostate. Microscopically, the prostatic enlargement showed adenoma. Both kidneys were enlarged, the ureters dilated, and the bladder wall greatly thickened.

He also related the case of a man on whom he had very recently performed a colostomy, showing by diagrammatic sketches some of the complications met with. The individual already had had his colon short circuited some time before. The society would be pleased to know if this man survived, for, if he did, it would be a great satisfaction to know that nature's handiwork may be so safely and advantageously readjusted.

Dr. Staples read a paper on "Portal Cirrhosis," and Dr. Earl a thesis on "Fractures of the Skull." Both papers were fully discussed.

There were thirty members and three visitors present.

F. E. LEAVITT, Secretary.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION.

At the annual meeting of the Southern Minnesota Medical Association, on November 27th, 1917, new officers were elected as follows:

- President, M. S. Henderson, Rochester.
- First Vice President, A. E. Sohmer, Mankato.
- Second Vice President, P. F. Holm, Wells.
- Secretary, H. T. McGuigan, Red Wing.
- Treasurer, G. F. Merritt, St. Peter.

THE UNIVERSITY INAUGURATES PHYSICIANS' DAYS.

The University of Minnesota Medical School is inaugurating "physicians' days" for the physicians of the state. The first meeting of the kind will be held during Automobile Week on Thursday and Friday, February 7th and 8th.

The clinical staff of the University Hospital will be on hand to welcome the visiting physicians. A program covering all the major clinical branches has been prepared—clinics, operative and dry, ward rounds, lectures, demonstration of the simpler practical laboratory procedures are included.

The faculty feel that they have a great responsibility to the profession of the state and they wish the profession to know it. The State Medical School should offer something tangible to the profession in the way of facilities, assistance and inspiration. They propose an "all-Minnesota-medics-get-together" movement for Minnesota and this is the initial move. The Medical School is anxious to do its part—all it asks is that the profession will come.

The program is as follows:

THURSDAY, FEBRUARY 7.  
ASSEMBLY.

- 9:00-10:00 a. m.—Clinic.....Dr. J. E. Moore
- Obstetrics demonstration.....Dr. F. L. Adair
- 10:00-12:00 m.—Operative Clinic.....Dr. A. MacLaren
- Operative Clinic.....Dr. W. R. Murray
- 2:00-3:00 p. m.—Medical Clinic.....Dr. L. G. Rowntree
- Pediatric Clinic.....Dr. W. R. Ramsey
- 3:00-4:00 p. m.—Ward Rounds.
- Nervous and Mental.....Dr. A. S. Hamilton
- Children.....Dr. F. W. Schlutz
- Medicine.....Dr. F. G. Blake
- Heart.....Dr. A. D. Hirschfelder
- 4:00-5:00 p. m.—Demonstrations in Medical Laboratories.
- Grouping of blood.
- Phthalein Test and Alveolar CO<sub>2</sub>.
- Benedict for sugar.
- 8:00 p. m.—University Medical Society.
- Remarks by the Dean.....Dr. E. P. Lyon
- Eclampsia.....Dr. W. H. Condit
- Dental Infections.....Dr. T. Hartzell
- Disease in Cantonments.....Dr. F. C. Todd
- 9:30 p. m.—Laboratory Demonstrations.
- Anatomy—Physiology — Pathology — Pharmacology.

FRIDAY, FEBRUARY 8.

- 9:00-10:00 a. m.
- Gynecological Clinic.....Dr. J. L. Rothrock
- Operative Clinic.....Dr. H. P. Ritchie
- 10:00-12:00 m.
- Gynecological Clinic.....Dr. J. C. Litzberg
- Operative Clinic.....Dr. Howard Clark
- 1:30-2:30 p. m.—Medical Dispensary.
- General Medicine.....Dr. J. P. Schneider
- Gastro-intestinal.....Dr. R. I. Rizer and Dr. C. B. Wright
- Tuberculosis.....Dr. F. W. Wittich
- Heart.....Dr. Olga Hanson
- 2:30-3:30 p. m.—Clinic.
- Mental and Nervous.....Dr. A. S. Hamilton
- Medicine.....Dr. H. L. Ulrich
- 3:30-4:30 p. m.—Ward Rounds.
- Medicine.....Dr. L. G. Rowntree
- Dr. E. T. F. Richards
- Dr. R. I. Rizer
- Pediatrics.....Dr. W. R. Ramsey
- 4:30 p. m.—Clinical-Pathological Conference.
- Institute of Anatomy.

## PROGRESS IN MEDICINE AND SURGERY

**WAR SURGERY:** Colonel T. H. Goodwin (*The Military Surgeon*, Vol. XLI, No. 3), says sepsis has proved to be a very serious and general complication of almost every class of wounds. The soil is extremely polluted and the air heavily laden with dust as a result of the almost constant heavy shell fire, and further, the velocity of modern missiles is very high.

In the treatment of collapse, he advocates the patient's resting for an hour or two before dressing or examination and believes pituitary extract is of benefit in many cases. With wounds, adequate drainage and mechanical cleansing form the first essential steps.

The writer speaks favorably of the Carrel-Dakin treatment, but he states success depends on the closest attention to details, thereby showing the difficulties of such a method becoming practical. (British and American opinion agree on the necessity of following well-tried surgical principles rather than depending on very new antiseptics).

The problems of infection between hemorrhage and shock are either understood, or one has time to think; but with gas and gangrene, in either civil or military practice, treatment must be so immediate that the author's news are given verbatim:

"Due to the bacillus of malignant oedema or the bacillus perfringens (*B. aerogenes capsulatus*). Conditions favoring the development of gangrene are:

1. Retention of extravasated blood.
2. Interference with circulation.
3. Presence of masses of devitalized tissue.
4. Fracture and comminution of long bones.
5. Blood-stained dressing or clothes left in contact

with the wound.

It usually occurs within the first three days. It may begin within a few hours, or the onset may be delayed for several days. The onset is often extremely rapid.

Signs and symptoms. (1) Crackling on pressure. (2) Brownish discoloration, 'bronzing.' (3) Limb swollen and tense. (4) Foul gaseous discharge. Tongue dry and furred. Vomiting, hiccoughing. Temperature usually subnormal, never materially raised. A sudden fall to subnormal temperature is of very serious prognostic significance. Death usually occurs within forty-eight hours of onset.

Treatment. Free incisions; removal of dead tissues; thorough cleansing of the wound; hydrogen peroxide; drainage. If hand or foot is warm, do not, as a rule, amputate. If cold and insensitive, amputate at once, if the general condition of the patient permits."

In first aid work on fractures Goodwin advocates triangular bandages rather than roller.

Amputation may be called for:

"(a) As a primary measure when a limb is hope-

lessly shattered; when it is gangrenous, or when advanced gas gangrene has set in.

(b) As a secondary measure in cases running an unfavorable course. Indications are then similar to those in civil practice."

In joints the writer mentions the very important point of extension; and advises aspiration with bacteriological examination for diagnosis, and in septic cases injection of formalin-glycerin or iodoform ether.

Regarding head injuries the author states operation is very seldom necessary on account of general or local cerebral symptoms. As far as preventing future complications, little is known of the value of this, and intracranial manipulations in the presence of a septic wound should be avoided if possible. Decompression is rarely called for. Though one must act with progressive hemorrhage there is the grave risk of infecting the subdural space. A local abscess may require decompression. With depression, trephining is indicated if there is a wound, and one should not be deceived by an apparently superficial wound. The X-ray is necessary as a routine. Cleansing of the head wound is the chief work and should be undertaken as soon as possible. This consists in removal of readily accessible foreign bodies and dissecting away of ragged surfaces leaving drainage.

The treatment of spinal injuries is disappointing but if the skiagram shows a missile or fragment of bone lying against the spinal cord, operation is indicated.

Wounds of the chest have been, until this war, not treated on a wholesale scale and here again the author is quoted:

"If death does not occur immediately, prognosis is good.

Symptoms. Considerable shock is usually present. Usually, but not invariably, hemoptysis. Breathing is difficult and painful and as hemorrhage usually occurs into the pleural cavity there are symptoms of internal bleeding as well as dyspnea. Pulse, small and rapid. Diaphragm fixed. Surgical emphysema may occur.

Treatment. Absolute rest. Hypodermic injection of morphia, one-third of a grain; repeat, if necessary. Small quantities of liquid food.

Do not remove patient for at least a week.

Temperature usually rises within the first forty-eight hours and may remain at about 100° for ten to fourteen days.

Do not tap a hemothorax during the first week, as fresh hemorrhage will occur if this procedure be followed.

Bronchitis may be troublesome.

A three-hourly mixture containing 3 grains each of iodide of potassium and carbonate of ammonium usually gives considerable relief.

Infection of the hemothorax is common and should be treated as an ordinary empyema."

Monyhan stated at the Clinical Congress of Surgeons that it was common to resect ribs near the cartilaginous juncture, removing the lung from its cavity

and doing whatever was necessary. This simplifies considerably former lung technique with its complicated apparatus.

The writer gives the following indications for wounds of the abdomen:

"Indications for operation: Wounds of the liver usually do well and seldom require operative interference.

Wounds of the kidney seldom require operation unless for continuous bleeding, in which case nephrectomy should be performed.

Wounds of the small intestines are usually multiple. A primary operation may reasonably be performed under the following conditions:

1. If seen within twenty-four hours of injury and the general condition is good.
2. If only a small part of the whole abdomen has been traversed.
3. If it is certain that the peritoneum has been opened.
4. If patient's condition is becoming worse.
5. If conditions for operation are satisfactory.
6. If pulse is rising, or abdomen increasing in rigidity.

After operation, make a careful examination for any bleeding points before closing the abdomen."

The problem of trench feet appears to be one of proper toilet and one for the chiropodist.

GEORGE EARL.

#### THE DIVERSION OF THE PANCREATIC JUICE FROM THE DUODENUM INTO THE STOMACH. ITS EFFECTS UPON THE LEVEL OF GASTRIC ACIDITY AND UPON THE PANCREAS: Ernest G. Grey

(The Journal of Experimental Medicine, Vol. XXVI, No. 6, December 1, 1917), points out that the mechanism described for maintaining the optimum level of gastric acidity is designated by Boldyreff as the "self-regulation of the acidity of the contents of the stomach." In support of Boldyreff's hypothesis is the evidence obtained from many experiments carried out both on man and on animals, in which solutions of alkali and acid have been placed in the stomach. The introduction of acid fluid has led to a regurgitation of alkaline duodenal contents; whereas the introduction of alkaline solutions has called forth a secretion of acid gastric juice.

The experiments reported in this paper were carried out for the purpose of ascertaining how the stomach would react, in as far as the secretion of hydrochloric acid is concerned, to a more or less continuous influx of relatively strong alkaline fluid, prolonged throughout the cycle of digestion. Numerous studies have shown that any serious interference with the process of regurgitation leads to a rise in the acidity level of the stomach; i. e., to a state of hyperacidity. There is but little evidence, however, to indicate whether the acidity level will be depressed temporarily or permanently (hypoacidity) when alkaline material, in considerable amounts, continues to enter the stomach.

The influx of alkaline fluid was provided for by transplanting the larger pancreatic duct into the wall of the stomach after ligating and dividing the lesser duct. Specimens of test meal for analysis were withdrawn through gastric fistulas made after the method of Janeway.

Animals prepared in this manner served also to furnish additional information regarding the possible relation of the hydrochloric acid of the gastric juice to certain acute inflammatory and chronic sclerotic changes in the pancreas.

From the results of these experiments it appears that the presence of a considerable amount of pancreatic juice in the stomach throughout the period of digestion leads only to a moderate decrease in the acidity level of the inješta in the later stages of digestion. Earlier in the process there is no constant alteration of the acidity level in either direction. The findings then serve not only to corroborate the views of Boldyreff, but also to demonstrate the remarkable compensatory activity of the gastric glands under conditions which entail an unusual quantity of alkali in the stomach.

In addition the work has shown that when the larger pancreatic duct is properly transplanted into the wall of the stomach, it may remain patent for months. In animals in which this operative procedure has been carried out, the pancreas has been found to undergo no inflammatory or other degenerative changes. This finding is regarded as evidence against the postulation of Hlava that gastric juice is probably responsible for the occurrence of certain cases of acute hemorrhagic pancreatitis.

ERNEST T. F. RICHARDS.

#### THE ELEMENTS OF SAFETY IN PROSTATIC SURGERY: Clarence Martin

(Interstate Medical Journal, Vol. XXIV, No. 11), states that many general practitioners and some general surgeons who occasionally perform a prostatectomy hesitate to advise such an operation because of its very high mortality. This impression is wrong, in that the urological surgeon does not have this experience, and that the mortality in their hands is well below 10 per cent. The means of keeping down the mortality of prostatic surgery are so clearly defined and productive of such definitely beneficial results, that the surgeon who does not employ them is not keeping the fullest faith with his prostatic patients. Martin emphasizes the necessity of a careful cystoscopic examination before a prostatectomy is performed. By this means such complicating conditions as carcinoma of the bladder, vesical calculi in diverticula, or a papilloma, may be detected even though the symptoms produced by them were overshadowed by the more subjective and objective symptoms of the enlarged gland.

Expertly done, the pre-operative cystoscopic examination will not jeopardize the operative chance of the patient. The surgeon must have a cleanly cut conception of the damage done to the kidney function

through long continued obstruction in order to keep the mortality low.

The suitability of individual cases for prostatectomy is based on the pre-operative cystoscopic examination, the determination of the elimination time and intensity of colorimetric tests, and of the urea output and blood nitrogen retention.

In many cases, pre-operative urinary drainage is an essential factor in reducing prostatic mortality. This is accomplished by continuous catheterization or preliminary cystotomy. The object of this treatment is to raise the index of renal efficiency and this is manifest by an increase in the urine's specific gravity and urea output. When these figures reach a stationary point the gland should be removed and not before. During this time the patient should drink large quantities of water and the bladder should be daily irrigated with some antiseptic fluid, preferably silver nitrate. The urine should be rendered acid and hexamethylenamine given in 20 grain doses every 4 hours for 24 to 48 hours. After this time the hexamethylenamine can be given in 10 grain doses. If the renal function has shown pronounced improvement, ether is quite safe and should be the anesthetic chosen.

Martin claims that it is only by a rigid adherence to these factors of safety that success in prostatic surgery is attained, and unless the operator is painstaking in his application of every pre and post-operative detail, and has an intelligent appreciation of its rationale, his prostatic surgery will not measure up to modern requirements.

E. M. JONES.

**POSTURE IN CASES OF ABDOMINAL DRAINAGE:** Roland Hill (Annals of Surgery, Vol. LXVI., No. 4), maintains that in the case requiring drainage, there has been delay. In abdominal cases where drainage is established it is not effectual for a much larger period than 24 hours.

The three important factors in abdominal drainage are gravity, intra-abdominal pressure and capillary attraction.

To secure the influence of gravity the patient is placed in one of the following positions:

1. Fowler position: this position has been generally in use. Hill points out that in order to establish drainage of spaces in front of kidneys the patient leans forward; this he regards as a great strain upon a patient with an already weakened heart and low blood pressure. The pelvis is lower than the pelvic arch and there is tendency for pus to accumulate in dependent pouches.

2. Prone position: patient is placed on the abdomen from 24 to 48 hours, the head of the bed elevated 10 to 12 inches, with a pillow under lower chest region. The position though uncomfortable is perhaps the most efficient. Purulent material is unable to become lodged in the spaces along the spine and pelvis.

3. Lateral position: patient on right side with pillow below liver region and turned so that pus will drain from in front of left kidney.

A series of 104 drained cases is reviewed. In the 47 cases in which the Fowler position was used, there were 5 deaths. In 57 cases (in 15 of which the lateral position was used), where the patient was prone there were 2 deaths. Hill in treating these cases gives them glucose 3 per cent and soda 2 per cent in solution per rectum by the drop method. Peristalsis is controlled by opiates and no food is given by mouth.

GEORGE GEIST.

#### TREATMENT OF PERNICIOUS ANEMIA—ESPECIALLY BY TRANSFUSION AND SPLENECTOMY:

Geo. R. Minot and Roger I. Lee (The Boston Medical and Surgical Journal, Vol. CLXXVII, No. 22, Nov. 29, 1917), considers the treatment of pernicious anemia, especially by transfusion and splenectomy, from a study of 96 cases and the literature.

The first essential for treatment is a correct diagnosis. The diagnosis is not to be made on the blood smear alone and, unfortunately, is seldom made early.

A careful, detailed study of the activity of the bone marrow and red cell destruction is important for prognosis and therapy. Not only one but all of the three chief elements of the marrow must be studied: the polymorphonuclear neutrophiles, red cells, especially young red cells, and platelets. Observations on the latter are important. Certain elements, often taken to indicate stimulation of the marrow, do not always indicate this, or at least are not always associated with a favorable prognosis. Such elements at times are of bad omen.

The authors point out that certain types of pernicious anemia are to be recognized. Those types of cases that do the best spontaneously usually, but not always, receive the most benefit from treatment. Older patients are more apt to have a less relapsing and less hemolytic type of the disease than younger individuals. Cases with enlarged spleens, together with somewhat enlarged livers, when these enlargements are associated with and probably due to hemolytic activity, are apt either to have, or to have had, a more favorable course of the disease than those cases without such enlargements.

It is important that all cases should have proper general treatment.

Transfusion and splenectomy offer the best means for inducing remissions, though a remission can occur spontaneously as marked as those inaugurated by these procedures.

No case is too sick for transfusion. Transfusion can give rapidly symptomatic benefit. It may also, either directly or indirectly, rapidly or slowly, cause stimulation of the marrow or allow increased activity of the marrow, so that a remission is inaugurated.

Isohemolytic reactions will not occur with properly selected donors. Other reactions of unknown nature, usually much less severe, cannot at present be avoided. It is suggested that some reactions following transfusion may be dependent upon the fact that the patient has previously received transfusions of blood. Such reactions are, perhaps, associated with

a rapid and excessive accumulation of blood pigment in the body.

Splenectomy for pernicious anemia is a palliative operation. It checks the red cell destruction and increases the activity of the marrow. Good remissions follow splenectomy more consistently and uniformly than after other forms of treatment. Splenectomy is reserved for only selected cases in certain stages of the disease. It is a serious procedure, is not to be urged, but at times may be advised, provided the patient understands that its effect is only temporary. The cases of pernicious anemia that approach the disease hemolytic jaundice are the most suitable ones for splenectomy.

By means of transfusion and splenectomy the writers believe that patients do better and can be made more comfortable while they live, and that in certain instances they may perhaps live longer than without such treatment. Probably when transfusions are begun relatively early, so that the patients never remain very anemic for long periods, the best ultimate results will be seen.

Roentgen ray exposures of the spleen have at present shown no definite beneficial effect.

ERNEST T. F. RICHARDS.

**CONCERNING THE CAUSATION OF EDEMA IN CHRONIC PARENCHYMATOUS NEPHRITIS:** Epstein (Am. Jour. Med. Sc., Vol. 154, No. 5), from a new standpoint explains theoretically the cause of edema and suggests a revolutionary method of attack.

The author first shows that Widal's theory of salt retention in the tissues due to defective elimination of salt by the kidney is best substantiated by clinical experience.

He goes on to show in two tables which he published a few years ago giving the results of some of his own investigations, that in chronic parenchymatous nephritis the blood serum contains about half the percentage protein that it does normally and that about 90 per cent of this protein is globulin compared with 37 per cent in normal individuals. The albumen content of the blood serum is correspondingly reduced from about four and one-half per cent to one-half per cent in the parenchymatous type. This condition of affairs is explained by the author as being due to the very considerable loss of protein in the urine in these cases.

The author has previously shown that the subcutaneous fluids in this kind of nephritis contain a negligible amount of protein.

The author cites Starling's explanation of the mechanism which regulates the interchange of fluid between capillaries and tissue spaces. He believes there are two factors, (1) pressure and (2) osmosis which tend to produce an equilibrium. If the pressure is greater in the capillaries, fluid is forced into the tissues, and vice versa. Thus in case of hemorrhage, fluid is forced into the circulation because the pressure in the capillaries is diminished. Osmosis on the other hand is produced by the proteins which are colloids, and the osmotic pressure is greatest in the

circulation because of the greater amount of protein in the blood serum than in the lymph. That is, osmosis tends to force fluids from the tissues into the circulation.

Applying this theory to chronic parenchymatous nephritis he has shown that the continual loss of albumen through the kidneys causes an actual reduction in the percentage of protein in the serum. The work of Dieballa and von Ketly has proven this is not due to an hydremia. This lowered protein content of the blood lowers the osmotic pressure of the blood, and fluid passes from the blood stream into the tissues.

The treatment indicated to reduce the edema in these cases is therefore to increase the protein element of the blood. Blood transfusion should help but being impractical in many cases protein feeding remains to be considered.

The author advises this along with restriction of fluid intake to 1200 to 1500 c. c., only enough salt to make the food palatable, low carbohydrate diet and no fat.

Carbohydrates should be cut down as low as possible because water is the end product in their metabolism to a very considerable degree. The fats are excluded because a marked increase of fatty substances in the blood has been demonstrated in this type of nephritis. The author has instituted this line of treatment in a few extreme types of the disease and the results obtained have been very encouraging.

C. B. DRAKE.

**SYPHILIS OF THE STOMACH:** Paul Rockey (Northwest Medicine, April, 1917), states that in syphilitics with gastric complaints, where the cause is not in the stomach, it may be due to syphilis of organs in relation, as liver, pancreas, lymph nodes; to perigastric adhesions of syphilitic origin; to reflexes from syphilitic lesions at more distant points in abdomen; to the toxemia and cachexia of the disease elsewhere than in the stomach; and to specific lesions in the brain or to the gastric crises and gastric symptoms of tabes. Apparently syphilis of the stomach occurs in the tertiary stage or occasionally late secondary.

Syphilis affecting the stomach directly might do so by its toxins affecting the stomach wall and the gross and minute pathology of this change might be recognizable. Syphilis might affect the stomach by the presence of the spirochete pallida in its layers. The therapeutic test when used should be adequate. Response to it will probably be definite, but there are cases of syphilis usually resistant to anti-luetic treatment. There are now syphilitic dyspepsias that may be benefitted for a time by anti-specific treatment. Simple gastric ulcer is subject to spontaneous cure, also to periodicity, of course. Presumably syphilitic gastric ulcer is subject to similar phenomena. The prognosis of luetic gastric ulcer untreated would presumably be worse than that of simple ulcer, but if treated probably as good or better.

C. D. FREEMAN.

**COLON BACILLUS PYELITIS IN BOY SUBJECTS:** Graves (*Am. Jour. Med. Sc.*, Vol. 154, No. 5), reports in full three typical cases of pyelitis in boys which show their marked tendency to chronicity.

Attention was first called to pyelitis in 1894 and since then reports have reported many cases, the majority in female children. The work of Eisendrath and Kahn quite convinces one that the lymphatic route of infection bears an important role in these cases. Probably the proximity of the female urethra and rectum rather than that of their apertures accounts for the predominance of cases in the female.

The occurrence of pyelitis in the male suggests a lymphogenous or blood-born infection possibly from some focus or condition in the intestines.

A pyelitis may not prevent a child's physical progress nor interfere with a fair degree of health. It may however lead to a fatal nephritis.

"Enlarged lymph glands, a recurring skin eruption, pronounced nervous manifestations almost meningeal in type, pains in the muscles, stiffness in the joints and cough may occupy the foreground in the condition."

Urinary antiseptics, alkalies and colon bacillus vaccine are the three common methods of attack. The investigations of Levy and Strauss have rather cooled the ardour of some hexamethylene advocates. They found that the urine must be abnormally acid for formaldehyde to be liberated and that the formaldehyde concentration must equal 1 to 5,000 to inhibit even the colon bacillus. They also found that 7 gr. t. i. d. is not sufficient to produce this concentration. Higher concentrations on the other hand may produce injury to the kidney tissue. In refutation stand the marked effects following urotropine medication.

Alkaline medication is urged for two reasons: first, because it has been found that phagocytosis is most active in an alkaline medium, and second, because the colon bacillus prefers an acid medium. Drugs such as potassium citrate; beverages, such as lemonade or Vichy, and vegetables; fruit and milk are all of value.

Opinions differ as to the value of vaccines. Kidney lavage has proven of value in chronic cases in adults. General treatment and particularly hygiene of the large bowel with perhaps the assistance of the *Bacillus bulgarus* should be tried.

C. B. DRAKE.

**END RESULTS OF NEPHRECTOMY FOR RENAL TUBERCULOSIS:** Lower and Sharpe (*Surg., Gyn. and Obs.*, Vol. 25, No. 5), believe that the outcome of this operation must be viewed from the standpoint of the immediate mortality rate, the late mortality rate and the persistence of symptoms.

The immediate mortality rate depends upon the condition of the patient at the time of operation and the technique of the operation. The combined statistics of Drs. Bunts, Crile and Lower show a mortality rate for nephrectomy in cases of renal tuberculosis of 2.3 per cent, while a recent series of 100

consecutive nephrectomies done by Lower for various lesions showed but 1 per cent.

The late mortality depends even more on the patient's condition and the technique of the operation.

In the author's experience the rapidity with which the bladder symptoms clear up, directly depends on the duration of the symptoms preceding the operation. A very considerable per cent of these cases never clear up entirely.

In an analysis of 87 consecutive nephrectomies for tuberculosis of the kidneys performed by Drs. Bunts, Crile and Lower, the author found that two died within four weeks, one of shock and the other from a second tuberculous kidney. Ten cases died later, two of tuberculous peritonitis, four of pulmonary tuberculosis, and four from cause unknown.

Regarding the persistence of symptoms, replies in 45 of the 87 cases showed that half of those previously complaining of bladder symptoms, mainly frequent urination, still had some trouble but that all of these cases had had these symptoms for a long time preceding the operation. Twenty per cent reported perfect health, and all the rest were greatly improved.

Twelve of the 45 replies reported pain of a colicky nature in the back, and 25 reported pain of varying degrees in the back, side or hip. Half of the series of 87 had had hematuria, and where the hemorrhage came from the kidney, it subsided, of course, after operation. The majority of cases with pyuria before operation had persistence of the condition.

The author found that patients usually waited for 8 months to 3 years before seeking surgical relief.

Males and females were equally affected and 33 was the average age. Of the 87 cases only 18 reported tuberculosis in other members of the family, while 43 gave a negative report.

In only two cases was the lesion proven bilateral, but the author calls attention to autopsy reports showing bilateral involvement in about two-thirds of all cases of tuberculous kidneys.

In regard to the healing of the wound, about a third healed inside the first month, the majority taking one to three years, and a few even longer. Eight per cent were classed as unimproved.

C. B. DRAKE.

**A CASE OF ANEURISM OF THE INTERNAL CAROTID (INTRACRANIAL PORTION) AND ITS EFFECT UPON THE PATIENT'S VISION:** John R. Shannon (*Arch. of Ophth.*, Vol. XLVI, No. 6, Nov., 1917), cites a case which came under his observation, a lady 52 years of age who consulted him because of the fact that two days previously she noticed on covering her left eye, a blurred vision of the right, particularly noticeable with respect to colored objects. V. O. D.= counting fingers at three feet; V. O. S.= 20/15, with correcting glass.

The pupillary reaction, transparency of the media, appearance of the eye-ground of the affected eye were normal, but on taking the visual field he found a small central scotoma of the dumb-bell variety, the

scotomata for colors being considerably larger, and in their customary order. The examination of the urine, and blood were normal, Wassermann test and spinal fluid negative, nor were there signs of toxemia. The sinuses were normal and although X-ray pictures of the skull were repeatedly taken nothing pathological was revealed. The teeth were inspected and two, which were slightly suspicious, removed. The patient was given pilocarpin injections,  $\frac{1}{4}$  gr. every night for two weeks but without effect, and potassium iodide and sodium salicylate were given to the limit of tolerance.

The condition grew worse until six weeks after the onset there was a complete disappearance of the color fields. Fifteen weeks after the onset pallor of the nerve head was noted which was preceded by a reduction of vision to the perception of moving objects, by three weeks.

During the progress of this condition Shannon watched the condition of the left eye for signs of disease. In the course of ten weeks there was observed a possible wooliness of the disc margin although the vision and field were normal. A month later, the patient required a small increase of myopic correction in order to read the normal line, while four weeks after vision was 20/20 minus three letters. The field then showed an enlargement of the blind spot, with a sector-shaped defect in the temporal field for colors. A little later there appeared, in addition, a small central scotoma for small test-objects and the vision fell to 20/50. The author then called in consultation Dr. Duane and Dr. Harvey Cushing, neither of whom could offer any suggestion as to the etiology. Dr. Foster Kennedy was then consulted, reporting his conclusions as follows: that there were symptoms, not very marked, of a deterioration of function in the pyramidal tract going to the left side of the body. These, associated with the descending atrophy of the optic nerve on the right side, apparently progressing over to the left eye, and in spite of certain evidence opposed to the diagnosis, especially the presence in an almost normal degree of the sense of smell, led him to the conclusion that there was a slowly growing non-malignant tumor taking origin mainly at the base of the right frontal lobe. He suggested a decompression operation in the right frontal region.

The patient was operated by Dr. Charles Elsberg, who opened the cranial cavity and gently elevated the right frontal lobe, but no growth could be seen in this limited field explored. Almost thirteen weeks later, shortly after rising, she complained of a sharp pain in the head, became unconscious, lapsing into profound coma and dying ten hours afterwards.

The autopsy disclosed an aneurism of the right internal carotid artery near the circle of Willis which had burst, flooding the third, fourth and lateral ventricles. The growth was so situated as to press upon the right optic nerve which was atrophied, less markedly upon the chiasm and slightly upon the left optic nerve.

PAUL D. BERRISFORD.

**HODGKIN'S DISEASE: A REPORT ON THE CASES OBSERVED AT THE COLLIS P. HUNTINGTON MEMORIAL HOSPITAL FROM APRIL, 1913, TO JULY, 1916, WITH SPECIAL REFERENCE TO TREATMENT WITH RADIUM AND THE X-RAY:** C. C. Simmons and G. Benet (The Boston Medical and Surgical Journal, Vol. CLXXVII, No. 24), believe there is a distinct disease of the lymphatic tissues called Hodgkin's disease, which can be separated from Banti's disease, lymphatic leukemia, etc. The writers have had no opportunity to substantiate Warfield's and Kristjanson's observations. They found the diphtheroid bacillus in two out of the three cases in which it was sought, and think it can probably be demonstrated in many of the cases. The inoculation experiments in guinea pigs and three monkeys were negative, and the piece of gland transplanted subcutaneously in the same patient from whom it was removed, atrophied and disappeared, which is an important observation, as a fragment of sarcoma or carcinoma treated in a like manner would probably have grown. This fact is rather against the tumor theory.

Microscopically, the glands were typical of what is known as the Dorothy Reed type of Hodgkin's disease, and were similar to the cases reported by Reed, Longcope, and Simmons. The cases of lymphosarcoma presented microscopically an entirely different appearance, and in the one case that came to autopsy no gland examined had the slightest resemblance to Hodgkin's disease.

Clinically, Hodgkin's is a fatal disease, that runs an acute or chronic course, little affected by treatment as regards the ultimate fatal result. It may usually be suspected, but there is no way to make a definite diagnosis without a microscopic examination of one of the glands. It cannot be differentiated clinically from certain cases of lymphosarcoma, tuberculosis, or even inflammatory glands. In this series the blood picture was not constant, and although the writers do not feel able to make a diagnosis on it alone it is often quite suggestive.

As regards treatment, radium and the X-rays have a distinct beneficial effect, radium being of more value than the X-ray. With treatment, the glands diminish in size, and the general condition improves. The relation between the treatment and the improvement is definite, and is seen in from one to three weeks after the first application of radium. The writers have no cases that can be called cured, but the patients are comfortable and able to attend to their duties until nearly the end of the disease. The writers do not know if the fatal termination has been much postponed, as the cases most benefited may have the chronic form of the disease. The treatments should not be limited to the palpable glands, as is usually the case, but should be directed against the lymphatic areas of the body, the mediastinum, abdomen, etc., from the first.

ERNEST T. F. RICHARDS.

## BOOK REVIEWS

*GENERAL SURGERY.* The Practical Medicine Series. 1917, Vol. II. (Edited by ALBERT J. OCHSNER, M. D., F. R. M. S., LL. D., F. A. C. S. Surgeon-in-Chief Augustana and St. Mary's of Nazareth Hospitals; Professor of Surgery in the Medical Department in the State University of Illinois. Published by the Year Book Publishers, Chicago. Price \$2.00.)

This volume is a review of the surgical literature of the past year. It is very complete, and while of necessity its references are brief, it is of value as a reference book.

There has been a notable increase in surgery pertaining to war and a decrease in foreign surgical reference—probably due to a lack of foreign journals.

L. E. DAUGHERTY.

*MILITARY SURGERY.* (By DUNLAP PEARCE PENHALLOW, S. B., M. D. (Harv.), Chief Surgeon American Women's War Hospital, Paignton, England; Captain Medical Corps, Massachusetts National Guard; First Lieutenant Medical Reserve Corps, U. S. Army (Inactive List); Director of Unit, American Red Cross European Relief Expedition. With Introduction by SIR ALFRED KEOGH, K. C. B., Director-General Army Medical Service. Published by The Oxford University Press, American Branch, New York. Price \$5.00.)

This book deals with modern warfare and the many complex problems which involve the treatment of wounds by various projectiles. The author is Chief Surgeon of the American Women's War Hospital, Paignton, England, and has had ample opportunity to study wounds and their method of treatment. Many individual cases are cited and the illustrations are new and excellent. Shell Shock, Gas Poisoning, and Trench Foot, are amongst the conditions dealt with.

One of the most interesting and pathetic chapters deals with gas poisoning before the troops were protected by gas masks.

L. E. DAUGHERTY.

*PEDIATRICS.* The Practical Medicine Series. 1917, Vol. V. (Edited by ISAAC A. ABR, M. D., Professor of Pediatrics, Northwestern University Medical School, Attending Physician Michael Reese Hospital, and A. LEVINSON, M. D., Associate Pediatrician Michael Reese Hospital. Published by The Year Book Publishers, Chicago. Price \$1.35.)

This short symposium on pediatrics covers 148 pages with short references to the advances and dis-

coveries made in the year 1917. The bacteriology of the various contagious diseases is reviewed with a short reference to vaccine and serum treatment as it has been elaborated in the past year.

Acidosis in children and its treatment by bicarbonate of soda occupies quite a large space. The vaccine treatment of pertussis with results is interesting reading. The latest researches into the bacteriology of measles and scarlet fever are noted and arouse the hope that in the not distant future some specific treatment may be developed.

Poliomyelitis is given an important place in the book. Peritonitis (pneumococcic) in children also receives a large amount of attention.

While it would be obviously impossible to go into great detail in a limited book on pediatrics, some of the subjects as tuberculosis, syphilis, diseases of the blood, etc., receive but brief mention. It is a handy little volume to carry around and refer to at odd moments.

EUGENE F. WARNER.

*THE CAUSE OF TUBERCULOSIS,* Together With Some Account of the Prevalence and Distribution of the Disease. Cambridge Public Health Series. (By LOUIS COBBETT, M. D., F. R. C. S., University Lecturer in Pathology, Cambridge. Published by the Cambridge University Press, 1917. Price \$6.50.)

The title of this book is unfortunately chosen (according to the opinion of the abstractor) as being uncomprehensive and misleading. Outside of the treatment and clinical phases of tuberculosis, this book contains practically everything pertaining to all the various ramifications occupied by the subject of tuberculosis in its relation to mankind and animal life. It covers in fine detail the mortality records of the disease in various countries and proves conclusively the actual decline of tuberculosis. It also deals thoroughly with the different types of tubercle bacilli and their effects on man and animals, together with the different modes of infection and contagion.

A wealth of statistical charts and pathological specimen photographs are shown to illustrate the diseased conditions in various organs of animals produced by the experimental injections of the three types of tubercle bacilli.

This book should find a place in the library of every public health officer, sanitation engineer, social welfare worker, phthisiographer, and all physicians or laymen who have at heart the stamping out of tuberculosis.

EUGENE F. WARNER.



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## ORIGINAL ARTICLES

### COLLES' FRACTURE.\*

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The treatment of fractures was, no doubt, one of the earliest surgical procedures, dating back to prehistoric medicine.

The studies of Egyptologists prove that many thousand of years ago bones were broken and tied up with splints much in the same way that we do today.

Strange as it may seem, the so-called Colles' fracture was not recognized until comparatively recently. Formerly all wrist injuries were considered as dislocations. Now we know that dislocation of the wrist is a surgical rarity.

In 1783, Pouteau, a Frenchman, first described a fracture of the lower end of the radius. His view of the subject did not seem to have attracted much attention, for during the thirty years following its publication only an occasional mention is made of even the possibility of such a lesion and this common injury was still called a dislocation. His description and arguments did not avail against the authority of the eminent French surgeons of that time.

In 1814, Colles, a distinguished Dublin surgeon, published his masterly paper, describing the fracture, in the *Edinburgh Medical Journal*. This was a clear and brief description of the lesion.

In 1820, Dupuytren established among the French the frequency of fracture of the carpal end of the radius and also proved the rarity of dislocation of the wrist. Sir Astley Cooper, in 1823, described in his book fracture of the lower end of the radius.

Velpeau, in 1842, called attention to the characteristic S-shaped deformity, which he likened to a dinner fork, or the so-called silver-fork deformity.

Thus we find a period of forty years from Pouteau's and Colles' descriptions before the true lesion was generally recognized. It was difficult to dislodge the old idea that the lesion was a dislocation.

In more recent years, Pilcher, Roberts, Cotton, Codman, and others have made careful studies of the fracture and contributed valuable scientific knowledge on the subject. Dr. Murphy often talked on Colles' fracture in his clinics and emphatically impressed on his listeners the important facts in the treatment.

Colles' original description was of a fracture of the base of the radius, occurring as high as  $1\frac{1}{2}$  inches above the carpal articular surface. On an average, however, it lies about  $\frac{1}{2}$  to  $\frac{3}{4}$  inches above the articular surface.

The anatomical parts entering into the formation of the wrist joint are the lower end of the radius and the under surface of the inter-articular fibrocartilage, which form together the receiving cavity, a transversely elliptical concave surface. The articular surfaces of the scaphoid, semi-lunar, and cuneiform bones form together a smooth, convex surface, making the condyle which is received into the concavity above mentioned. The ulna does not form a part of the wrist joint, but connects with the radius by a separate articulation formed by the

\*Read before the Annual Meeting of the Minnesota State Medical Association, St. Paul, October 11, 12, 1917.



Figure 1.

Radiograph of normal wrist antero-posterior. Note the two rows of bone of the carpus, and the scaphoid and semi-lunar articulating directly with the base of the radius.

Note also that the ulna does not articulate with the wrist bones, but does articulate with the radius.

head of the ulna received into the sigmoid cavity at the inner side of the lower end of the radius.

The surfaces of the bones entering into the formation of the wrist joint are covered with cartilage and firmly held in apposition by four ligaments, the external lateral, internal lateral, anterior and posterior, together forming a capsule. At the lower extremity of the radius a prominent lip projects anteriorly into which is inserted the anterior radiocarpal ligament, whose fibers are continued for one-fourth inch or more above the articular margin. This ligament, though dense and strong, is sufficiently loose to permit considerable latitude of motion backwards of the carpus from the radius. The posterior radiocarpal ligament unites the bones together behind.

The anterior radiocarpal ligament is a very important anatomical structure in the production of Colles' fracture. It consists of three distinct sets of fibers or bands, the anterior surface of the scaphoid, semi-lunar, and cuneiform bones being the common point of origin. One set passes obliquely outward to be inserted into



Figure 2.

Radiograph lateral of wrist showing Colles' fracture with marked upward and backward displacement of lower fragment. Note the sharp jagged appearance anteriorly of the lower end of the upper fragment of the radius. Marked injury and irritation of the flexor tendons would be produced by it, especially if there were not complete reduction.

the styloid process and the adjoining anterior margin of the lower end of the radius. A second set passes obliquely in the opposite direction, and is inserted into the styloid process and anterior margin of the lower end of the ulna. The third set passes directly upward and is inserted into the greater part of the anterior margin of the lower end of the radius.

Colles' fracture is one of the most frequent fractures and also one of the most frequent surgical conditions that the practitioner is called upon to treat. One can appreciate its frequent occurrence when the manner in which it happens is considered. A fall and the force of the fall broken by an outstretched hand in hyperextension, never in flexion, are the usual conditions from which it results.

Out of the 2,521 fractures treated at Roosevelt Hospital in five years, 444 were Colles', it being the most frequent. In the great majority of cases the injury was caused by slipping, or tripping and falling on the floor or sidewalk. Other causes were falling from a ladder, falling downstairs, falling while skating, direct violence, being knocked down, warding off pres-

sure, hand twisted, and the kick-back of gasoline engine.

Considerable dispute has been waged as to the true mechanism of a Colles' fracture. The following two forces are considered by authorities to be the factors which together produce the fracture, namely:

First. The force of avulsion, i. e., the pull exerted by the anterior ligament on the lower end of the radius, especially the projecting anterior lip, by hyperextension. In hyperextension the bones of the carpus and hand act practically as one bone, so that a powerful leverage is brought to bear through the strong anterior ligament on the lower end of the radius. The expanded end of the radius with its cancellated structure makes it less able to stand a tearing force. This fact makes the radius, when submitted to a strain, weaker than the ligament, and consequently it breaks first.

Second. The force of impact, i. e., the force made up of the weight of the body and the velocity of a fall which has been sustained and which remains and is exerted after the force of avulsion has been expended. This is the so-called breaking strain received somewhat up-

ward and backward, and by most authorities is considered to be more important than the tearing strain or hyperflexion produced by the strong anterior ligament. By this force a wedge-like impact of the carpus or anatomical condyle against the articular cup of the base of the radius in an upward and backward direction is sustained. Very frequently also, if the momentum be great, the lower fragment is split and mushroomed and the fragments thrown out in various directions by the descent into it of the lower end of the upper fragment, after the breaking has been sustained. The amount of this impaction is a fair index of the force which the anatomical structures of the wrist have had to sustain.

The typical deformity of a Colles' fracture is the so-called silver-fork deformity, which consists of an upward and backward tilting of the lower fragment. The plane of the fracture is oblique from below upward and backward. With this upward and backward tilting of the lower fragment, the angle of the carpal articular surface of the radius is altered, so that in place of its facing normally slightly forward and downward to facilitate flexion of the wrist,

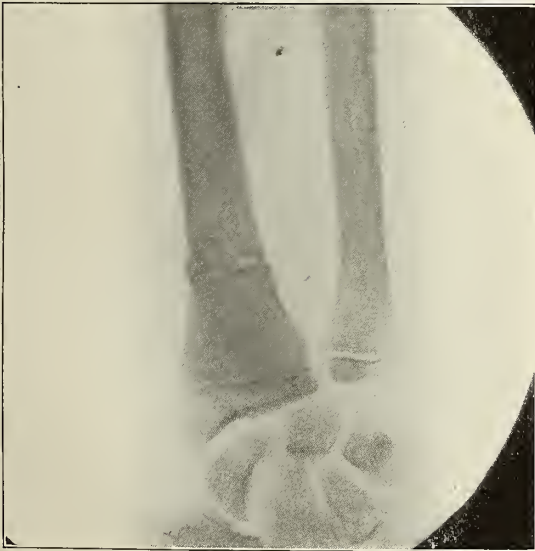


Figure 3.

Radiograph antero-posterior of wrist in a boy 14 years of age. Fracture produced by the same mechanism as a Colles' fracture. Colles' fracture is not so common in children, and a fracture of the radius higher up is the usual result. Sometimes the epiphysis is torn off. Note epiphyseal line and the fracture above it on the radius.



Figure 4.

Radiograph of Colles' fracture antero-posterior. Note the lateral displacement of the lower fragment and the separation of the ulna from its articulation with the radius at the sigmoid cavity. This lateral displacement is difficult to completely overcome.



FIGURE 5.

Radiograph showing (A) normal wrist, and (B) Colles' fracture in opposite wrist. Note upward and backward tilting of lower fragment, and contrast the difference in the planes of the articular surfaces of the radius in the normal and injured wrist. In the normal wrist the plane looks downward and forward, while in the injured wrist it looks upward and backward. We must overcome this difference in our reduction.

it faces upward and backward, thus producing the fork handle. The wrist, as it is pressed upwards and backwards, tends to carry with itself the lower fragment of the radius which has been torn or broken off, and the extent of the displacement is limited only by the resistance of the fibrous structures binding the wrist and by the amount of the force that the fall has produced.

In addition to the backward displacement of the lower fragment of the radius, there is also a lateral displacement toward the radial side, which makes the ulna stick out conspicuously. This displacement of the lower fragment is always toward the radial side of the wrist, never toward the ulnar. It is brought about by the carpal mass, that is the hand and wrist, after the breaking of the radius, slipping back in the direction of supination, the whole mass rotating around the head of the ulna because of the attachment of one of the bands of the anterior common ligament above mentioned to the styloid process of the ulna. Sometimes the strain is so great on this band of the ligament that the styloid process of the ulna is torn off. The lower end of the shaft of the radius appears to be thrust forward and this exaggerates the

appearance of lateral displacement of the lower fragment. There is, however, actual lateral displacement, as the X-ray shows, but the chief element is the supinating rotation which brings the lower fragment into lateral prominence.

As the lower fragment is displaced upwards and backwards by the force of avulsion and impact, it tends to strip up a layer of periosteum on the dorsal surface of the radius. This periosteum acts as a sort of ligament and interferes with the reduction of the fracture, because it remains tense after the fracturing force has been expended and the hand has again fallen forward, and tends to hold the entangled fragments together. Blood clots accumulate underneath it, since it is lifted up and thus leaves a space between it and the bone for blood to accumulate, and unless there is complete reduction, the space remains and new bone forms underneath it, filling up the blood-clot space, and thus it becomes a factor in the size and extent of the callus and therefore in the amount of subsequent deformity. Complete reduction



Figure 6.

Radiograph antero-posterior of an old healed Colles' fracture with recent fracture of the radius higher up. Note the shortening and widening of the base of the radius and the separation of the ulna from the articulation with the radius at the sigmoid cavity. Compare the length of ulna and radius, showing the decided shortening of radius. This is a well marked deformity following a Colles' fracture.

obliterates the space filled by blood clot and decreases the amount of callus, because it brings the periosteum back to its normal position. The appreciation of the presence and effect of this band of periosteum gives a hint of the first manipulation in reduction, for we must relax this band to overcome its action and to do that we must put the hand again in hyperextension, in other words, increase the deformity, and that is the first manipulation in the reduction of a Colles' fracture.

In all fractures we should never forget that the soft parts are often more seriously injured than the bone and often require more attention in treatment. This is frequently true in a Colles' fracture. The injuries that are sustained by the soft parts about the wrist joint, coincident with the bone lesion, are often extensive and severe. Ligaments are violently stretched and partially lacerated, and sometimes they are completely ruptured. The synovial sacks of the articulations are badly contused and often torn and filled with blood. Sheaths of tendons, both in front and behind, are injured. In front, the projection of the ragged edge of the upper fragment of the radius into the flexor tendons of the wrist may lacerate their sheaths and irritate the tendons; while behind, the stripping of the periosteum, and its later continued tension, involves in its results the extensor tendons. Effusions of blood and lymph into the anterior tendon sheaths and connective tissue spaces quickly produce a well-marked swelling on the front of the wrist above the anterior ligament, exaggerating the deformity produced by the bone displacement, and may simulate displacement even after the bones have been reduced. On the back of the wrist some swelling of a similar nature also forms. The effusions are firm and slowly absorbed and tend to provoke adhesions along the course of the tendons which they surround.

In a certain proportion of cases the impact is so great that a shortening of the radius is produced, which it is impossible to wholly overcome in the reduction. Some of the cancelli of the lower fragment are crushed and condensed and in some cases absorption of the osseous tissues later takes place, so that the bone is permanently shortened and the form of its lower



Figure 7.

Radiograph lateral of same case as Figure 6. Note the upward and backward tilting of the plane of the articular surface, and the marked shortening of the radius as compared to the ulna. Note the downward and forward protusion of the ulna. This shows the marked deformity typical of that produced by a Colles' fracture. Widening of the wrist, upward and backward tilting of the lower end of radius, prominence of the ulna, shortening of the radius, and the silver-fork handle appearance.

extremity is changed. Such changes in the contour of the bone are an unavoidable result of the accident itself and cannot be entirely prevented by treatment. However, our best efforts should be made to replace the bone, for the first principle in treatment is proper reduction. Any shortening of the radius will make the head of the ulna prominent, as the wrist and hand will fall to the radial side.

Pilegher well stated the prominent characteristics of the deformity remaining in old Colles' fractures when he said: "Prominence of the head of the ulna with widening of the wrist and loss of the anterior projection of the articular tip of the radius and the imposition of a more or less backward inclination upon the plane of the carpal articular surface of the radius, are the most common permanent alterations in the anatomical configuration of the wrist as a result of Colles' fracture."

The characteristic silver-fork deformity proclaims the diagnosis often without further examination. The cardinal signs of fracture, crepitus and abnormal mobility, are often obscured and prevented by the impaction and resistance of un torn fibrous connecting bands.

As a final authority, however, the X-ray should always be used and radiographs taken both antero-posterior and lateral to correct or corroborate the diagnosis, and later to check up the position after reduction.

Colles' fracture should be reduced as quickly as possible after the injury, and general anaesthesia should be the rule. The reduction should be accomplished by very forcible manipulation. The functional result depends upon the proper replacement of the carpal articulating surface of the radius. The articulating surface of the normal radius with the carpus is tilted, so that the dorsal edge of the lower end of the radius is always distal to the palmar edge, and the plane of the articular surface, as stated before, looks forward and downward. This anatomical fact should always be borne in mind when dealing with a Colles' fracture. The reverse of this position occurs in the fracture.

One of the things that Doctor John B. Murphy liked to talk about in his clinics and "hammer in" was the treatment of Colles' fracture. You will remember that he used to talk as follows: "Now let us take up the proposition of the reduction of the most frequently maltreated fracture that occurs in the body, and one that unreduced gives the most evil results, a Colles' fracture. What is the correct method of effecting complete reduction? A reduction cannot be accomplished unless you first unlock the fragment. How do you accomplish this unlocking? Always with the patient anaesthetized. Place the thumb of the distal hand upon the posterior surface of the distal fragment, and the thumb of the proximal hand upon the nail of the distal thumb, and then increase the deformity almost to a right angle; unlock the fragment; push the lower fragment downward and flex it forward and at the same time swing the hand well around to the ulnar side to overcome the lateral displacement of the lower fragment, that also occurs to the radial side. With the reduction accomplished, dress the forearm by a few recurrent turns of a plaster

of Paris bandage placed upon the posterior surface so as to cover three-fifths of the circumference of the forearm. In Colles' fracture you do not have to retain the lower fragment by nailing except in very rare instances, because after complete reduction the lower fragment will remain in position, even if you dress the fracture merely in a sling. The great mistake and the cause of future trouble in the management of Colles' fracture is the effort made by the surgeon to reduce the fracture by the mere application of a splint. Splints were never intended to be used for the purpose of effecting a reduction of fractures."

Colles' fracture was of greater interest and was better understood by everyone after hearing one of these talks by Doctor Murphy.

To sum up: The cardinal points to be observed in the reduction of a Colles' fracture, are:

First. Anaesthetize the patient.

Second. Increase the deformity to a right angle or nearly so. This usually breaks up the impaction or entanglement of the fragments.

Third. Push the lower fragment down, flex it forward and swing it well to the ulnar side by strong traction and counter traction on the hand and wrist, and pull it into a position of marked ulnar abduction.

Fourth. At the same time supinate the upper fragment and slightly promote the lower fragment.

These forcible manipulations are done to overcome:

(a) The upward and backing tilting of the lower fragment;

(b) The displacement of the lower fragment to the radial side; and

(c) The supination of the lower fragment that occurs from the rotation around the head of the ulna.

In practice I use most often the plaster splint as described by Murphy, extending it posteriorly on the forearm from near the elbow down to the distal end of the metacarpal bones, leaving the fingers free. This splint can be removed in a few days and after that changed daily, if desired. I prefer to remove the splint frequently, as it allows one to carry out slight passive motion and gentle massage and the bathing of the skin in alcohol and the readjustment of the

pads to prevent pressure points. Two to three weeks is usually long enough to leave on a fixation dressing. One may use wooden splints if desired, in place of plaster. Regard must always be given to the fact that any pressure brought to bear upon the palmar or anterior surface of the carporadial region may bear upon the projecting anterior lip of the lower fragment and may crowd that fragment back to the plane of the shaft of the bone, even though complete reduction had been secured before the splints were applied. Antero-posterior pressure also tends to crowd the soft tissues in between the radius and ulna and forcing the ulna away, may renew and perpetuate its separation. The first indication, therefore, in the planning of a splint dressing, is the placing to the front of the forearm of a graduated pad of proper thickness, so placed that it will shield the anterior lip of the lower fragment from pressure. The lower edge of this pad should be about one-half inch above the carporadial articulation. It may be about three-eighths of an inch thick and extend upwards about two and a half to three inches. It should be wide enough to wrap part way around the ulna, so as to give support to that bone also, when the roller bandage is applied. A posterior light, straight, wooden splint, well padded, should then be applied and will meet all indications for splint support. It should not be wider than the wrist itself, so as not to interfere with the lateral support of the ulna. It should extend from the upper part of the forearm downward only to the heads of the metacarpal bones, so that the fingers shall not be confined by it. This splint, together with the graduated pad already mentioned to fill up the concavity of the radius and protect the anterior lip on the palmar side, will answer all indications for splints, if one prefers to use them rather than plaster Paris. The arm may then be hung in a narrow sling, supporting the arm on the ulnar side. This will assist also by the weight of the arm in pressing the ulna back into position. After the splints have been discarded, which is usually during the second or third week, active and passive movements of the wrist and fingers with massage should be practiced systematically until the normal function of the part has been restored. In all move-

ments and massage, pain should not be produced; gentleness is the rule. In general, the functions of the wrist and hand are usually so far restored, even in bad cases of deformity, that all the ordinary functions and uses of the wrist are restored. The greatest and most prolonged disability is due to adhesions in the tendon sheaths and amongst the periarticular fibrous structures, and sometimes to muscle degenerations caused by prolonged splint pressure and too long immobilization.

In conclusion, I would say that the one thing of greatest importance to do in the treatment of a Colles' fracture is to properly reduce it, and the next most important thing to do is not to abuse the use of splints.

The successful treatment of all fractures requires good judgment, common sense, constant attention to details, a knowledge of many methods, and the election of that method, which in the individual case will lead to a restoration of the form and function of the injured limb in the shortest possible time with the least danger and inconvenience to the patient.

#### DISCUSSION.

DR. A. R. COLVIN, St. Paul: The subject of Colles' fracture as presented by Dr. Parker is a very interesting one.

A clear understanding of the manner in which the deformity is produced in the typical Colles' fracture is very necessary because the unravelling of the deformity is the key-note to successful treatment.

König in his text book describes the production of deformity as follows:

The patient falls backwards, arresting his weight with the outstretched hand, the force transmitted from the palm of the hand through the anterior ligament of the wrist joint, the lower end of the upper fragment continuing to seek another point of support tends to seek the earth and becomes impacted in the lower spongy fragment, with the resulting familiar silver-fork deformity. The patient continuing to fall, two other items in the deformity are produced and the impaction takes place more on the outer side of the bone, and the hand thus becomes carried to the radial side, rotation through a vertical axis also occurs and the head of the ulna thus becomes rotated towards the palmar aspect of the forearm. The unravelling of this deformity becomes a now simple matter when we apply our force in reduction in the opposite directions to those which produced it.

Reduction must be such that at least the joint surface of the radius points directly forwards in the axis of the shaft. It is not always possible nor necessary

to have the fragments mathematically adjusted, but the proper direction of the joint surface is very important. After reduction the one important thing about the use of splints is that they be not employed over too long a period and that passive movement of the wrist be employed after the first few days. The splints must be arranged so that the fingers can be flexed actively from the first. Splints in suitable cases may be discarded after fourteen days.

In old people stiffness of the fingers and wrist joint occur very early and is very persistent if movement is not instituted early.

Separation of the lower epiphysis of the radius must always be thought of in young people having injuries at the wrist. Successful treatment of these injuries involves quite different principles than in the ordinary Colles' fracture. The deformity appears about the same, but there is no impaction, reduction is difficult, and is usually successfully accomplished by actively flexing the wrist joint and gliding the epiphysis into place. Retention of the reduced fragments is also difficult, but can always be maintained by keeping the hand actively flexed at the wrist.

As in fractures of all regions of the skeleton, recognition of the individual variety is important.

In the region of Colles' fracture the exactly opposite deformity may be produced, with the fracture line correspondingly different.

DR. ARCHIBALD MACLAREN, St. Paul: Just a word or two to impress one point Dr. Parker made. Within a week we have had referred to us about as bad a result from the treatment of a Colles' fracture as I have ever seen. This patient came to the office. The result was as bad as it could be, which only goes to prove that a Colles' fracture should always be reduced under an anesthetic. This had not been done in the case referred to.

The next point is, that we should never cover a fracture up so that we cannot see it. This fracture had been put in a plaster cast, and this was not done in the country but in a large Eastern metropolitan hospital, with as bad a result as I have ever seen, so bad that at the end of six or seven weeks it took great force with a Thomas wrench to rebreak the fracture, to exaggerate the angle to put it back and to get it anywhere near in its proper position.

This paper is very timely and we must not forget the importance of the points which Dr. Parker has so well presented to the society.

DR. ARTHUR W. IDE, Brainerd: I think the state society should be much interested in this particular fracture. In our locality we had a malpractice suit which was defended by the state organization during the last year. This case had several very interesting features. In the first place, the testimony in the case on the part of the defense showed that the position was good at the end of, I believe, five weeks. The position, according to the patient and the attendant, was very good at that time. No deformity was noticed at all. The splints were removed, and the patient left the doctor's care, and the next time the pa-

tient was seen there was a bad deformity. It was some two months later when the patient was seen with a bad result. The radius was shortened and there was angulation. The question was put to us on the witness stand as to whether this was properly treated or not, and I testified that it was possible for this deformity to occur after this lapse of time, assuming the case had been properly treated. No anesthetic was given, but that point did not enter into the trial. As I have said, the case was defended by the state society, and a verdict was obtained in the first trial for a thousand dollars against the doctor. It came to trial again, and the doctor was cleared.

I had my attention called to another case in my own practice in the last year of a similar occurrence. We had reduced a Colles' fracture, and we had a good position. The patient went out of town and was away for a month against the advice of the doctor, and when he returned he had a bad deformity. In that case it was not quite as long a time as in the first; but he evidently had disarranged his splint, had not taken proper care, and a deformity occurred. In our case the deformity was not quite as striking because sufficient time had not elapsed. In the other case it was evident that there was no union after the lapse of five weeks.

DR. H. B. SWEETSER, Minneapolis: I would like to ask Dr. Ide whether there was any evidence of syphilis in these two cases?

I had two cases that apparently entirely recovered, they went away from me, and when they came back there was non-union and deformity. In both of these cases there was syphilis. I have not seen cases of Colles' fracture where there was non-union in a normal individual. The impaction which always occurs, in my mind, prevents any non-union.

If the Colles' fracture is properly reduced, it does not require any splints. The difficulty is they are frequently not reduced at all. As Dr. MacLaren has said, an anesthetic is absolutely necessary to reduce them. If you do not unhinge the impaction you cannot reduce it, and you put on a splint and a plaster of Paris cast and you are much surprised afterwards to find there is deformity. If a Colles' fracture is properly reduced at the beginning, it does not require any splint at all practically, and if you allow motion and movement of the fingers from the first you do not have any stiffness afterwards.

DR. ARTHUR W. IDE, Brainerd: In these two cases the fractures were rather too high on the radius to classify them strictly as Colles' fracture. The term Colles' fracture is used to describe fractures near the wrist, and these cases would ordinarily be so classified.

In regard to the question of syphilis, the case I spoke of I did not see professionally and I do not know anything about it. I examined the arm in one case and there was no evidence, so far as my examination went, to show any signs of syphilis.

DR. V. J. HAWKINS, St. Paul: I rise to protest against the general statement that if these Colles'



fractures are properly reduced they remain in position. The attitude I wish to take is that you cannot always reduce them at once; that it is absolutely impossible always to get the fracture back in place at once, and that it is a bad impression to go out, that if this fracture is properly reduced it will always remain in position. If you can wait for about a week, and then put the patient under a general anesthetic, you can reduce every one of them; but there are cases from personal experience that I know cannot be reduced at first. The impaction in the thick cancellated end of bone are such that you cannot get the fracture in position at once. In a week's time you may be able to do so under a general anesthetic.

DR. ARNOLD SCHWYZER, St. Paul: I did not intend to discuss this paper, but I am prompted to do so after listening to the discussion, and especially to the remarks of Dr. Hawkins which we should not let go unchallenged, because the time when we can reduce a Colles' fracture is at the start. That is the time when we have no callus formation; we have no additional swelling to contend with, and I do not know of a case in my experience that could be reduced, if you just exactly follow what the doctor told us in his paper. Unlock first thoroughly and increase the abnormal position, and then bring the lower fragment not only downward, but take care of the different abnormal relations, swing it around, and make sufficient abduction. In some cases that you get very early you do not need to make use of narcosis. I have seen ideal results in cases of fracture which came into the office from the street. I did not do anything but simply used a little energetic traction. We must be absolutely sure that we have complete reduction, and we should not be content until we have done that. The hand must be self-supported in this position (indicating), so that it cannot flop back, and the patient must be able to open and close the hand.

Just as Dr. Sweetser has said, if the fracture is properly reduced, it does not need any splints for retention (only for protection). For many years I use a piece of felt that is placed in hot water and then moulded over the wrist and up to the elbow. That makes a beautiful splint which you can take off and put on again.

The first day we start motion, and after a few days we have some use of the hand. If reduction is properly done, the splint at best can only hold the fragments where we put them, but it does not correct them any further. For that reason the less fixation we use, the better.

DR. GEORGE EARL, St. Paul: About two months ago a lineman fell from the top of a pole and among other injuries the ulna was protruding, dislocated, and there was a Colles' fracture. It was impossible for me, with the hand in a straight position, to hold the Colles' fracture in place because there was also dislocation of the ulna with tearing of ligaments. By putting it up at an angle, I obtained a satisfactory position, showing that in some cases of Colles' fracture Dr. Colvin's point of an angle may be of great benefit.

DR. SAMUEL J. MIXTER, Boston, Mass.: There is one point that has not been touched upon in this discussion, and that is the fact that we may have a tremendous deformity and a perfect functional result. The cosmetic appearance may be very bad, but the use of the hand is just as good as ever. We see this in cases of neglected unrecognized Colles' fracture. I remember one in a friend of mine, a professional pianist. He had a fracture of the left wrist, with as bad a deformity as I have ever seen. He played the piano beautifully; he had perfect use of his hand. That is one reason I always advise patients with long standing fractures, old people especially, to let them alone. The breaking up of an old fracture, with a good deal of deformity, starts the process all over again, and I have seen many cases where a late refracture has produced the worst kind of symptoms in the way of tying up the hand, and the condition was very much worse than the first. I think in elderly people, who insist upon a refracture, it is much better to leave them alone with deformity if they have a fairly limber hand.

DR. OWEN W. PARKER, Ely (closing the discussion): I am very glad there has been such a free discussion, and I think it is a very good thing that we are beginning to think more of fractures. In fact, we are going to be forced to treat them because of the labor compensation laws which are being passed all over the country, and if we want to keep out of trouble we have got to know something about these fractures, or else leave these cases alone. The labor bureaus and insurance companies and corporations are going to demand that we do our very best, and that we know what we are doing. Bone splint work and the X-ray have brought fractures to our attention to such an extent that we are coming to hear more and more about fractures all the time, and I am glad personally to see so much interest manifested in the subject.

## THE MILITARY SURGEON IN SERVICE.\*

COL. HENRY GREENLEAF, U. S. M. C.,  
*Ft. Snelling, Minn.*

I have listened with my best attention to the very interesting talk by your president, and I am reminded of the history of medicine and wonder somewhat why we don't go back to the methods of the genial Chino whose dictum was, fair enough to draw your pay and emoluments from the patient as long as he was well, while your pay stops from the man when he gets sick. And so I, in bearing this very excellent method in mind, am inclined to invite you to adopt the same method and come on into the army. Here our whole object is to keep the man well and not let him get sick, and then do our utmost to try and get him back to health. But indeed that carries with it some little effort after all; larger than is generally understood by some I think. But we do look at it from a different point of view; I don't know from my experience anything more troublesome, or anything that I have more anxiously tried to get off my mind, than a patient, for the reason that he is paying me nothing and causes some trouble while he lasts.

Not so long ago I attended, on the invitation of one of your prominent lady citizens, a Red Cross meeting in a big church in Minneapolis, where they were doing most excellent work. The minister was most encouraging in his ideas of the war, especially as it pertained to the medical profession. He said: "It is such a grand thing; we have so many splendid physicians at our beck and call, because when they need them they will come, and they are all trained in their profession and all they need to do when the thing is hot and the wounded are coming in, is to come,—and they will come; they will come, plenty of them." I did not dare expound my ideas in the matter, because of all the fool things I know of, it is the doctor when he comes. The hospital corps men are not so bad; you can whip them into shape; but when my Adjutant comes to me: "Dr. So-and-so is re-

porting for duty." "Where from?" "Right up here from——, somewhere in the state." "Oh, damn!" This sounds discouraging, but really what the Chinaman has to learn is quite a volume and I am frank to tell you that when I am called upon by the Surgeon-General to open up a course of instruction for these doctors, I am at a loss to know what to tell them. It is not always an easy matter to know how to instruct. It is not work that has been correlated in our minds, because most army doctors have had to learn from experience and not from teachers. In this connection I must say that the way to learn in the army is by experience and by our mistakes. There is always somebody higher up who has had enough experience to have learned a great many things about the so-called red tape, and I have finally come to the conclusion that the whole subject of sanitation or care of the soldier, and preventive medicine from the army point of view, is red tape. The man who has mastered red tape and the army methods is the good sanitarian. It sounds absurd but I hope to be able to explain that this is so. The higher you go in the ranks the more red tape there is. But one advances rapidly. At least that is so today. I have just passed through one grade in less than one month, but there are others who have been in it long enough to go through over the rocky road of red tape, and their only ambition is to get back at others that have gotten in their digs at them. Your mistakes in the army come back at you. Somebody always finds them out and corrects you. The physician's whole career is turned topsy-turvy. He can no longer bury his mistakes.

So this minister's idea of the requirements of the doctor coming into the service, is neither profitable to the army nor profitable to the doctor.

I don't know of any more disagreeable person than I myself have been to some of these good doctors in trying to be polite about their mistakes. I try to be good natured about them, but it is true that the average man who has not been in the army is surely careless about his papers, until after a while he will sign anything put before him, for whatever purpose it may be. Perhaps it may be because there is such an awful lot of them (papers, not doctors).

\*Address before the Southern Minnesota Medical Association, Mankato, Nov. 26, 1917.

Therefore, I want to give first a little word of advice to those of you who are coming into the service, and I have an idea that there are more of you who are coming in than really realize it; the ones who come in now have the best chance. Incidentally, there are a lot of young men with ambition who are going to make great success at practice right now and can't spare the time. I honestly believe however, that the young men without too heavy family ties, and those who have wives who would be glad to have them take a vacation for a while, would do well to hurry on in because we need you. There is no doubt of that. I am going to tell you another word about this fighting proposition. Don't throw up your offices right away; go back to work and forget about the army until the call comes. After they have told you that you have passed and that you will be a commissioned officer, don't say anything about it. Don't tell your friends, for they will say, "Why don't you get on your uniform and go to war?" Remember, the Surgeon-General has a little task of his own in Washington. He has an enormous job and has to wait until something happens, until your papers come through, because you are only one of many. It is again the question of paper, so we want you to hear about it. Say nothing, but get as many patients as you can, and keep them coming. Live for the future when you can look upon the patient as one of those nuisances without a dollar attached. Sooner or later they will want you, but they cannot take you at once. I have a good many letters to the effect that "I have given up my lease, and have not been called," etc. I have a letter from the Surgeon-General, also, saying that that is a very unwise thing to do.

I am supposed to say something about the medical man in the service. I have never known anything else except in the service. I was born in the army, am the son of a medical man in the army, and have seen the medical department go through a very remarkable transformation. In the early days as I remember them, the medical department consisted of only the hospital stewards, some doctors, and such of the men as the line of the army cared to spare by detail, and this obtained even after the medical part of our army in the Civil War had de-

vised and put into operation the first organized military medical service of the world, on which lines all present military medical organizations are based, but after the uses for the army on a great scale had gone out of existence we began to settle back into the humdrum of frontier service. This gave way in 1888 to an organized hospital corps of which my father was really the founder. He got through Congress the authority to enlist hospital corps men as such, put us on a military basis and to again make a real military department out of us. Our men really belong to us. We are taxed with the care and control of them as are company officers. This was a real organization, so-called now a medical department, then a medical corps.

When it was first put to the test in the first campaign of any magnitude against the Sioux Indians, at the battle of "The Wounded Knee," it was a matter of great concern how to get out of a bad situation on account of the wounded, of which there were a large number. Colonel Hoff, Medical Corps, was surgeon of this outfit, a man now associated with the Surgeon-General and a very able administrator. This command, I hesitate to say command, in the face of the large forces of today, was probably about 2,000. Because of the resultant organized military formation of the medical part of the command, he was the first to report himself to his commander, General Tony Forsythe, as ready to move. He had his wounded under control on transportation that was his own, he had attended his wounded, dressed them, and was the first of the command who was really ready to start.

From this time on, until not such a long time after, when the corps was very well under organization, we were precipitated into the Spanish-American War, there was a great deal said for and against the medical department. We suffered most dearly because the eyes of the whole world were upon us as the caretakers of the sick and wounded of the American Army. When the army came back from Cuba there were probably none but were sick and a fair proportion were wounded. The number of men necessary to take care of the wounded and build hospitals was large, the number of men to do this was small. But as it turns out now, however, this may have been, nothing in the

world could have been of greater importance to our country or to the army in view of the present emergency, than that very disaster. We fortunately had a red-blooded man at the helm in our President Roosevelt who, after realizing the extent of the task involved in having the Philippines and other foreign possessions on our hands, determined that a whole lot of life must be shaken into the army. We knew it, too, but did not know how to shake it in. He subjected the older bureaucratic officers, known to the line as the "swivel chair brigade," to physical tests which they were not equal to, by inviting them to accompany him on walks and rides, invitations that they could not decline, with the results which he knew would follow. The chairs soon became vacated for a bunch of entirely different men who gave fresh ideas, new growth, and put in shape the present general staff. All of this had its bearing on the education of the army, and then, too, necessity, and the desire to learn proved great teachers and an impetus to the American medical man. We had the wonderful results, therefore, of the work of these splendid men whom everybody knows now, such as the work of Reed, Carrol and Agramonte in yellow fever, the splendid work of Gorgas and Wood in clearing Cuba of yellow fever through their exhaustive measures; the work of Vedder in clearing up the subject of beriberi in the Philippines; Bushnell on tuberculosis; Russell on typhoid, etc. All these accomplishments were outgrowths of tremendous epidemics and emergencies experienced, and the result was that the army at large, medical as well as the line of the army, were educated up to the necessity of the service. It had not been an uncommon thing to have men in command who were of high attainments along military lines—old men it is true—but old men who had gained their experience in earlier times, and who had learned many facts that had their bearing on military matters, under conditions as they obtained in Civil War times, and who were not convinced of the efficiency of modern sanitary suggestions, and the result was that action could not be had. They held the strings and it

was absurd to them for soldiers to have to use mosquito nets, for soldiers to have to be clean and neat in campaign. The soldier was encouraged to have long unkempt hair and an overgrown beard. A soldier was not a well hardened soldier who could not drink water collected in holes made by horses' hoofs. All of this had to be lived down, until, after experience, all were as well convinced and as well versed in these matters as the average sanitary man, and I can tell you that they have learned this lesson. They are convinced that water must be boiled, that when you are in the presence of mosquitoes, a net is a necessity if they are to prevent malaria. You must clear out flies. They are convinced by now that you must take your injections of inoculation against typhoid and paratyphoid, etc.. Incidentally, in looking up this subject of typhoid fever I was really astonished to find that in 1898 there were 6,619 deaths alone from this disease, if you please,—not cases, but deaths—out of a little army of 150,000; that in 1916 there were more men than that by a good many—256,000 men including the militia and the regular army—and there were only eight cases of typhoid fever in the whole army throughout that year. A wonderful record, and this all crystallized means the education of the medical man and the education of the line officer along the lines that go to make efficiency; when we say that a thing goes to make efficiency it means that it makes what we understand by the hygienic laws of the army largely on the route of red tape.

Just a word here. When I say that red tape, or the conquering of it, is the most important work toward sanitation, I mean control of troops. I don't know of any one person in a command whose personal equation is more definitely felt than the medical officer, and I don't know any more perfect index of the medical officer's character who is detailed with a command than the condition of the outfit he is serving with. I was on duty as division surgeon with the Tenth Division on the Border, which was a division made up of troops from the Southern states,—Kentucky, the two Carolinas,

Georgia and Tennessee. The Tennessee troops incidentally, while in the Presidio during 1899, had left a name notorious for riotous doings because of the want of discipline or anything that indicated proper soldiery; their camping place still bears the name of "Tennessee Hollow." Now I may tell you that this Tenth Division and these Tennessee troops became a splendid body of well organized, well disciplined troops, true, with much still to be desired, becoming so by the heavy hand of a skillful division commander who emphatically pointed out to officers and men their mistakes; but it was a fact, too, that in going through these troops one could easily pick out, by their excellence, those who had a good surgeon.

You must learn the army methods. You not only must know that proper dietary is a necessity for healthy troops, but in order to get the proper dietary you have to know how to accomplish it, how to set the commanding officer or company commander to rights. You are the man to point out to the company commander or post commander where he is at fault. It is one thing to go to the company and determine the fact that it is not having proper food; it is another thing to tell them how to get it. I have been with troops where you could take bills of fare and could find no criticism and you could not criticise the food, but if you went there the next week you could see a flaw, the next week a little bigger flaw, and the third week you would have the demonstration of the little quotation from the Bible that one of my best Catholic friends, a Jesuit Priest, read to me: "The same yesterday, today, and forever,"—lack of mere change, or variety, or a little bit of spice. So, too, the medical man must find out, or observe, when a man is slovenly in his clothes, when all the men of a company are not checked up to a proper method of holding themselves, know that the man is not getting his setting-up exercises or other drills with any degree of intelligence.

He must go into the tents. It is not one tent that is dirty, but all of them; and the reason is that soon the clean man finds that it is not worth while to keep up because nothing is done

to the dirty man. The dirty man is not made to bathe often. As to clothes, the company commander does not know how to fit them, and no one tells him. The men neglect their laundry and would rather spend their little something for laundry, on a little something they should better not have had, etc. And so if we go around picking out all these nicer little fine points we are helping the soldier get what he needs to make a good, able-bodied man, nothing more, for we can't make him too good even if we try. It means improving the soldier's surroundings and method of living by knowing the requirements of army regulations, which means knowing how, through popularly termed "red tape."

So gentlemen, when I tell you that these are the things you have to learn, and when I tell you that you don't learn them entirely from lectures, and that the very oldest text book you ever saw is a most amusing novel compared to these service manuals. So I am advising you, under the circumstances, to come in while the coming is good, get these things learned through your mistakes, and get your "cussing out" in diluted form instead of in a concentrated one, and when you have this little inkling you will find promotion waiting.

The government started out topside foremost to give promotions, as they thought them immediately deserving, and so they were,—but they have found that these men will get there anyhow; so they advise your coming in and demonstrating your ability. You can't down an Irishman or an American. Once in a while you can pull a German under the table, but he has the best chance in the world, if a good one,—an American. You have all kinds of samples of them in this section. In fact, I am convinced that the only ones that are not good are those who are paid for being bad, and they are so "dog-goned bad," they should be kicked out like skunks in the cellar,—though that is rather uncomplimentary to the skunks. As so much is being done, I know how every man feels; he wants to get in and I know how difficult and necessary it is that in many cases he cannot; he will when the time comes, and of course for

those others who can't, too old, infirm, etc., there is going to be lots of work in hospital positions near at hand. We have the very best brains in our medical world brought to bear to whip the medical department into shape, and they will use these men when the right time comes. In other words, the Surgeon-General, backed by the general staff, our splendid President, and those in charge, have called to the offices in Washington wonderful men, who are well fitted for big work, who are correlating and standardizing methods so that in our medical section we shall not depend on various ways of various minds; but these gentlemen, of whom some of the most striking examples, are the Doctors Mayo Brothers, Doctor Brackett of Boston, and Doctor Janeway of New York, and a good many others whose names appear over my desk, are selecting men known to them in their specialties and training them into standardized methods, very much as the aviators are doing with your new liberty machines. They are now picking out practical men to take positions in hospitals, in eye, ear, nose and throat, pathology, etc., according to their specialty as the case may be. They are placing chiefs of medical and surgical staffs and others in hospitals, and under these men, assistants, advisors, or internes. While they are doing this, the Surgeon-General is sending vast numbers of young men as fast as possible to do work along medical lines, to the Allies. And in turn, when we get started in active operations in France, there is practically no limit to the scope of the work.

I will mention in passing, the handling of the wounded by these medical men from the firing line, in order to leave fighting men on the line free to do their part. We find that these men must handle ambulance companies, hospital institutions, be prepared to take care of wounded close at hand or to move them. We find that nobody can do this work for us. One reason is because they have not the medical knowledge, —they have not lots of other things that medical men have.

I will only repeat my advice given earlier: come on in while the coming is good.

## MEDICAL ADVISORY BOARDS.\*

WILLIAM J. MAYO, M. D.,  
Rochester, Minn.

Mr. President, Fellow Members of the Southern Minnesota Medical Association; Ladies and Gentlemen: I have been very much interested and edified by Col. Greenleaf's remarks to us junior medical officers, so badly tangled up in the red tape of which he has spoken. His is the first apparently adequate defense which I have ever heard of it, and I accept it because it has come so kindly from him and not because I understand the defense itself.

I want to speak to you briefly in regard to the Medical Advisory Boards. My brother and myself have had the honor to be appointed temporarily as Federal Aides on the staff of the Governor and the Adjutant General of the state in the formation of these medical advisory boards. You all know why these boards have been created. It is true, and we know it to be true, and in a way we are proud that it is true, that the medical examinations of the first draft were inadequate. There were many reasons for this inadequacy. First and foremost there was hurry. The nation wanted to get into the war quickly. We wished to make a showing, and rightfully. Therefore the men who were acting as medical examiners on local boards did not have time to make adequate examinations; but please notice that in their patriotism they gave the Government the benefit of the doubt. Every time they were in doubt as to the availability of a drafted man for service they said, "You had better go to war anyhow." The difficulty was that when these men went to camp, gave up their business in good faith because they had been accepted, that about 10 per cent. were sent home. In railroad fare it cost over a million dollars to take these men to camp and send them home, to say nothing of the injustice to the men who had been accepted and had gone in good faith and had given up their business to be sent home under such circumstances. Therefore, when the time came for the new draft, the administration

\*Read before the Southern Minnesota Medical Association, Mankato Minn., Nov. 26th, 1917

rightly said that this thing must not occur again; there must be some way devised in which these men can be adequately examined, so that this injustice will not be done any of them again in the future.

The medical examination of the new draft will be improved. First, a local examining surgeon will not be expected to examine over thirty men in one day. When we think that more than 100 men were forced before a single examiner in one day in the previous draft we can understand why failure took place, and it is a wonder that the failure was not greater. There will be a sufficient number of what might be called advisory examiners on the local boards in proportions of thirty to each examiner. Whenever a local board will have to examine more than thirty men in one day, for each thirty after the first, there will be an additional examiner so that there will not be an overloading. Therefore, no board will be overworked. The advisory medical boards will be composed of from three to five men, and it is the desire of the War Department and of the Surgeon General's office to have as many of these boards in each state as can be blocked together with the facilities that are necessary for a careful examination.

There should be with each medical advisory board a man who has some considerable knowledge of the eye and ear, and of the X-ray, and

for all of those other specialties which we have learned through experience to be essential in making an examination which will show whether or not the applicant is a fit subject for the army. There will be a central state committee, and this committee will organize and supervise the medical advisory boards. These boards will have referred to them by local boards all doubtful cases. The government has very carefully guarded the interests of the drafted men who are to take these examinations. For instance, if any members of the local board are dissatisfied with the physical condition of the man who is being examined, they can send him to the medical advisory board. There will be an appeal officer who will represent the United States government and the Adjutant General's department of the state. If he is dissatisfied in any way with the examination or with the report of the conditions or facts, he can send this man to the Reserve Medical Board. If the man is dissatisfied he can himself appeal to the medical advisory board. Through these methods, it is believed, the inaccuracy of the medical examinations can be reduced to 1 per cent. instead of 10 per cent. The most prepared of any department of the war is the Surgeon General's office. The medical profession has responded nobly. Understand me, I am not here to make an appeal to the profession. An appeal is unnecessary; we are all loyal and anxious to help.



# Minnesota Medicine

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## EDITORIAL

### MOBILIZING THE PROFESSION FOR WAR.

Until the entire medical profession of the United States, or at least those who are mentally and physically fit and within the age limit, are mobilized within the Medical Reserve Corps of the United States Army, not until then can we give to the Surgeon General that efficiency which he so badly needs in having a large body of Medical Officers upon whom to draw.

You may never be called; at the same time your joining the Medical Reserve Corps and placing your services at the command of your country clearly indicates the patriotism which the medical profession, as a whole, should evince and which we must manifest if we are to win the war.

Every doctor must realize that success depends upon a carefully selected and thoroughly trained body of medical officers. By careful selection, we mean the placing of a medical officer in a position where he is best fitted for the service, and only by having an immense corps or the entire profession mobilized upon a war basis, can we serve our country to the best possible advantage.

This mobilization of the entire profession should come from within the body itself, but every physician coming within the requirements of the service, as to age and physical fitness, should seriously consider this suggestion and not wait for complete mobilization but apply at once for a commission in the Medical Reserve Corps of the United States Army.

It is not only for the combatant forces that medical officers are required, but for sanitation, hospital camps, cantonments and in other departments where the health and life of the forces are dependent upon the medical officer.

We have within the profession a sufficient number of doctors to fully meet the requirements of the Surgeon General's Office whatever they might be, but to be of service, you must join the Medical Reserve Corps to enable you to meet the appeal which is now being made for a large and efficient Medical Reserve Corps upon which the Surgeon General may draw as requirements demand.

### MINNEAPOLIS CLINICAL WEEK.

The Hennepin County Medical Society, Minneapolis, has created a clinical section composed of the clinical men of the Hennepin County Medical Society. The organization was effected Monday, January 21st. The officers elected were Dr. A. W. Abbott, chairman; Dr. W. A. Jones, vice-chairman; Dr. E. J. Huenekens, secretary.

The purpose of the organization will be determined by the executive committee composed of the three men above mentioned with Dr. J. P. Schneider and Dr. J. G. Cross. From this executive committee other committees will be formed to take charge of the arrangements of the clinic, viz., an entertainment committee, a publicity committee, and a program committee.



This part of the organization was completed on the evening of January 25th.

The principal object of the section is to give a clinic throughout the week beginning April 8th, and extending to and including Friday, April 12th. It is planned to make the clinic week a very general one. Clinics in various sections of medicine and surgery will be given at the hospitals, the hours to be worked out and announced in the next issue of Minnesota Medicine. The clinic is for the purpose of attracting physicians and surgeons all over the Northwest, including Minnesota, North and South Dakota, Montana, and a part of Iowa and Wisconsin.

The business headquarters of the section will be at the Hennepin County Medical Society rooms in the Donaldson Building, on Seventh Street and Nicollet Avenue, to which all communications may be addressed. The Secretary will have stenographers and typists under him who will circularize the medical men. This early announcement is made in order that expected visitors may take note of the occasion, and also that they may be notified of this week of clinical importance. Return postal cards will be sent out later in order to get an estimate of the number of men who may be present. The clinics will take place at the time stated, and will be conducted whether there are ten men or one hundred visiting men.

Our readers are kindly asked to watch each issue of Minnesota Medicine for announcements in order to keep fully informed as to the program, which will be a scientific one, and one which the section hopes will be of very general interest.

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### REPORTING OF ACCIDENTS FROM LOCAL ANESTHETICS.

Elsewhere in these columns appears a letter from the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association asking the co-operation of the medical and dental professions in obtaining reports on accidents by local anesthetics.

It is self-evident that the prevention and treatment of such accidents must be based on full and conscientious reports of all abnormalities. It is notorious that the reports of such

accidents are published only exceptionally, for fear of unmerited censure of the anesthetist. The committee feels that in the plan suggested in its letter this objection has been avoided, so that reports, instead of inviting censure, will tend, on the contrary, to serve as a protection. It is hoped that the medical and dental professions will give this important measure their fullest co-operation.

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## OF GENERAL INTEREST

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Dr. Harold O. Cooperman of Grand Forks, is moving to Minto, Minn., to take over the practice of Dr. Norton, who is about to remove to his old home in Rochester, Minn.

Dr. S. D. Henderson, who has been connected with Drs. Ewing in Kenmare, N. D., has severed his partnership with them to open offices in Lansford, where he will practice after the first of the year.

Dr. A. J. Large has opened a permanent office at 317 State Bank Building, La Crosse, Wis.

Dr. P. E. Stangl, who has been temporarily in charge of the Pilon Hospital, has returned to St. Cloud, Minn., and will make his permanent quarters there.

Dr. H. C. Otte is now located in Frazee, Minn., and is occupying rooms in the Kiene Building, formerly occupied by Dr. Rosenberg.

Dr. W. B. Whittenberg, of Detroit, has gone into partnership with his brother, Dr. D. E. Whittenberg, at Alexandria, Minn.

Dr. Shannon, of Barnum, has purchased an interest in the hospital at Crosby, Minn., and has moved there.

On January 19th, twenty-six physicians from the 31 counties connected with the District Board at Mankato, met with Major Snyder, Capt. Connolly and Lieut. Hoffman, and received instruction in examining drafted men.

Dr. P. L. Berge, of Brainerd, Minn., has been called to the colors. He will report to Fort Riley, January 23rd.

Dr. S. S. Shannon, formerly of Barnum, Minn., has located at Crosby. He is associated with Drs. B. A. Smith, E. J. Pengally and George Gilbert in the Miners Hospital.

The midwinter meeting of the Upper Mississippi Medical Society was held at Brainerd on January 8th. Dr. Thomas McDavitt, Secretary of the State Society, spoke of the work of the defense feature of the State Society.

The program was a symposium on obstetries. Dr. W. A. Coventry, of Duluth, read a paper on "Toxemias of Pregnancy." The next meeting will be held at Wadena. This meeting will be devoted to venereal disease.

Dr. N. Linneman, of Duluth, was operated upon for gallstones on January 6th. He is making a good recovery.

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## IN MILITARY SERVICE

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### Ramsey County Medical Society.

The following members of this Society are on active military duty:

- Lt. John S. Abbott, 6th K. O. Y. L. I., B. E. F., France.
- Lt. Moses Barron, B. H. No. 26, Ft. McPherson, Ga.
- Capt. Walter T. Brodie, Camp Dodge, Iowa.
- Lt. Andrew Christiansen, F. H. C. No. 135, Camp Cody, Deming, N. M.
- Capt. Wallace Cole, Orth. Contingent, Red Cross, London.
- Major Paul B. Cook, Instructors' Headquarters, Ft. Riley, Kan.
- Lt. Edward J. Engberg, M. R. C., Camp Beau-  
rigard, Alexandria, La.
- Dr. A. R. Hall, R. A. M. C. 3, Whitehall Place,  
W. C. London.
- Lt. J. Felton Hammond, R. A. M. C.
- Capt. J. C. Harding, M. R. C., Ft. Riley, Kan.
- Lt. J. L. Martineau, F. H. C. No. 135, Camp  
Cody, Deming, N. M.
- Major E. A. Meyerding, F. H. No. 41, Ft. Riley,  
Kan.
- Lt. J. C. Michael, Base Hospital, Ft. Riley, Kan.
- Lt. N. G. Mortenson, F. H. C. No. 135, Camp  
Cody, Deming, N. M.
- Lt. R. F. McHugh, M. R. C., 136 Infantry, Camp  
Cody, Deming, N. M.
- Lt. W. P. O'Malley, Ambulance Co., Ft. Dodge.

- Lt. Justus Ohage, Jr., Camp Infirmary, Ft.  
Riley, Kan.
- Lt. J. J. Platt, M. C., 153 Infantry, Camp Beau-  
rigard, La.
- Lt. Louis Ramaley, M. O. T. C., Ft. Riley, Kan.
- Capt. F. J. Savage, M. O. R. C., Provisional Am-  
bulance Co., Camp Dodge, Iowa.
- Capt. Geo. W. Snyder, Field Hospital, Camp  
Dodge, Iowa.
- Capt. Olaf Sohlberg, Jr., Ambulance Corps,  
Minn. F. H. No. 135, Camp Cody, Deming,  
N. M.
- Capt. J. C. Staley, Post Hospital, Taliaferro  
Field No. 1, Ft. Worth.
- Major J. S. White, Sanitary Service, Camp  
Funston, Ft. Riley, Kan.
- Capt. H. B. Zimmermann, M. R. C., Minn. Unit  
No. 25, Ft. McPherson, Ga.

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### Wabasha County Medical Society.

The following members of this Society are holding commissions with the United States forces and are on active duty:

- Capt. W. B. Heagerty, Mazeppa.
- Lieut. D. S. Fleischhauer, Wabasha.
- Lieut. Cleon J. Gentzkow, Minneiska.

The following have accepted commissions but have not yet been called to active duty:

- Dr. W. F. Bleifuss, Elgin.
- Dr. W. W. Nauth, Minneiska.

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### Scott County Medical Society.

The following members of this Society are holding commissions with the United States forces and are on active duty:

- Dr. Geo. W. Snyder, Belle Plaine.
- Dr. W. J. Kueera, New Prague.

The following have accepted commissions but have not yet been called to active duty:

- Dr. William F. Maertz, New Prague.
- Dr. William H. Phillips, Jordan.

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### Carver County Medical Society.

The following members of this Society are holding commissions with the United States forces and are on active duty:

- Dr. John E. Soper, Norwood.
- Dr. P. J. Dempsey, Shakopee and Chaska.

## NEW AND NON-OFFICIAL REMEDIES

During December, 1917, the following articles were accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies: Calco Chemical Company:

**Chloramine-B (Calco)**

**Chloramine-T (Calco)**

**Dichloramine-T (Calco)**

**Halazone (Calco)**

Dermatological Research Laboratories, Philadelphia Polyclinic:

**Arsenobenzol** (Dermatological Research Laboratories), 0.4 Gm. Ampoules.

Farbwerke-Hoechst Co.:

**Novocaine**

A. Klipstein and Co.:

**Sterile Solution Coagulen-Ciba** (3 per cent)  
1.5 Cc. Ampoules.

**Sterile Solution Coagulen-Ciba** (3 per cent)  
20 Cc. Ampoules.

**Tablets Coagulen-Ciba**, 0.5 Gm.

### NEW AND NON-OFFICIAL REMEDIES.

**Borcherdt's Malt Sugar.**—A mixture containing approximately maltose, 87.40 per cent; dextrin, 4.35 per cent; protein, 4.40 per cent; ash, 1.90 per cent, and moisture, 1.95 per cent. It may be used when maltose is indicated in the feeding of infants, particularly in the treatment of constipation. The Borcherdt Malt Extract Co., Chicago. (Jour. A. M. A., Dec. 1, 1917, p. 1875).

**Tyramine-Roche.**—A brand of tyramine hydrochloride complying with the standards of New and Non-official Remedies. The Hoffmann-LaRoche Chemical Works, New York. (Jour. A. M. A., Dec. 1, 1917, p. 1875).

**Atophan.**—A proprietary brand of phenylcinchoninic acid complying with the standards of the U. S. P., but melting between 208 and 212 C. For a description of the actions, uses and dosage, see New and Non-official Remedies under Phenylcinchoninic Acid and Phenylcinchoninic Acid Derivatives. Atophan is sold in the form of pure atophan and as atophan tablets 0.5 Gm. Schering and Glatz, New York. (Jour. A. M. A., Dec. 8, 1917, p. 1971).

**Arsphenamine.**—The Federal Trade Commission having adopted the name "arsphenamine" as the term to apply to 3-diamino-4-dihydroxy-1-arsenobenzene, first introduced as salvarsan, the Council on Pharmacy and Chemistry voted to adopt this abbreviated name in place of arsenphenolamine hydrochloride now in New and Non-official Remedies.

**Arsenobenzol** (Dermatological Research Laboratories).—A brand of arsphenamine. It has essentially the same actions, uses and dosage as salvarsan. It is supplied in ampoules containing, respectively,

0.4 Gm. and 0.6 Gm. Manufactured and sold by the Dermatological Research Laboratories, Philadelphia Polyclinic, Philadelphia, Pa.

**Salvarsan.**—A brand of arsphenamine. Supplied in 0.6 Gm. ampoules. Manufactured and sold by Farbwerke-Hoechst Co., New York.

**Chloramine-T.**—Sodium paratoluenesulphochloramide. It has the actions, uses, dosage and physical and chemical properties given in New and Non-official Remedies, 1917, for chlorazene.

**Chloramine-T (Calco).**—A brand of chloramine-T. Manufactured by the Calco Chemical Co., Bound Brook, N. J.

**Novocaine.**—The monohydrochloride of paraaminobenzoylethylamino-ethanol. Actions, uses and dosage, see New and Non-official Remedies, 1917, p. 31. Manufactured by Farbwerke-Hoechst Co., New York (Jour. A. M. A., Dec. 22, 1917, p. 2115).

### PROPAGANDA FOR REFORM.

**Some Misbranded Mineral Waters.**—Shipments of the following bottled mineral waters were seized by the federal authorities, and on prosecution declared misbranded under the provisions of the U. S. Food and Drugs Act: (1) Baldwin Cayuga Mineral Water; (2) Bowden Lithia Water; (3) Carbonated Colfax Mineral Water; (4) Chippewa Natural Spring Water; (5) Crazy Mineral Water; (6) Crystal Lithium Springs Water; (7) Gray Mineral Water; (8) Henk Waukesha Mineral Spring Water; (9) Seawright Magnesian Lithia Water; (10) White Stone Lithia Water, and (11) Witter Springs Water. The "lithia" waters (Nos. 2, 6, 9 and 10) were in each case declared misbranded in that they did not contain sufficient lithium to warrant the term "lithia" in the name. A number (Nos. 1, 3, 5, 6 and 11) were declared adulterated in that they contained filthy or decomposed animal or vegetable substances of an excessive number of bacteria. Most of the waters (Nos. 1, 3, 4, 6, 7, 8, 9 and 10) were declared misbranded because the curative claims made for them were found unwarranted, false or fraudulent. (Jour. A. M. A., Dec. 1, 1917, p. 1901).

**Salvarsan Manufacture Authorized in U. S.**—The Federal Trade Commission has granted orders for licenses to three firms to manufacture and sell arsphenamine, the product heretofore known under the trade name of salvarsan, patent rights to which have been held by German subjects. Provided conditions of the license are accepted by the firms, the following will be authorized to make and sell arsphenamine: Dermatological Research Laboratories of Philadelphia; Takamine Laboratory, Inc., of New York, and Herman A. Metz Laboratory of New York. The license stipulates that the name arsphenamine be used in connection with the trade name, that the product must be submitted to the U. S. Public Health Service for examination before sale, and reserves the right to fix the price. (Jour. A. M. A., Dec. 8, 1917, p. 1989).

**Anasarcin and Anedemin.**—These are the twin nostrums of cardiac pseudotherapy. Cardiac disease with its resultant renal involvement is frequently encountered; and running as it does, a chronic course, it offers an almost ideal field of exploitation for the typical nostrum vender, who is more familiar with human credulity than with this preparation. Anedemin is said to consist of apocynum, strophanthus and squill with elder—an irrational mixture of three heart drugs with inert elder. Anasarcin has been stated to contain sourwood, elder and squill. Anasarcin is a dangerous remedy in the hands of the average clinician, and its use is at all times to be condemned. In view of the dangers attending the incautious use of any member of the digitalis group of drugs, it is impossible to condemn sufficiently the recommendation that the use of Anasarcin should be continued without cessation until all symptoms of dropsy have disappeared. In the present state of our knowledge of cardiac drugs, it is indisputable that digitalis and tincture of digitalis are best suited for the treatment of cardiac disease except in those few cases in which intramuscular or intravenous administration must be employed temporarily for immediate effect. (Jour. A. M. A., Dec. 8, 1917, p. 1992).

**The Carrel-Dakin Wound Treatment.**—From observations of the results of the treatment of wounds by the Carrel method, Wm. H. Welch is convinced that Carrel deserves credit for calling the attention of surgeons to the possibility of the sterilization of infected wounds by chemical means. The Carrel method actually accomplishes sterilization sufficiently for surgical purposes. The destruction of surface bacteria without injury to the body tissues is of primary importance. (Jour. A. M. A., Dec. 8, 1917, p. 1994).

**Strandgard's T. B. Medicine.**—The resident physician of a Canadian sanatorium states that the Dr. Strandgard's Medicine Company of Toronto, Canada, is attempting to sell its "consumption cure," called Strandgard's T. B. Medicine, to Canadian soldiers who are being treated at the sanatorium. (Jour. A. M. A., Dec. 15, 1917, p. 2060).

**Pepto-Mangan.**—Physicians having served the purpose of popularizing it, Pepto-Mangan (Gude) is now advertised in newspapers. In consideration of the established facts in regard to the absorption of iron and its utilization, all possible excuse for the therapeutic employment of Pepto-Mangan, in place of iron, has vanished. False claims regarding the efficiency of the preparation have been circulated by its promoters, and about two years ago the Council on Pharmacy and Chemistry reported that while the statements were no longer made, they had never been definitely admitted to be erroneous by the Breitenbach Company, and that Pepto-Mangan was then being exploited to the public indirectly. From a reading of the present advertisement in a medical journal, one can only suppose that this was intended to mislead physicians. The physician who prescribes Pepto-Mangan as a hematinic shows ignorance of the

most rudimentary facts of iron therapy, and the intelligent patient soon perceives his limitations. "Useful Drugs" contains a list of iron preparations that are suitable for all conditions that call for iron. William Hunter discusses the subject of anemia and its treatment at considerable length in "Index of Treatment," Edition 6, p. 17-37, and gives many prescriptions containing iron for use under different conditions. (Jour. A. M. A., Dec. 29, 1917, p. 2202).

## REPORTS AND ANNOUNCEMENTS OF SOCIETIES

### MINNESOTA ACADEMY OF MEDICINE.

The regular meeting of the Academy was held at the Town and Country Club, Wednesday evening, January 9, 1918. In the absence of the president, the meeting was called to order by the vice president, Dr. Dennis. The minutes having already been published, their reading at this time was omitted.

No nominations were made.

For an hour and a half the Academy listened to reports of cases, Dr. Gustave Schwyzer reporting two; Dr. Ritchie, one; Dr. Owre, three; Dr. Little, five; Dr. Colvin, two; and Dr. Benjamin, one. There were others who came prepared to report but on account of the lateness of the hour deferred their presentation until another time.

The only formal paper of the evening was by Dr. Ernest T. F. Richards, on the subject of "Important Medical Problems Encountered in the European War Zone." Following its reading, several members asked the essayist for further information concerning some of the diseases referred to in his paper.

### REPORTS OF CASES.

Dr. Ritchie exhibited two X-ray plates of the right kidney and described the case of a patient who for twenty-five years had complained of pain in the right side of the abdomen. One of the pictures showed the shadows in the exact location of the kidney; the other, a pyelogram, showed only one of the shadows within the thorium area. Heretofore the pyelogram had proved so satisfactory in differentiating the shadows in the pelvis of the kidney that little doubt was entertained of there being any question as to its reliability in this instance. The plate, however, showed only one shadow, while three others taken through the larger area of the side showed several shadows. These, later, were interpreted to be stones within the cortex, though they might have been in the gall bladder. The kidney was opened and thoroughly explored, but nothing was found that would account for the shadows. The lumbar incision was then closed and the abdomen opened through the right rectus. The gall bladder was found to be normal. The appendix, which was unusually long, was bound down upon the kidney, and it was in the end of the appendix that the mass making the shadows was found.

Dr. Gustave Schwyzer.—The first case reported was one of Vincent's angina. The patient was a woman twenty-seven years of age. Two days before Christmas her face became swollen over the lower jaw, especially on the right side. Swallowing became difficult. A week later she had an aching tooth extracted, following which deglutition became impossible. Phonation remained normal and respiration continued undisturbed. The patient was seen by Dr. Schwyzer for the first time on the evening of January 3. The face was badly swollen about the lower jaw on both sides, but more on the right than on the left. She was unable to open the mouth; her breath was fetid. Temperature, 103.5; appearance septic. On account of the phlegmonous cellulitis beneath the chin it was thought possible that the affection might be Ludwig's instead of Vincent's angina. During the night the patient was given sodium salicylate, with plenty of water, by the rectum. Fluctuation below the chin on the right side could be made out. An incision was made, but no pus came away. The wound was closed. Then with a syringe and cannula, pus was searched for below the inferior maxilla on the right side. Finding pus, a small incision in the skin was made and the finger introduced. There followed a thick, yellowish-brown, fetid discharge. Smears from the tonsil as well as from the discharging pus, made while the patient was on the operating table, showed the spirillum of Vincent as well as the bacillus fusiformis, but no streptococci nor staphylococci. The patient made a rapid recovery.

A second case reported by Dr. Schwyzer was that of a man fifty-five years of age from whom a Murphy button was removed after remaining sixteen years in his stomach. About a year after undergoing a gastro-enterostomy he began vomiting, and with considerable regularity kept it up for fifteen years. A fluoroscopic examination gave the impression that this vomiting was due to an hour-glass stomach. Forty-eight hours after a barium meal half of the barium still remained in the stomach; and eight days later the descending colon still contained large quantities of the barium. The X-ray plates exhibited showed various parts of the button, especially the male portion and one loose spring with three spirals.

At operation, extensive adhesions about the stomach were loosened. The stomach was greatly distended with fluid, which previous to the operation could not be emptied. The pylorus apparently was closed. Toward the left side under the ribs could be felt a foreign body lying near the larger curvature of the stomach and, presumably, within the stomach. At a point about 50 cm. from the original anastomosis a new connection between the stomach and jejunum was made. Upon incising the stomach, portions of a Murphy button were found within the cavity and were easily removed. Whatever parts were yet remaining, should there be any, would pass, it was hoped, through the new opening between the stomach and the intestines. The patient recovered.

Dr. Owre reported the case of a man on whom he had difficulty in removing a stone by lithopaxy. After crushing the stone, he was unable to remove the closed lithotrite; something appeared to be included within its grasp besides the crushed stone. At first he thought it might be the mucous membrane of the bladder, but after satisfying himself that it could not be any portion of the viscus, he withdrew the instrument, bringing along with it a gum catheter. Upon examining the X-ray plate more closely, the catheter could be made out as it lay coiled within the stone. The report was accompanied by the radiograph.

Dr. Little reported a series of operations on the larynx, three of whom were performed for the removal of papillomatous growths, and two for the treatment of cancerous growths. Of the former, one case was that of a woman who had been hoarse for fourteen years. After opening the trachea the papilloma was cut off with scissors after first tying the isthmus of the thyroid. A tracheotomy tube was left in place for two days. The patient's voice has been much improved by the operation.

A second case of laryngeal papilloma was in a child four and one-half years who had had whooping cough when five months old, and pneumonia at one and one-half years. At the age of two and one-half she began to have spells of difficult breathing. A year or two later she was operated on by a nose and throat specialist through a laryngoscope, but without benefit. Three months later, a tracheotomy was performed to relieve a sudden and severe choking spell. The tube was left in for several months, resulting in an infection and ulceration of the larynx. When seen by Dr. Little for the first time, her temperature was 104 degrees. In this case practically all that was done was to remove the tube. Within five days the child could breathe easily through the mouth and has continued to do so for more than two years.

A third case was that of a child still younger. Its mother states that the baby was always hoarse, never crying out loud after it was four and one-half months old. A specialist diagnosed a papilloma of the larynx in September, 1917, and recommended operation; but the child contracted whooping cough soon afterward and it was not until the latter part of December that the patient was seen by Dr. Little. At that time there developed a serious cyanosis, and the baby was brought to Minneapolis, the trachea opened and a tube introduced. A week later the larynx was opened and the papilloma removed.

Of the carcinomatous growths, one was that of a man sixty-five years of age. The larynx and trachea were opened under novocain and 50 milligrams of radium secured in place with a piece of rubber glove. This was left applied for twelve hours, after which the wound was closed with catgut. A little less than two months afterward the larynx was again opened. This time the radium was screened with a rubber tube and secured in place by linen stitches—one on each end of the tube. After twelve hours the radium

was removed and the trachea closed. Examined eight months later, no evidence of carcinoma could be found, but the scar left in the larynx interfered with breathing, so much so that it was necessary to re-introduce a tracheal tube which at the present time, one year later, he is still wearing.

The other case was that of a man forty-five years of age. About a year before operation he became suddenly hoarse after singing. He had consulted Dr. J. A. Watson and been operated on by him the month before. Referred to Dr. Little, the larynx was opened under cocain, and 50 milligrams of radium, without screening, applied for nine and one-half hours. A month later the larynx was again opened (this time under cocain,) and 50 milligrams of radium, screened, allowed to remain over the cancerous growth for eight and one-half hours. The patient died the following fall.

Dr. Benjamin reported the following: A man forty-seven years of age had had pain for a week in the right inguinal region. The pain was accompanied by vomiting. There was also a hernia. On a Thursday the patient went to work as usual, but was obliged to return home on account of vomiting and pain. The pulse was increased in frequency and a mass could be felt in the inguinal canal. Later the vomiting and pain ceased; the abdomen became soft. The diagnosis made at this time was that of hernia plus gastric ulcer. Operation was performed the following morning. Under local anesthesia the hernia was freed and the bowel returned to the abdomen. At this point in the operation other things began to appear. Upon opening the sac a bloody serum escaped, and on extending the incision, which was done under nitrous oxide, there was an escape of mucus, gas, and stomach content. An opening in the stomach near the pylorus was found. The perforation occurred, as nearly as could be estimated, twenty-four hours before the time of operation. The patient died the same evening.

Thirty-two members and three visitors were in attendance. F. E. LEAVITT, Secretary.

#### RED RIVER VALLEY MEDICAL SOCIETY.

At the December, 1917, meeting of the Red River Valley Medical Society the following officers were elected:

President, H. W. Froehlich, M. D., Thief River Falls, Minn.

Vice President, F. M. Dryden, M. D., Crookston, Minn.

Secretary-Treasurer, Ralph L. Kirsch, M. D., Crookston, Minn.

Counselor, C. E. Dampier, M. D., Crookston, Minn.

Delegate, G. S. Wattam, M. D., Warren, Minn.

Delegate, H. E. Nelson, M. D., Crookston, Minn.

Censors, A. H. Kahala, M. D., Crookston, Minn.; O. H. Olson, M. D., Erskine, Minn.; O. H. Melby, M. D., Thief River Falls, Minn.

Alternate, J. S. Kjelland, M. D., Crookston, Minn.

Alternate, W. H. Hollands, M. D., Fisher, Minn.

#### UPPER MISSISSIPPI MEDICAL SOCIETY.

The Annual meeting of the Upper Mississippi Medical Society, January 8, 1918, held at Brainerd, Minn. PROGRAM.

##### I.

"Presentation of the Head other than Occiput Anterior."

Dr. L. A. Davis Wadena

##### II.

"A Brief Summary of One Thousand Consecutive Cases of Confinement."

Dr. F. H. Knickerbocker Staples

##### III.

"Toxemia of Pregnancy."

Dr. W. A. Coventry Duluth

##### IV.

"A Case of Measles with Parturition."

Dr. L. M. Roberts Little Falls

##### V.

"Ectopic Gestation."

Dr. J. A. Thabes Brainerd

## CORRESPONDENCE

#### REPORTING OF ACCIDENTS FROM LOCAL ANESTHETICS.

To the Editor: The Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association has undertaken a study of the accidents following the clinical use of local anesthetics, especially those following ordinary therapeutic doses. It is hoped that this study may lead to a better understanding of the cause of such accidents, and consequently to methods of avoiding them, or, at least, of treating them successfully when they occur.

It is becoming apparent that several of the local anesthetics, if not all of those in general use, are prone to cause death or symptoms of severe poisoning in a small percentage of those cases in which the dose used has been hitherto considered quite safe.

The infrequent occurrence of these accidents and their production by relatively small doses point to a peculiar hypersensitiveness on the part of those in whom the accidents occur. The data necessary for a study of these accidents are at present wholly insufficient, especially since the symptoms described in most of the cases are quite different from those commonly observed in animals even after the administration of toxic, but not fatal, doses.

Such accidents are seldom reported in detail in the medical literature, partly because physicians and dentists fear that they may be held to blame should they report them, partly, perhaps, because they have failed to appreciate the importance of the matter from the standpoint of the protection of the public.

It is evident that a broader view should prevail, and that physicians should be informed regarding the conditions under which such accidents occur in order that they may be avoided. It is also evident that the

best protection against such unjust accusations, and the best means of preventing such accidents consist in the publication of careful detailed records when they have occurred, with the attending circumstances. These should be reported in the medical or dental journals when possible; but when, for any reason, this seems undesirable, a confidential report may be filed with Dr. R. A. Hatcher, 414 East Twenty-Sixth Street, New York City, who has been appointed by the committee to collect this information.

If desired, such reports will be considered strictly confidential so far as the name of the patient and that of the medical attendant are concerned and such information will be used solely as a means of studying the problem of toxicity of this class of agents, unless permission is given to use the name.

All available facts, both public and private, should be included in these reports, but the following data are especially to be desired in those cases in which more detailed reports cannot be made:

The age, sex, and general history of the patient should be given in as great detail as possible. The state of the nervous system appears to be of especial importance. The dosage employed should be stated as accurately as possible; also the concentration of the solution employed, the site of the injection (whether intramuscular, perineural or strictly subcutaneous), and whether applied to the mouth, nose, or other part of the body. The possibility of an injection having been made into a small vein during intramuscular injection or into the gums should be considered. In such cases the action begins almost at once, that is, within a few seconds.

The previous condition of the heart and respiration should be reported if possible; and, of course, the effects of the drug on the heart and respiration, as well as the duration of the symptoms, should be recorded. If antidotes are employed, their nature and dosage should be stated, together with the character and time of appearance of the effects induced by the antidotes. It is important to state whether antidotes were administered orally, or by subcutaneous, intramuscular or intravenous injection, and the concentration in which such antidotes were used.

While such detailed information, together with any other available data, are desirable, it is not to be understood that the inability to supply such details should prevent the publication of reports of poisoning, however meager the data, so long as accuracy is observed.

The committee urges on all anesthetists, surgeons, physicians and dentists, the making of such reports as a public duty; it asks that they read this appeal with especial attention of the character of observations desired.

TORALD SOLLMANN, Chairman,  
R. A. HATCHER, Special Referee,

Therapeutic Research Committee of the Council on  
Pharmacy and Chemistry of the American Medical  
Association.

## PROGRESS IN MEDICINE AND SURGERY

**STUDIES OF THE CEREBROSPINAL FLUID IN ACUTE ANTERIOR POLIOMYELITIS:** Kolmer, Freese, Matsunami and Meine (*American Journal Medical Sciences*, Vol. CLIV, No. 5), report the result of their spinal fluid examinations of poliomyelitis, during the epidemic of the summer of 1916 in Philadelphia. There is a brief review of the literature. The authors base their report on 868 specimens of spinal fluid. Only five from 316 fluids were turbid; the remaining were water clear. The five turbid spinal fluids occurred from cases on the fourth to the sixth day after the onset of paralysis, and gave a total cell count of over 200 cells per cu. mm. In about ten per cent a small fibrin coagulum occurred. No xanthochromia or excessive fibrin formation occurred in a single case. In 787 cases, a cell count was made of the spinal fluid, of which 609 cases showed an increased cell count. About eighty per cent of these gave a cell count of less than 100 per cu. mm. In 5 cases examined during the preparalytic stage, the cell count varied from 20 to 100 cells. The increased number of cells persisted in the spinal fluid for at least three weeks when the total number of cells gradually approached normal. A differential count was made in 87 fluids, all after the onset of the paralysis. The small lymphocyte was most frequently observed; rarely the large mononuclear leucocyte was found. Polymorphonuclear leucocytes predominated in less than 1 per cent of the fluids examined. This was probably due to the fact that the fluid was taken from cases after the development of the paralysis. The globulin test was made in 868 fluids and was found positive in 33 per cent of the cases with the Noguchi method. In 38 cases a colloidal gold reaction was made. In 18 cases, examined at intervals of two to twelve days after the onset of paralysis, no color change was observed. In 10 cases, a reaction was observed in the luetic zone, while in 6 cases the maximum color changes occurred in the meningitic zone. All fluids gave negative Wassermann reactions. In 78 cases, Mayerhofer's potassium permanganate reduction reaction was done. In 32 cases, the index was above 2.4 per cent, showing that 41 per cent of the spinal fluids in the first three weeks of the infection contain an increased protein content. In 779 spinal fluids a qualitative Fehling's test was made and found positive, although in 86 cases larger quantities of spinal fluid than usual were required. In 65 cases, the Weil Kafka hemolysis reaction was done and found positive in the spinal fluid in 66 per cent, while the fluids of 11 control persons were absolutely negative.

The results of the various tests are given in detail. In their summary, the authors believe that a definite and absolute diagnostic criterion or laboratory test with the cerebro-spinal fluid in acute anterior poliomyelitis has not been discovered. E. M. HAMMS.

**CHRONIC ASPIRINISM:** Stiell (Practitioner, Vol. 99, No. 3), reports a case of a lady aged 50 suffering for 13 years from rheumatoid arthritis who took aspirin gr x t. i. d. for seven years. In the seventh year of this medication the first sign of aspirin poisoning occurred in the form of "an intractable simple conjunctivitis" with hyperaemia and lacrymation. The aspirin was discontinued but recurrence of the rheumatoid pains forced the patient to resume the medication. A severe urticaria developed assuming in part the character of an acute circumscribed edema. The edema affected severely the tongue so that dysphagia became marked and the eyes were closed by the palpebral edema. The urine gave an intense bluish violet reaction when tested with liquor ferri perchlor., but the exact percentage of salicylic acid was not estimated. Vomiting and diarrhoea were also present. Withdrawal of the aspirin resulted in recovery in 7 weeks.

C. B. DRAKE.

**THE ETIOLOGY AND TREATMENT OF IRITIS:** Mr. H. Dickinson (Arch. of Ophth., Vol. XLVI, No. 6, November, 1917), President of the Ophthalmological Section of the Royal Society of Medicine, in opening the discussion on the etiology and treatment of iritis stated that upon analysis of 200 cases of iritis occurring in his practice he found the cause of such a condition to be proportioned as follows: syphilis, 6 per cent; gonorrhoea, 12 per cent; pyorrhoea, 37 per cent; tuberculosis, 11 per cent; general affections, 8.5 per cent; other causes, 25.5 per cent. The hospital figures for syphilis would in all probability show a higher percentage than 6 per cent although recent methods for treating that disease would probably place lues lowest as a causative factor. He believes that the percentage for gonorrhoea is also low compared with hospital statistics, but recent knowledge of that disease resulting in the treatment of the genito-urinary tract, where the gonococcus is so apt to lurk, would largely prevent gonococcal iritis. He further believes that relapses in cases of iritis are largely due to pyorrhoea. In tubercular cases, sex plays no part, being equally distributed in either one and should be treated along the same lines as tuberculosis elsewhere, together with local measures to subdue the inflammation and prevent closure of the pupil.

In 17 cases patient either had gout, diabetes, herpes of the fifth nerve, influenza or pneumonia; 10 had a septic focus on a mucous surface or cavity or upon the skin; 6 had diseased tonsils; 23 some affection of the alimentary tract, and 7 had trouble in the genito-urinary system. In one patient the iritis followed a contused injury of the globe, while another had iritis as a sequel of sympathetic ophthalmia. In 74 out of the 200 patients there was no discoverable cause other than pyorrhoea. Upon the removal of defective teeth and stumps, rapid clearing up of the iritis resulted. In 22 other cases pyorrhoea existed as a complication of other conditions.

PAUL D. BERRISFORD.

**INFARCTION OF THE HEART SIMULATING ACUTE SURGICAL ABDOMINAL CONDITIONS:** Samuel A. Levine and Charles L. Tranter (American Journal of Medical Sciences, January, 1918), report two cases, one dying on the operating table, with autopsy findings in both cases.

Both autopsies showed infarction of the heart from a thrombus in the anterior coronary artery.

No other pathological changes were found in the other organs to explain the symptoms.

The authors state that while it has long been known that acute abdominal pain may occur in pneumonia, pericarditis, and in pleurisy, no mention of coronary thrombosis as a cause of acute abdominal conditions appears in the usual text of medicine and surgery and that there are but few cases reported in the literature.

Clifford Allbutt refers to a case of fatal thrombosis of the right coronary artery in which there was pain and collapse suggesting perforated gastric ulcer.

Case 1. Hardware clerk, age 39. Father died of angina pectoris. History negative up to one year ago when he commenced to have cramp-like pains over the heart, most severe when walking. Also cramp-like pains in calves of legs which came and went suddenly. These symptoms had a sudden onset and lasted three months and gradually disappeared.

Five days before admission began to have pains across the epigastrium which radiated towards both nipples. Vomited mucus and blood. Vomited repeatedly. Bowels moved only with enemas.

Physical examination on admission revealed a regular but weak heart action—no enlargement, no murmurs, basal tones faint. Pulse, 150. Blood pressure: systolic, 92; diastolic, 80.

Abdomen full and in the epigastrium extending to the umbilicus a distinct prominence. Tenderness and muscle spasm in this region. Dullness here fusing with liver dullness. Rectal temperature, 102° F. Leucocytes, 21,400. Blood, Wassermann negative.

Surgeons, in consultation, diagnosed an acute surgical abdominal condition, the possibilities being acute pancreatitis, acute gall-bladder, or perforated gastric ulcer.

The patient died on the operating table.

The autopsy showed congestion of the abdominal organs with an enlarged liver, extending a hand's breadth below the costal arch—otherwise abdomen negative.

Thoracic cavity negative except for free fluid and signs of congestion and edema in the lungs.

The heart was enlarged and weighed 570 grams; both sides dilated, particularly the right. The myocardium, especially that of the left ventricle appeared yellowish beneath a normal pericardium. Valves normal. Apices of right and left ventricles were filled with thrombi. Thrombosis of the wall of the left ventricle was very extensive, large thrombi being present around the papillary muscles of the left side. Sections through the myocardium showed



almost complete necrosis from extensive infarction. The coronary arteries were sclerotic, the anterior coronary being irregularly thickened and its lumen almost obliterated.

Microscopic section of the left ventricle showed definite abscess formation in the large areas of necrosis. Sections through the anterior coronary showed extreme arteriosclerosis, with great narrowing of the lumen and hyalinization and calcification of the wall.

The aorta showed extensive atheromatous degeneration. One small area of ulceration covered by a thin thrombus.

Case 2. A foreman in a riding school, age 59. Past history negative, except for dyspnea on going upstairs for several months. Four hours before admission taken with a sudden, sharp non-radiating pain in the upper abdomen. He perspired freely, felt nauseated and vomited frequently but no blood. No similar attacks.

Physical examination showed a scaphoid abdomen with an area of moderate tenderness in the epigastrium and extending towards the gall bladder. No liver edge felt. Apex beat of heart neither seen or felt. Heart enlarged to left, sounds distant and weak, no basal accentuations, no murmurs. Rate, 107. Pulse poor and low tension. Blood pressure: systolic, 106; diastolic, 80. Congestion and crackles, base of right lung. Temperature, 96.8° F.; leucocytes, 19,600—85 per cent. polymorphonuclear leucocytes. Urine showed hyaline and granular casts; trace of albumen and 2 per cent. sugar, and diacetic acid ++.

The surgeons in consultation suggested an acute perforation or inflammatory intra-abdominal condition, but delayed operation on account of the acidosis. Next day the temperature had risen to 100.4° F. Leucocytes, 19,900, and the indefinite tender mass in region of gall bladder was still present.

Thirty-six hours after admission the cardiac factor in the case began to be appreciated on account of the very slow pulse, and an electro-cardiogram revealed heart block. Patient died in a few hours, and the autopsy findings were essentially negative for abdominal pathology, but showed an hypertrophied and dilated heart with infarction.

The anterior coronary artery was occluded by a thrombus at the upper portion of the interventricular septum. (This probably accounts for the heart block). The posterior coronary free. At the apex of the heart were numerous fresh thrombi.

The difficulty in both these cases was the persistence of abdominal symptoms with signs of shock and collapse and leucocytosis and very little pointing to the heart as a cause. The helpful thing in retrospect was the previous history of anginal pains in one case and exertion dyspnea in the other.

CHARLES N. HENSEL.

**THE ROENTGENOLOGIC DIAGNOSIS OF PRIMARY CARCINOMA OF THE LUNG:** F. B. McMahon, M. D., and R. D. Carman, M. D. (The American Journal of Medical Sciences, Vol. CLV, No. 1, January, 1918), from a brief review of the literature, note that up to this time there have been 428 authentic case reports of primary carcinoma of the lung. The most complete and excellent monograph on the subject has been written by Adler, who collected 374 definite cases and several others which, though questionable, bore sufficient evidence to cause him to put them in a doubtful column.

The symptoms are variable and not diagnostic, though sometimes suggestive. The age incidence of the disease is similar to that of all malignancies. Males are more frequently affected. Cough is an early symptom; it is usually slight, but constant and distressing. Expectoration, if any, is moderate in amount; it consists chiefly of mucus, and at times may be blood stained. Hemoptysis is common, but the quantity of blood is small. Inspiratory dyspnea comes on early, is nearly always present, and is exaggerated by exertion. Hoarseness and change of voice from pressure paresis of one or both vocal cords is common. Pain is a prominent, but not early, symptom. It is associated with substernal pressure symptoms or pleural involvement. Pressure may give rise to dysphagia. Weight loss and weakness are pronounced and progressive. A rise of temperature of 0.5 degrees to 1 degree is usual; chills and sweats are rare. The infiltrative type runs a longer course than the miliary or mixed type.

The physical findings are such as would be expected in massive or patchy infiltration and consolidation of the lung from any cause. Pleural effusion may mask these signs; on aspiration the fluid may be a straw colored, blood stained, or darkly discolored. Engorgement of the veins of the anterior chest wall and edema of one or both arms may be present. Enlarged supraclavicular or axillary glands, are suggestive, and removal of such glands may aid the diagnosis.

In most instances the roentgen findings in primary carcinoma of the lungs are pathognomonic of the disease, and may be the first to suggest the exact nature of the pulmonary lesion. The areas of increased density, their size, shape, and position, are usually characteristic and aid in the clinical diagnosis more than most other signs. This does not imply that all other signs can be slighted or discarded, for it is by a careful collection and correlation of all the facts that a satisfactory differential diagnosis may best be established.

In the roentgen examination three types of the disease are recognizable: namely, the infiltrative, the miliary, and the mixed, which correspond to the gross pathological groupings. A striking feature in all types, and one of considerable diagnostic importance, is the absence of practically any increase in mediastinal density. The presence of extensive pleural involvement in primary carcinoma of the lung

renders the interpretation of the roentgenogram correspondingly more difficult, but not impossible. The presence of large pleural effusions tends to completely mask the roentgenographic picture and to conceal the underlying and principal pathological condition in the lung. A second roentgen examination is necessary after thoracentesis. Fortunately these latter two conditions rarely occur until the terminal stages of the disease.

In the stereoscopic study of the infiltrative type of primary carcinoma of the lung, the roentgenogram shows one or more areas of increased density along the roots of the larger bronchi. The shadows are homogeneous or partially mottled. The borders are infiltrative and not sharply demarked. The areas of density are wedge-shaped, with the apex pointing toward the hilus, and there may be either unilateral or bilateral involvement. The degree of density is marked but varies with the extent and duration of the disease. Until there is extensive involvement the process does not reach the periphery of the lung, so that small areas of air-filled lung tissue may be seen between the growth and the chest wall. The most frequent site of this type of lesion is in one of the lower lobes. There is always present a hazy shadow-zone surrounding the growth, due to congestion from active hyperemia or passive congestion due to mild pressure, or to both conditions. The roentgen shadows found in this type of carcinoma of the lung at times makes the diagnosis difficult. The roentgenogram will show the presence of a lesion in the lung, but if the neoplasm is in an early stage the areas of density may not be entirely typical of primary infiltrative malignancy. In such cases the roentgen diagnosis can be only tentative, and if the other findings are not sufficiently corroborative a subsequent roentgen examination should be made.

In the miliary type there are innumerable regular, irregular, or conglomerate small areas of increased density extending throughout all the lobes. Their borders are poorly defined and not sharply circumscribed from the surrounding parenchyma of the lung because of the marked infiltrating character of the neoplasm. The process is diffuse throughout both lungs and the areas of density are distributed as uniformly near the hilus as in the periphery of the lung. The shadows show no tendency to be arranged in groups or clusters. There are usually no true cavities but there may be localized dilatations of the smaller bronchi and bronchioles, the walls of which may be differentiated from cavity formation only by the stereoscope. Dilated bronchioles are recognized roentgenologically by the absence of any thickened wall.

The mixed type of primary carcinoma of the lung includes a combination of the infiltrative and the miliary forms. In this type are found poorly circumscribed, homogeneous, or slightly mottled areas of increased density in one or more parts of the lung, and multiple smaller areas of increased density simi-

lar to those found in the miliary type, diffusely studying the entire remaining portions of both lungs.

The writers conclude. 1. There are three main types of primary carcinoma of the lungs which present characteristic gross pathological appearances: the infiltrative, the miliary, and the mixed.

2. The roentgen examination and the stereoscopic study of roentgenograms will early point to a pulmonary lesion and its probable nature.

3. The areas of increased density found in primary pulmonary carcinoma are usually quite typical, and can be differentiated from areas of increased density caused by other diseases in the thorax, including inflammatory changes and neoplasms, both primary and metastatic.

4. A careful correlation of the roentgen findings with the clinical history and the physical and laboratory findings usually makes a clinical and differential diagnosis possible.

ERNEST T. F. RICHARDS.

**RESULTS OF STUDIES ON EPIDEMIC POLIOMYELITIS:** E. C. Rosenow (Am. Jour. Pub. Health, Vol. 7, No. 12), describes a coccus which he has isolated in cases of poliomyelitis from tonsils. He describes the coccus as of the strepto group and describes its cultural characteristics. He has recovered the same coccus experimentally from brain and cord of monkeys and by post-mortem examinations from patients who have died of poliomyelitis. In Rochester he examined seven cases of the disease and recovered his coccus. He found the same coccus in the experimental and post-mortem work done in New York during the epidemic there. (The number of New York cases as examined or posted is not given). No report is given of finding the same coccus in the throats of contacts or well children.

He describes his serum. Sixteen patients received serum before paralysis occurred and recovered. (It is not said how the diagnosis was made). Seventeen patients with slight paralysis received serum and recovered. In one the paralysis extended. Twenty-three with advanced paralysis were treated with serum. Ten died (18 per cent mortality rate). Seven were moribund and were not counted in the statistics leaving, leaving three where serum had a chance to act. In 23 untreated cases, nine died (35 per cent mortality rate).

In the epidemic in Davenport the same coccus was isolated from characteristic abscesses in tonsils. Experimental introduction into animals verified the identification by same reactions. He studied contacts here and found no evidence of contact infection. Few cases occurred of two in a family. Many inhabitants were studied and a large proportion harbored the infection, but only 1-1000 were attacked by the symptoms-complex of poliomyelitis.

Incidence of poliomyelitis in summer in a country is about the same as pneumonia in winter.

CHARLES E. SMITH, JR.

**THE VALUE OF THE FACE MASK AND OTHER MEASURES** In Prevention of Diphtheria, Meningitis, Pneumonia, etc.: George H. Weaver (*Jour. Am. Med. Assoc.*, Vol. 70, No. 2), describes the methods in use at the Durand Hospital. All patients with any disease are treated on the same floors. First, isolation for two weeks on admission, then transferred to convalescence wards. The two weeks of isolation are sufficient to allow for the development of measles and those diseases with shorter incubation periods to people exposed before admission, but not enough for mumps and chickenpox. Routine cultures are taken on admission and just before transfer to the convalescent ward.

Nurses are impressed with the necessity for keeping hands, etc., clean. They wear gowns which correspond to the room they are entering. They leave the gowns, when exiting, in the vestibule of the rooms, inside out. They wear caps over their hair. Sterilization of bedding and clothing is done. Fumigation is abandoned. Antiseptics are not used. Secretions of naso-pharynx are destroyed.

Recently, masks of a double thickness of gauze are used constantly by the nurses on duty.

The infections among attendants have been few and crossed infections have been few.

The methods are recommended and emphasis is laid on remembering that the transfer of transmissible diseases occurs through the discharges from the naso-pharynx.

CHARLES E. SMITH, JR.

**SYPHILIS OF THE NERVOUS SYSTEM IN SOME OF ITS CLINICAL AND PATHOLOGICAL MANIFESTATIONS:** Spiller, (*Amer. Jour. Med. Sci.*, Vol. CLIV, No. 4), gives a very interesting discussion on syphilitic nervous lesions. Syphilitic ocular palsies are not primarily nuclear, but are due to involvement of the nerve fibers as they leave the brain. Tabetic ocular palsies frequently clear up under anti-luetic treatment even when of long standing, in Posey's series in at least 90 per cent. of his cases. However, there is a tendency to recurrence either involving the same muscle or another muscle supplied by the same nerve. On account of the favorable prognosis, ophthalmologic operations on the eye muscles of tabetics should not be advised.

The cause of optic atrophy (luetic), according to Stargardt, is an exudative process in the chiasm and the intracranial portion of the optic nerves. The changes in the optic nerves resemble those in the nerves supplying the ocular muscles. Lesions in syphilis of the brain are most frequently found in the neighborhood of the cerebral peduncles and the optic chiasm. The author reports cases of complete bilateral isolated paralysis of the seventh and also of the fifth nerve due to syphilis, with complete recovery.

Hydrocephalus may develop and may involve only one horn of a lateral ventricle due to a proliferation

of the ependyma. It is interesting to note the association of syphilis with other organic lesions of the central nervous system. The author reports a case, correctly diagnosed and confirmed at autopsy, of syringomyelia associated with tabes. In all suspected congenital luetics, it is most important to do intensive family study. This may aid in the diagnosis of some of the cases of epilepsy of chronic invalidism, etc. Although syphilis usually involves the brain and spinal cord conjointly, attention is called to the occurrence of focal syphilis of the central nervous system, in which the lesion is confined to a very limited area.

E. M. HAMMES.

**HEAT STROKE: REPORT OF ONE HUNDRED AND FIFTY-EIGHT CASES FROM COOK COUNTY HOSPITAL, CHICAGO:** Gauss and Meyer, (*Amer. Jour. Med. Sci.*, Vol. CLIV, No. 4), summarize their studies of 158 patients suffering from sunstroke and heat exhaustion during July, 1916. From July 26th to July 31st inclusive, the temperature was continually above 82 degrees, which was the highest since the Chicago records have been kept. Of the 158 patients admitted to the Cook County Hospital, there occurred 70 deaths, making a mortality of 44.3 per cent. There were 152 males and 6 females, and 116 or 80 per cent. were between the ages of 30 and 60 years; the youngest was 19 years old and the oldest case 79. All but two patients had taken alcohol in some form and variable amounts in the 24 hours preceding the attack.

Postmortem examination showed edema of the leptomeninges, brain and lungs, cloudy swelling of the myocardium, liver and kidney, fatty changes in the liver, petechial hemorrhages in the brain, viscera and skin.

Headache and dizziness were the commonest prodromal symptoms. The temperature on admittance varied from 94 to 114 degrees. The pulse rate was roughly proportional to the temperature. The time that it required the hyperpyrexial patients to return to normal varied from 10 minutes to three days. The urine frequently showed albumen and casts. There usually was a mild leucocytosis. One hundred and twenty-nine patients were comatose when admitted; 10 were stuporous; 3 delirious and 16 conscious and rational; 58 died without regaining consciousness; 38 patients had generalized convulsions. Marked disturbance of speech was frequent. All patients with a temperature of 103 degrees or over were immersed in a tub of tap water, and ice was freely added to the water. Vigorous friction was applied to the entire body. The temperature rapidly dropped to 102 degrees within 10 to 30 minutes, after which the patient was removed from the tub. The usual symptomatic drugs were also given.

E. M. HAMMES.

**VINCENT'S ANGINA AMONG THE TROOPS IN FRANCE:** Bouty (Brit. Med. Jour. No. 2969, Nov. 24, 1917), states that during the last two years there has been an increase in the number of cases of Vincent's angina among the troops in France including both British and French. Recent statistics have shown that this disease forms almost 2 or 3 per cent of all throat complaints among the French army during times of peace. Statistics obtained recently from a British military hospital in France shows the proportion to be as high as 23 per cent.

Captain Bouty has made the following notes upon cases that came under his observation:

#### Symptoms.

The disease is characterized by the formation of ulcers on the buccal and pharyngeal mucous membrane, either superficial or deep, covered by a pseudo-membrane the most common site being the tonsil. The organism is normally present in the mouth of the healthy individual, but its pathogenesis is favored by irritative conditions such as smoke, irritating fumes from bursting shells, and the vitiated air of the dissecting room.

The onset is sudden, but may be preceded by a few days' malaise. The temperature is raised the first day or two and may be high, the membrane forming in the course of 24 to 48 hours following the rise of temperature. After the first two days the temperature returns to normal and remains normal excepting for a slight irregular pyrexia throughout.

The membrane is yellowish-white and abundant, is adherent and leaves a raw, bleeding surface upon removal. Although the tonsil is generally the part affected, the ulcer may be found on the anterior or posterior pillar of the fauces, or the uvula or soft palate alone. It may commence on the tonsil and spread to the uvula, pharyngeal wall or soft palate, causing considerable destruction of tissue. The breath has an odor worse in its unpleasantness than diphtheria. A chronic or severe case may persist for weeks and present complications so severe that deaths have occurred in French hospitals, the primary cause being Vincent's angina.

#### Etiology.

This disease may present two clinical forms: (1) the pseudo-membranous type showing bacteriologically abundant bacilli mixed with cocci; and (2) the ulcerative form associated with the present of bacilli and Gram-negative motile flagellated spirillum. A co-existing streptococcal infection is not uncommon and may give rise to serious complications. Letulle states that in every case of ulceration of the mouth, whether syphilitic, tuberculous, or cancerous, large numbers of bacilli fusiformis and Vincent's spirochetes are to be found.

#### Complications.

Adenitis of the cervical glands is present in nearly every case and is often very painful. The urine of these patients often contains a trace of albumin, and in some cases acute nephritis may be present.

Gastro-enteritis cases have occurred, in which post-mortem, abundant bacilli and spirochetes have been found in the intestines.

Other complications, such as ulceration of the pharynx causing perforation of the carotid artery, bronchitis, laryngitis, ulceration of the vocal cords, pleurisy, empyema, otitis media and endocarditis may occur.

#### Treatment.

Vincent finds that a thorough painting with a 6 per cent tincture of iodine solution, after well scrubbing with a tampon to remove the exudate to be most efficacious. The Wassermann reaction in Vincent's angina is negative and Vincent states that mercurial treatment in a non-syphilitic exaggerates the condition.

PAUL D. BERRISFORD.

## BOOK REVIEWS

*TECHNIC OF THE CARREL METHOD.* (By J. DUMAS and ANNE CARREL. With an Introduction by W. W. KEEN, M. D., LL. D., F. R. C. S. (Hon.). Published by Paul B. Hoeber, New York. Price \$1.25.)

This small volume meets the present demand for a brief and simple guide in the application of this anti-septic treatment of infected wounds. The apparatus is described and the rather difficult preparation of Dakin's solution is given in detail. The method of roughly determining the degree of wound infection by means of stained smears is briefly outlined. The volume should have a large demand as a reference book.

C. B. DRAKE.

*A TEXT-BOOK OF GENERAL BACTERIOLOGY.* (By EDWIN O. JORDAN, Ph. D., Professor of Bacteriology in the University of Chicago and in Rush Medical College. Fifth Edition, Thoroughly Revised. Published by W. B. Saunders Company, Philadelphia and London, 1916. Price, \$3.25.)

This edition maintains its usual standard, bringing the subject matter up to date. The arrangement serves well for reference to the general practitioner as well as to the student of bacteriology.

A. LEITCH.

*A COMPEND ON BACTERIOLOGY* Including Pathogenic Protozoa. (By ROBERT L. PITFIELD, M. D., Pathologist to the Germantown Hospital; Late Demonstrator of Bacteriology at the Medico-Chirurgical College, Philadelphia; Visiting Physician to St. Timothy's Hospital and Chestnut Hill Hospital, Philadelphia. Third Edition with 4 plates and 82 other illustrations. Published by P. Blakiston's Son and Company, Philadelphia, 1917. Price \$1.25.)

This compend brings the subject up to date and puts a lot of information in compact form. The small size of the volume makes it particularly handy for transportation. This type of book supplies a definite demand.

CARL B. DRAKE.

# District and County Roster and Alphabetical Roster of The Minnesota State Medical Association 1918

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# Minnesota State Medical Association

## DISTRICT AND COUNTY ROSTER

### FIRST DISTRICT

COUNCILOR, C. E. DAMPIER (1 year).....Crookston

#### Clay-Becker County Medical Society

Regular meetings, second Thursday, January, April, July and October  
Annual meeting in October

President	Carman, J. E.....Detroit	Kaess, A. J.....Fargo, N. D.
Meighen, J. W.....Ulen	Darrow, D. C.....Moorhead	Larsen, O. O.....Detroit
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Barton, E. R.....Frazee	Hoit, E. E.....Detroit	Weeks, L. C.....Detroit
	Humphrey, E. W.....Moorhead	Winberg, O. K.....Lake Park

#### Park Region District and County Medical Society

Wilkin, Otter Tail, Douglas, and Grant Counties  
Regular meetings, second Wednesday of January, April, July, and October  
Annual meeting, second Wednesday in January

President	Cole, A. B.....Fergus Falls	Lyng, John.....Milwaukee, Wis.
Kessler, A. G.....Battle Lake	Cowing, P. G.....Evensville	Meckstroth, C. W.....Brandon
Secretary	Drought, W. W.....Fergus Falls	Naegeli, Frank.....Fergus Falls
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Burnap, W. L.....Fergus Falls	Haugen, G. T.....Battle Lake	Serkland, J. C.....Rothsay
	Hoffmann, J. J.....Henning	Sherping, O. Th.....Fergus Falls
	Kittelson, T. N.....Fergus Falls	Powers, F. W.....Barrett
	Love, F. A.....Carlos	Vigen, J. G.....Fergus Falls

#### Red River Valley Medical Society

Polk, Marshall, Pennington, Red Lake, Norman, Kittson and Roseau Counties  
Regular meetings, in March, June, September and December  
Annual meeting, third Thursday in December

President	Dunlop, A. H.....Crookston	Morley, G. A.....Crookston
Froehlich, H. W.Thief River Falls	Gambel, F. H.....Thief River Falls	Nelson, H. E.....Crookston
Secretary	Guy, L. G.....Granite Falls	Norman, J. F.....Crookston
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Bertelsen, O. L.....Crookston	Heimark, J. H.....Hawley	Risjord, J. N.....Fertile
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Dampier, C. E.....Crookston	Kahala, Arthur .....Crookston	Vistaunet, P. S.....Shelly
Dryden, F. M.....Crookston	Kirk, G. P.....East Grand Forks	Watson, N. M.....Red Lake Falls
	Mellby, O. F.....Thief River Falls	Wattam, G. S.....Warren

#### West Central Minnesota Medical Society

Pope, Stevens, Traverse and Big Stone Counties  
Regular meetings, second Wednesday of January, April and July.  
Annual meeting, October, 1918.

President	Caine, C. E.....Morris	Linde, Herman .....Cyrus
Whittemore, J. G.....Donnelly	Eberlin, E. A.....Glenwood	O'Donnell, D. M.....Ortonville
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Bolsta, Charles .....Ortonville	Hayes, E. W.....Browns Valley	Peterson, H. E.....Chokio
	Karn, B. R.....Ortonville	Weir, J. D.....Beardsley
	Leland, J. T.....Herman	Wildish, R. M.....Graceville

## SECOND DISTRICT

COUNCILOR, J. G. MILLSPAUGH (2 years) . . . . . Little Falls

**Aitkin County Medical Society**Regular meetings, first Monday in each month  
Annual meeting, first Monday in December

## President

## Secretary

Catlin, T. J. . . . . Palisade  
Collie, H. G. . . . . McGregor  
Kelly, B. W. . . . . Aitkin

Graves, Carlton . . . . . Aitkin

Ratcliffe, J. J. . . . . Aitkin

**Upper Mississippi Medical Society**Beltrami, Cass, Crow Wing, Hubbard, Koochiching, Morrison, Todd and Wadena Counties  
Regular meetings, first Tuesday in each quarter  
Annual meeting, first Tuesday in January

## President

Higgs, W. W. . . . . Park Rapids

Nicholson, Joseph . . . . . Brainerd

Beach, George Wm., State Sanatorium, Cass County

Holman, E. E. . . . . Pine River

Nordin, C. G. . . . . Brainerd

Holst, C. F. . . . . Little Falls

Parrott, B. W. . . . . Long Prairie

Holst, J. E. . . . . Little Falls

Pengelly, E. J. . . . . Ironton

House, Z. E. . . . . Cass Lake

Pierce, Chas. H. State Sanatorium

Houston, C. A. . . . . Park Rapids

Reeves, C. E. . . . . Eagle Bend

Ide, A. W. . . . . Brainerd

Reimestad, C. S. . . . . Brainerd

Johnson, Elmer W. . . . . Bemidji

Roberts, L. M. . . . . Little Falls

Johnson, Oscar V. . . . . Sebeka

Sanborn, C. R. . . . . Bemidji

Kenyon, Paul E. . . . . Wadena

Sewall, G. M. . . . . Deerwood

Kerkhoff, E. H. . . . . Pierz

Sewall, R. J. . . . . Deerwood

Knickerbocker, Frank H. . . . . Staples

Shannon, E. A. . . . . Bemidji

Knight, S. G. . . . . Randall

Smith, B. A. . . . . Crosby

Knights, F. A. . . . . Pequot

Smith, E. H. . . . . Bemidji

Koch, John . . . . . Blackduck

Smith, Wm. H. . . . . Cass Lake

Laney, R. L. . . . . Browns Valley

Thabes, J. A. . . . . Brainerd

Laughlin, J. T. . . . . Grey Eagle

Van Valkenburg, B. F.—  
Long Prairie

Marcum, E. H. . . . . Bemidji

Watson, A. M. . . . . Royaltown

McCann, D. F. . . . . Bemidji

Watson, John D. . . . . Holdingford

McCoy, J. E. . . . . Ironton

Wilcox, F. L. . . . . Walker

McKinnon, J. J. . . . . Wadena

Will, W. W. . . . . Bertha

Miller, W. A. . . . . New York Mills

Williams, R. J. . . . . Pine River

Millsbaugh, J. G. . . . . Little Falls

Wilstrout, Irving Geo. . . . . Swanville

Monahan, R. H.—  
International FallsWithrow, M. E.—  
International Falls

Morell, C. F. . . . . Verndale

## THIRD DISTRICT

COUNCILOR, W. A. DENNIS, M. D. (2 years) . . . . . St. Paul

**Ramsey County Medical Society**Regular meetings, last Monday of each month except June, July and August  
Annual meeting in January

## President

Bohland, E. H. . . . . St. Paul

Cowern, E. W. . . . . North St. Paul

Earl, Robert O. . . . . St. Paul

Bole, R. S. . . . . St. Paul

Darling, J. B. . . . . St. Paul

## Secretary

Boleyn, E. S. . . . . Stillwater

Daugherty, E. B. . . . . St. Paul

Hammes, E. M. . . . . St. Paul

Bolstad, H. C. . . . . St. Paul

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Bosworth, Robinson . . . . . St. Paul

Davis, Herbert . . . . . St. Paul

Brady, P. J. . . . . Hastings

Davis, William . . . . . St. Paul

Bray, E. R. . . . . St. Paul

Dedolph, Karl . . . . . St. Paul

Brimhall, J. B. . . . . St. Paul

Dennis, W. A. . . . . St. Paul

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Brown, J. C. . . . . St. Paul

Dittman, Geo. C. . . . . St. Paul

Brown, LeRoy . . . . . St. Paul

Dohm, A. J. . . . . St. Paul

Buckley, E. W. . . . . St. Paul

Drake, C. B. . . . . St. Paul

Burch, F. E. . . . . St. Paul

Earl, George A. . . . . St. Paul

Burns, R. M. . . . . St. Paul

Ely, Orriman S. . . . . South St. Paul

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Campbell, E. P. . . . . St. Paul

Eshelby, E. C. . . . . St. Paul

Campbell, J. E. . . . . South St. Paul

Fogarty, Chas. W. . . . . St. Paul

Cannon, C. M. . . . . St. Paul

Freeman, C. D. . . . . St. Paul

Cannon, Harry . . . . . St. Paul

Furber, W. W.—  
Cottage Grove, Minn.

Carman, C. L. . . . . St. Paul

Gauger, E. C. . . . . St. Paul

Carman, Paul I. . . . . St. Paul

Geist, Geo. A. . . . . St. Paul

Carroll, Wm. C. . . . . St. Paul

Ghent, M. M. . . . . St. Paul

Cavanaugh, J. O. . . . . St. Paul

Gilfillan, J. S. . . . . St. Paul

Chamberlin, J. W. . . . . St. Paul

Gillette, A. J. . . . . St. Paul

Charpentier, A. A. . . . . St. Paul

Goltz, E. V. . . . . St. Paul

Chatterton, C. C. . . . . St. Paul

Gotham, C. L. . . . . St. Paul

Christison, J. T. . . . . St. Paul

Gravelle, J. M. A. . . . . St. Paul

Clark, T. C.—  
Minneapolis (Soldiers' Home)

Greene, Charles L. . . . . St. Paul

Cobb, S. G. . . . . St. Paul

Gumper, J. B.—  
Becker, Minn. (P. O. Box 127)

Colvin, A. R. . . . . St. Paul

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Conheim, Eva . . . . . St. Paul

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Henderson, Andrew— Powell River, B. C.	Little, W. J.....St. Paul	Roy, Jos. A.....Kensington
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Hilger, A. W.....St. Paul	McDavitt, Thos.....St. Paul	Schatz, F. J.....Rosemount
Hilger, D. D.....St. Paul	McIntosh, H. C.....St. Paul	Schnacke, R. A.....St. Paul
Hilger, L. A.....St. Paul	McLaren, Jennette M.....St. Paul	Schoch, R. B. J.....St. Paul
Hoff, Alfred.....St. Paul	McNevin, C. F.....St. Paul	Schons, Edw.....St. Paul
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Holcomb, O. W.....St. Paul	Meade, C. J.....St. Paul	Senkler, G. E.....St. Paul
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Jones, E. M.....St. Paul	Nye, Katherine A.....St. Paul	Sterner, E. G.....St. Paul
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Kannary, E. L.....St. Paul	Ogden, B. H.....St. Paul	Stevens, F. A.....Lake Elmo
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Kelly, Paul H.....St. Paul	Olander, J. E.....St. Paul	Stolpestad, H. L.....St. Paul
Kern, M. J.....St. Cloud	Olson, Chas. A.....St. Paul	Sweeney, Arthur.....St. Paul
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Lankster, Howard.....St. Paul	Quinn, J. A.....St. Paul	Welch, M. C.....St. Paul
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Lerche, Wilhelm.....St. Paul	Riggs, C. E.....St. Paul	Winnick, J. B.....St. Paul
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	Rogers, J. T.....St. Paul	Wold, K. C.....St. Paul
	Rothrock, J. L.....St. Paul	

**Washington County Medical Society**

Regular meetings, held by-monthly on the second Tuesday of the odd-numbered months  
Annual meeting in November

President Humphrey, W. R.....Stillwater	Clark, G. E.....Stillwater	Poirier, J. A.....Forest Lake
Secretary Landeen, F. G.....Stillwater	Freligh, E. O'B.....Stillwater	Thompson, V. C.— Marine-on-St. Croix
Burfiend, G. H.....Afton	Haines, J. H.....Stillwater	Van Cappellen, C.....Stillwater
	Merrill, B. J.....Stillwater	Wells, E. E.....Stillwater
	Newman, G. A.....Stillwater	

**Chisago-Pine County Medical Society**

Regular meetings in January and July  
Annual meeting in January

President Murdock, H. G.....Taylor's Falls	Bohling, Bernard S.....Sandstone	Lindberg, A. C.....North Branch
Secretary Anderson, C. A.....Rush City	Conner, W. H.....Finlayson	Stowe, A. J.....Rush City
	Dredge, H. P.....Sandstone	Werner, O. S.....Lindstrom
	Gray, C. E.....Rush City	Wiseman, R. L.....Pine City
	Gunz, A. N.....Centre City	Ziefen, Thos.....North Branch

**Central Minnesota District Medical Society**

Mille Lacs, Isanti, Sherburne and Kanabec Counties  
Regular meetings, January, April, July and October  
Annual meeting in July

President Olsen, S. H.....Milaca	Cooney, H. C.....Princeton	Shulean, Nellie S.....Cambridge
Secretary Parsons, George E.....Elk River	Frasier, Geo. W.....Hill City	Swenson, Charles.....Braham
	Rheim, J. E.....Mora	Vrooman, F. E.....St. Francis
	Roadman, Ira M.....Onamia	

**Carlton County Medical Society.**

Meeting.

President Havens, J. G. W.....Cloquet	Secretary Spurbeck, R. G.....Cloquet	Brunet, M. L.....Cloquet
		Fleming, James.....Cloquet
		Walters, Franklin R.....Moose Lake
		Watkins, S. O.....Carlton



**St. Louis County Medical Society**

St. Louis, Cook, Lake, and Itasca Counties  
 Regular meetings, second Thursday of each month  
 Annual meeting in October

President	Farmer, J. C. ....	McKinley	Morsman, C. F. ....	Hibbing	
Collins, A. N. ....	Duluth	Forbes, R. S. ....	Duluth	Morsman, L. W. ....	Hibbing
Secretary	Gendron, J. F. X. ....	Grand Rapids	Morss, C. R. ....	Coleraine	
Schroder, C. H. ....	Duluth	Gillespie, N. H. ....	Duluth	Murphy, I. J. ....	St. Paul
Abbott, Wm. P. ....	Duluth	Graham, David ....	Duluth	Murray, D. D. ....	Duluth
Adams, B. S. ....	Hibbing	Graham, Robert ....	Duluth	Nicholson, M. A. ....	Duluth
Arminen, K. V. ....	Duluth	Graham, R. D. ....	Duluth	Oredson, O. A. ....	Duluth
Ayers, Geo. T. ....	Ely	Grawn, F. A. ....	Duluth	Pare, L. T. ....	Duluth
Bagley, W. R. ....	Duluth	Greeley, L. Q. ....	Duluth	Parker, O. W. ....	Ely
Barney, L. A. ....	Duluth	Haney, C. L. ....	Duluth	Parsons, F. L. ....	Mountain Iron
Barrett, Fredrick ....	Gilbert	Hayes, M. F. ....	Nashwauk	Patton, F. J. ....	Duluth
Bergquist, K. E. ....	Duluth	Hirschfeld, M. S. ....	Duluth	Payette, C. H. ....	Duluth
Binet, H. E. ....	Grand Rapids	Hursh, M. M. ....	Grand Rapids	Pearsall, R. P. ....	Aurora
Blacklock, S. S. ....	Hibbing	Jensen, T. J. ....	Duluth	Pennie, D. F. ....	Duluth
Boyer, S. H. ....	Duluth	Kean, N. D. ....	Coleraine	Prudden, C. E. ....	Duluth
Braden, A. J. ....	Duluth	Keyes, C. R. ....	Duluth	Raihala, John ....	Virginia
Bray, C. W. ....	Biwabik	King, W. S. ....	Eveleth	Reynolds, Hugh ....	Hibbing
Bullen, F. W. ....	Hibbing	Klein, Harry ....	Duluth	Robinson, J. M. ....	Duluth
Burns, R. L. ....	Two Harbors	Kraft, Peter ....	Duluth	Rood, D. C. ....	Hibbing
Caldwell, J. P. ....	Marble	Kuth, J. R. ....	Duluth	Rowe, O. W. ....	Duluth
Carstens, C. F. ....	Hibbing	Laird, A. T. ....	Army Service	Ryan, W. J. ....	Morgan Park
Chapman, T. L. ....	Duluth	Lenont, C. B. ....	Virginia	Salter, W. H. ....	Duluth
Cheney, E. L. ....	Duluth	Lepak, F. J. ....	Duluth	Schulze, A. G. ....	Duluth
Christensen, E. P. ....	Two Harbors	Lindgren, E. I. ....	Duluth	Schwartz, A. H. ....	Duluth
Clark, C. H. ....	Duluth	Linnemann, N. L. ....	Duluth	Seashore, D. E. ....	Duluth
Collins, H. C. ....	Duluth	Lum, C. E. ....	Duluth	Shapiro, E. Z. ....	Duluth
Conkey, C. D. ....	Duluth	Lynam, Frank ....	Duluth	Spicer, F. W. ....	Duluth
Coventry, W. A. ....	Duluth	McComb, C. F. ....	Duluth	Sukeforth, L. A. ....	Duluth
Crowe, J. H. ....	Virginia	McCoy, Mary K. ....	Duluth	Tilderquist, D. L. ....	Duluth
Davis, H. S. ....	Duluth	McCuen, J. A. ....	Duluth	Tufty, J. M. O. ....	Duluth
Davis, I. G. ....	Little Falls	McDonald, A. L. ....	Duluth	Tuohy, E. L. ....	Duluth
Drenning, F. C. ....	Duluth	Magie, W. H. ....	Duluth	Turnbull, F. M. ....	Duluth
Eklblad, J. W. ....	Duluth	Magney, F. H. ....	Duluth	Webster, H. E. ....	Duluth
Eklund, J. J. ....	Duluth	Manley, J. R. ....	Duluth	Weirick, H. R. ....	Hibbing
Eklund, Wm. J. ....	Duluth	Martin, T. R. ....	Duluth	Wilkinson, Stella ....	Duluth
Fahey, E. W. ....	Duluth	Metcalf, F. W. ....	Winton	Winter, J. A. ....	Duluth
		Mores, C. W. ....	Eveleth	Wunder, H. E. ....	Duluth

**FOURTH DISTRICT**

COUNCILOR, R. J. HILL, M. D. (1 year) ..... Minneapolis

**Hennepin County Medical Society**

Regular meetings, first Monday of the month  
 Annual meeting, first Monday in January

President	Campbell, L. M. ....	Minneapolis	Hare, E. R. ....	Minneapolis	
Green, E. K. ....	Minneapolis	Camp, W. E. ....	Minneapolis	Harrach, J. W. ....	Minneapolis
Secretary	Cary, H. E. ....	Minneapolis	Hartzell, Thos. B. ....	Minneapolis	
Pettit, C. W. ....	Minneapolis	Cirkler, A. A. ....	Minneapolis	Haverfield, Addie R. ....	Minneapolis
Abbott, A. W. ....	Minneapolis	Clark, H. S. ....	Minneapolis	Haynes, F. E. ....	Minneapolis
Adair, F. L. ....	Minneapolis	Condit, W. H. ....	Minneapolis	Haywood, Geo. M. ....	Minneapolis
Aling, C. P. ....	Minneapolis	Corbett, J. F. ....	Minneapolis	Head, Geo. D. ....	Minneapolis
Anderson, A. E. ....	Minneapolis	Cosman, E. O. ....	Minneapolis	Hedback, A. E. ....	Minneapolis
Arey, H. C. ....	Excelsior	Cowles, D. C. ....	Minneapolis	Helk, H. H. ....	Minneapolis
Aune, Martin ....	Minneapolis	Crafts, L. M. ....	Minneapolis	Hendrickson, J. F. ....	Minneapolis
Aurand, W. H. ....	Minneapolis	Cranmer, R. R. ....	Minneapolis	Henry, C. E. ....	Minneapolis
Avery, J. Fowler ....	Minneapolis	Cross, J. G. ....	Minneapolis	Hiebert, J. P. ....	Minneapolis
Aylmer, A. L. ....	Minneapolis	Crume, Geo. P. ....	Minneapolis	Higgins, J. H. ....	Minneapolis
Baler, Florence C. ....	Minneapolis	Donaldson, C. A. ....	Minneapolis	Hill, Eleanor J. ....	Minneapolis
Baker, A. T. ....	Minneapolis	Doxey, G. L. ....	Minneapolis	Hill, R. J. ....	Minneapolis
Baker, Harry A. ....	Minneapolis	Drake, C. R. ....	Minneapolis	Hoegh, Knut ....	Minneapolis
Baldwin, L. B. ....	Minneapolis	Dreisbach, N. ....	Minneapolis	Huenekens, E. J. ....	Minneapolis
Barber, J. P. ....	Minneapolis	Egan, John M. ....	Minneapolis	Hvoslef, Jakob ....	Minneapolis
Bass, G. W. ....	Minneapolis	Eitel, Geo. G. ....	Minneapolis	Hynes, James ....	Minneapolis
Baxter, S. H. ....	Minneapolis	Ericson, J. G. ....	Minneapolis	Hynes, J. E. ....	Minneapolis
Bell, J. W. ....	Minneapolis	Farr, R. E. ....	Minneapolis	Ikeda, Kano ....	Minneapolis
Benn, F. G. ....	Minneapolis	Ffield, E. W. ....	Minneapolis	Irvine, H. G. ....	Minneapolis
Benedict, E. E. ....	Minneapolis	Fleming, A. S. ....	Minneapolis	Jensen, M. J. ....	Minneapolis
Benson, G. E. ....	Minneapolis	Gardner, E. L. ....	Minneapolis	Johnson, A. E. ....	Minneapolis
Bessesen, A. N. ....	Minneapolis	Geist, Emil S. ....	Minneapolis	Johnson, James A. ....	Minneapolis
Bissell, F. S. ....	Minneapolis	George, J. W. ....	Minneapolis	Johnson, Julius ....	Minneapolis
Blake, James—		Giessler, Paul W. ....	Minneapolis	Jones, Herbert W. ....	Minneapolis
Hopkins (Excelsior Ave.)		Guilford, H. M. ....	Minneapolis	Jones, R. N. ....	Minneapolis
Blomburgh, A. F. ....	Minneapolis	Gunderson, H. J. ....	Minneapolis	Jones, W. A. ....	Minneapolis
Booth, A. E. ....	Minneapolis	Hagen, G. L. ....	Minneapolis	Josewich, Alex. ....	Minneapolis
Bouman, H. A. ....	Minneapolis	Haggard, G. D. ....	Minneapolis	Kennedy, C. C. ....	Minneapolis
Brown, E. D. ....	Minneapolis	Hall, J. M. ....	Minneapolis	Kennedy, Jane F. ....	Minneapolis
Brown, Paul F. ....	Minneapolis	Hall, Pearl M. ....	Minneapolis	Kennedy, R. R. ....	Minneapolis
Burton, O. A. ....	Minneapolis	Hall, W. A. ....	Minneapolis	Kimball, H. H. ....	Minneapolis
Butler, John ....	Minneapolis	Hamilton, A. S. ....	Minneapolis	Kirmse, Geo. W. ....	Minneapolis
Byrnes, W. J. ....	Minneapolis	Hansen, Olga S. ....	Minneapolis	Kistler, C. M. ....	Minneapolis

Knight, H. L. ....	Minneapolis	Nootnagel, C. F. ....	Minneapolis	Stuhr Henry C. ....	Minneapolis
Knight, R. R. ....	Minneapolis	Oherg, C. M. ....	Minneapolis	Sweetser H. B. ....	Minneapolis
Knight, Ralph T. ....	Minneapolis	O'Donnell, J. E. ....	Minneapolis	Switzer, S. E. ....	Minneapolis
Kohler, Geo. A. ....	Minneapolis	Oppegaard, M. O. ....	New London	Taft, J. O. ....	Minneapolis
Kriedt Daniel ....	Minneapolis	Orton, H. N. ....	Minneapolis	Taft, Walter L. ....	Minneapolis
Lapierre, C. A. ....	Minneapolis	Owre, Oscar ....	Minneapolis	Talbot, Ada E. ....	Minneapolis
La Vake, R. T. ....	Minneapolis	Parks, Albert H. ....	Minneapolis	Tanner, A. C. ....	St. Louis Park
Law, A. A. ....	Minneapolis	Perry, Ralph St. J. ....	Minneapolis	Thomas, David O. ....	Minneapolis
Lee, John W. ....	Minneapolis	Peters, R. M. ....	Minneapolis	Thomas, G. E. ....	Minneapolis
Lewis, J. D. ....	Minneapolis	Petersen, J. R. ....	Minneapolis	Thomas, Geo. H. ....	Minneapolis
Lind, C. J. ....	Minneapolis	Pineo, W. B. ....	Minneapolis	Thomas, Gilbert J. ....	Minneapolis
Linner, H. P. ....	Minneapolis	Poppe, Fred H. ....	Minneapolis	Tingdale, A. C. ....	Minneapolis
Litchfield, J. T. ....	Minneapolis	Pratt, F. J. ....	Minneapolis	Todd, F. C. ....	Minneapolis
Little, J. W. ....	Minneapolis	Preine, I. A. ....	Minneapolis	Tyrrell, C. C. ....	Minneapolis
Litzenberg, J. C. ....	Minneapolis	Preston, Paul ....	Minneapolis	Ulrich, Henry L. ....	Minneapolis
Loomis, E. A. ....	Minneapolis	Quinby, Thos. F. ....	Minneapolis	Ulrich, Mabel S. ....	Minneapolis
Lynch, M. J. ....	Minneapolis	Reed, Chas. A. ....	Minneapolis	Voyer, Emile O. ....	Minneapolis
Lysne, Henry ....	Minneapolis	Reynolds, J. S. ....	Minneapolis	Wanous, E. Z. ....	Minneapolis
McDaniel, O. ....	Minneapolis	Ringnell, C. J. ....	Minneapolis	Warham, Thos. T. ....	Minneapolis
McDonald, H. N. ....	Minneapolis	Rishmiller, J. H. ....	Minneapolis	Watson, J. A. ....	Minneapolis
McDonald, I. C. ....	Minneapolis	Rizer, R. I. ....	Minneapolis	Wesbrook, F. F. ....	Vancouver, B. C.
McEachran, A. ....	Minneapolis	Roan, Carl M. ....	Minneapolis	Weston, C. G. ....	Minneapolis
McCusker, C. F. ....	Minneapolis	Roberts, Thos. S. ....	Minneapolis	Wethall, A. G. ....	Minneapolis
McIntyre, Geo. ....	Minneapolis	Roberts, W. B. ....	Minneapolis	Whipple, C. D. ....	Minneapolis
McLaughlin, J. A. ....	Minneapolis	Robertson, H. E. ....	Minneapolis	White, S. Marx. ....	Minneapolis
Macnie, J. S. ....	Minneapolis	Robitshek, E. C. ....	Minneapolis	Wilcox, Archa E. ....	Minneapolis
Mann, A. T. ....	Minneapolis	Rochford, W. E. ....	Minneapolis	Wilcox, M. Russell. ....	Minneapolis
Mareley, W. J. ....	Minneapolis	Rosen, Samuel ....	Minneapolis	Williams, Robert ....	Minneapolis
Mark, D. B. ....	Minneapolis	Rowntree, L. G. ....	Minneapolis	Willson, Hugh S. ....	Minneapolis
May, W. H. ....	Minneapolis	Schefcik, J. F. ....	Minneapolis	Williams, U. G. ....	Minneapolis
Mead, Marion A. ....	Minneapolis	Scheldrup, N. H. ....	Minneapolis	Wippermann, Paul W. ....	Minneapolis
Meyer, E. L. ....	Minneapolis	Schneider, J. P. ....	Minneapolis	Wittich, F. W.—	
Miller, Hugo H. ....	Harvey, N. D.	Schlutz, F. W. ....	Minneapolis	1042 Met. Bk Bldg., Minneapolis	
Moersch, Fred P. ....	Minneapolis	Schwyzler, G. ....	Minneapolis	Wood, Douglas F. ....	Minneapolis
Moir, Wm. W. ....	Minneapolis	Seashore, Gilbert ....	Minneapolis	Woodard, F. R. ....	Minneapolis
Moore, J. E. ....	Minneapolis	Sedgwick, J. P. ....	Minneapolis	Woodward, F. O. ....	Minneapolis
Moorehead, Martha B. ....	Minneapolis	Seham, Max ....	Minneapolis	Woodworth, Elizabeth—	
Morrison, A. W. ....	Minneapolis	Sessions, J. C. ....	Minneapolis	Minneapolis	
Nelson, C. P. ....	Minneapolis	Sivertsen, Ivar ....	Minneapolis	Wright, C. B. ....	Minneapolis
Nelson, H. S. ....	Minneapolis	Smith, Norman M. ....	Minneapolis	Wright, C. D'a. ....	Minneapolis
Newhart, Horace ....	Minneapolis	Soderland, A. ....	Minneapolis	Wright, F. R. ....	Minneapolis
Newkirk, H. D. ....	Minneapolis	Souba, F. J. ....	Minneapolis	Yoerg, O. W. ....	Minneapolis
Nippert, L. A. ....	Minneapolis	Strachauer Arthur C. ....	Minneapolis	Zaworski, E. A. ....	Minneapolis
Nissen, Henrik ....	Minneapolis	Strout E. S. ....	Minneapolis		

#### Meeker County Medical Society

Regular meetings in March, June, and September

Annual meeting in December (20th)

President  
Robertson, A. W. .... Litchfield  
Secretary  
Danielson, Karl A. .... Litchfield

Brigham, F. T. .... Watkins  
Chapman, W. E. .... Litchfield  
Cutts, G. A. C. .... Grove City  
Dulude, S. .... Dassel

Donovan, J. J. .... Litchfield  
Peterson, A. C. .... Dassel  
Peterson, Geo. E. .... Dassel  
Robertson, W. P. .... Litchfield

#### Wright County Medical Society

Regular meetings, first Monday in January, July, and October

Annual meeting, first Monday in October

President  
Wooster, A. M. .... Rockford  
Secretary  
Catlin, John J. .... Buffalo

Harriman, L. .... Howard Lake  
Hawkins, E. P. .... Montrose  
Metcalf, J. N. .... Monticello  
Moffatt, A. G. .... Howard Lake  
Ridgway, A. M. .... Annandale

Rousseau, Victor .... Maple Lake  
Sherman, H. T. .... Monticello  
Shrader, E. E. .... Watertown  
Thoresen, Th. .... Buffalo  
Weum, T. W. .... South Haven

#### Stearns-Benton County Medical Society

Regular meetings, third Thursday of January, April, July, and October

Annual meeting, April 18, 1918

President  
Holdridge, George A. .... Foley  
Secretary  
Boehm, John C. .... St. Cloud  
Arndt, H. W. .... Paynesville  
Beaty, J. H. .... St. Cloud  
Beebe, W. L. .... St. Cloud  
Brigham, Charles F. .... St. Cloud  
Dack, Lloyd G. .... Brooten  
DuBois, Julian A. .... Sauk Centre  
DuBois, Julian F. .... Sauk Centre  
Dunn, John B. .... St. Cloud

Edmunds, I. L. .... Clearwater  
Freeman, W. L. .... Foley  
Friesleben, Wm. .... Sauk Rapids  
Frisch, Frank P. .... Kimball  
Gelz, John J. .... Richmond  
Goehrs, H. W. .... Melrose  
Green, E. F. .... St. Cloud  
Gulde, W. C.—  
324 Syndicate Blk., Minneapolis  
Hilbert, Pierre A. .... Melrose  
Hovorka, T. W. .... St. Cloud  
Kuhlmann, August .... Melrose  
Lewis, C. B. .... St. Cloud

Lewis, Edwin J. .... Sauk Centre  
McDowell, J. P. .... St. Cloud  
Moynihan, A. F. .... Sauk Centre  
Punney, George E. .... Paynesville  
Rathbun, A. M. .... Rice  
Ridgway, Alex. .... Belgrade  
Sherwood, George E. .... Kimball  
Sutton, Chas. S. .... St. Cloud  
Townsend, De Wayne. .... Belgrade  
Watson, Tolbert .... Albany  
Whiting, A. D. .... St. Cloud  
Wolner, O. H. .... Gilbert

**Kandiyohi-Swift County Medical Society**

Regular meetings, first Thursday in March, June, September, and December

Annual meeting in December (first Thursday)

President	Benson, I. S. .... Willmar	Johnston, E. B. .... Benson
Branton, B. J. .... Willmar	Daignault, Oscar .... Benson	Kaufman, Wm. C. .... Appleton
	Davison, P. C. .... Willmar	Kolset, Carl D. .... Benson
Secretary	Frost, E. H. .... Willmar	Rains, John M. .... Willmar
Jacobs, J. C. .... Willmar	Johnson, Christian .... Willmar	Scofield, C. L. .... Benson
	Johnson, Hans .... Kerkhoven	Shelver, H. J. .... Appleton

**FIFTH DISTRICT**

COUNCILOR, C. E. PERSONS, M. D. (2 years) ..... Marshall

**Camp Release District Medical Society**

Yellow Medicine, Renville, Lac Qui Parle, Chippewa, and Sibley

Regular meetings, last Thursday of each third month

Annual meeting in October

President	Eisengraeber, G. A. .... Granite Falls	Lima, L. .... Montevideo
Pease, G. R. .... Redwood Falls	Ferguson, J. B. — St. Paul, 931 Portland Ave.	Maercklein, I. R. .... Renville
Secretary	Flinn, Thos. E. .... Redwood Falls	Marken, M. H. .... Boyd
Kerns, H. .... Granite Falls	Flower, Ward Z. .... Gibbon	Mee, P. H. .... Osseo
Adams, R. C. .... Bird Island	Gaines, E. C. .... Buffalo Lake	Mesker, G. H. .... Olivia
Aldrich, F. H. .... Belview	Gammell, H. W. .... Madison	Moore, W. J. .... Wood Lake
Bacon, R. S. .... Montevideo	Hammerstrand, F. L. .... Sacred Heart	Nelson, N. A. .... Dawson
Berg, S. A. .... Granite Falls	Hauge, M. M. .... Clarkfield	Passer, A. A. .... Olivia
Bergh, L. N. .... Montevideo	Holmberg, L. J. .... Canby	Peterson, T. — 110 E. 19th St., Minneapolis
Burns, F. W. .... Montevideo	Johnson, C. M. .... Dawson	Penhall, F. W. .... Morton
Burns, M. A. .... Milan	Johnson, H. M. .... Dawson	Puffer, F. L. .... Bird Island
Bushey, M. E. .... Arlington	Johnson, O. F. .... Winthrop	Smith, L. G. .... Montevideo
Clay, E. M. .... Renville	Jones, D. N. — Eitel Hospital, Minneapolis	Stemsrud, A. A. .... Dawson
Cole, H. B. .... Franklin	Kanne, C. W. .... Arlington	Walker, G. H. .... Fairfax
Crandall, A. M. .... Fairfax	Kilbride, J. S. .... Canby	Westby, Nels .... Madison
Duclos, J. A. .... Henderson	Lee, W. N. .... Madison	Whittier, R. W. .... Morton
Duncan, H. .... Marietta		Zimbeck, R. D. .... Maynard

**Brown-Redwood County Medical Society**

(No regular meetings)

Annual meeting in May

President	Jamieson, Earl. .... Walnut Grove	Schoch, J. L. .... New Ulm
Gray, F. D. .... Marshall	Kiefer, M. A. .... Sleepy Eye	Seifert, O. J. .... New Ulm
Secretary	Kusske, A. L. .... Hutchinson	Shrader, J. S. .... Springfield
Reineke, G. F. .... New Ulm	Meierding, W. A. .... Springfield	Strickler, O. C. .... New Ulm
Adams, J. L. .... Morgan	Meilicke, W. A. .... Nicollet	Sundt, Mathias .... Hanska
Brand, W. A. .... Redwood Falls	Nuessle, W. G. .... Milroy	Vogel, J. H. .... New Ulm
Eckstein, A. W. .... Comfrey	Pelant, F. J. .... New Ulm	Vogel, M. A. .... Winthrop
Fritsche, L. A. .... New Ulm	Peterson, R. A. .... Vesta	Walker, C. C. .... Lamberton
Gleysteen, D. V. .... Lamberton	Piper, M. C. .... Sanborn	Weiser, G. B. .... New Ulm
Hammermeister, T. F. .... New Ulm	Rothenburg, J. C. .... Springfield	Wellcome, J. W. B. .... Sleepy Eye

**Lyon-Lincoln County Medical Society**

Regular meetings, first Tuesday in February, May, July, and October

Annual meeting in February

President	Bacon, C. G. .... Marshall	Persons, C. E. .... Marshall
Sanderson, E. T. .... Minneota	Bossingham, O. N. .... Lake Benton	Robertson, J. E. .... Cottonwood
	Germo, Chas. .... Balaton	Thordarson, Theo. .... Minneota
Secretary	Hoidale, A. D. .... Tracy	Vadheim, Alfred L. .... Tyler
Workman, H. M. .... Tracy	Jacquot, G. L. .... Ivanhoe	Valentine, W. H. .... Tracy
	Jensen, J. C. .... Hendricks	Wakefield, Wm. .... Lake Benton
Akester, Ward .... Marshall	Paulson, Theo. S. .... Tyler	Workman, W. G. .... Tracy

## SIXTH DISTRICT

COUNCILOR, F. R. WEISER, M. D. (3 years) . . . . . Windom

**Southwestern Medical Society**

Pipestone, Rock, Nobles, Murray, and Cottonwood Counties

Regular meetings, second Thursday in May and November

Annual meeting in November

President	Dudley, J. H. . . . .	Windom	Richmond, Chas. D. . . . .	Jeffers
Piper, Wm. A. . . . .	Eaton, W. H. . . . .	Proctor	Schmidt, H. A. . . . .	Westbrook
Secretary	Hilger, J. M. . . . .	Iona	Sherman, C. L. . . . .	Luverne
Watson, F. G. . . . .	Leebens, John H. . . . .	Lismore	Smallwood, J. T. . . . .	Worthington
Arnold, E. W. . . . .	Lowe, Thos. . . . .	Pipestone	Sogge, L. . . . .	Windom
Balcom, G. G. . . . .	McCrea, James . . . . .	Fulda	Spalding, A. E. . . . .	Luverne
Bong, J. H. . . . .	McKeown, E. G. . . . .	Edgerton	Taylor, Wm. J. . . . .	Pipestone
Brown, A. H. . . . .	May, C. C. . . . .	Adrian	Thorson, E. O. . . . .	Luverne
Cress, P. J. . . . .	Mork, B. O. . . . .	Worthington	Waller, Jos. D. . . . .	Wilmont
DeBoer, Hermanus . . . . .	Murray, E. J. . . . .	Worthington	Weiser, F. R. . . . .	Windom
Dolan, C. P. . . . .	Patterson, W. E. . . . .	Currie	Wiedow, Henry . . . . .	Worthington
Doms, H. C. . . . .	Ravn, B. . . . .	Windom	Williams, Leon A. . . . .	Slayton
	Richardson, W. E. . . . .	Slayton	Wright, C. O. . . . .	Luverne

**Blue Earth Valley Medical Society**

Faribault and Martin Counties

Regular meetings, last Thursday in May and October

Annual meeting in May

President	Chambers, W. C. . . . .	Blue Earth	Hunt, F. N. . . . .	Fairmont
Strobel, W. G. . . . .	Dewey, G. W. . . . .	Fairmont	Hunt, R. C. . . . .	Fairmont
Secretary	Farrage, James . . . . .	Winnebago	Johnson, H. P. . . . .	Fairmont
Broberg, J. A. . . . .	Farrish, R. C. . . . .	Sherburn	McGroarty, J. J. . . . .	Easton
Bailey, H. B. . . . .	Gaag, E. W. . . . .	Bricelyn	Richardson, J. J. . . . .	Fairmont
Blong, P. H. . . . .	Gullixson, A. . . . .	Bricelyn	Urstad, O. H. . . . .	Kiester
Butz, J. A. . . . .	Holm, P. F. . . . .	Wells	Wilson, C. E. . . . .	Blue Earth

**Jackson County Medical Society**

Regular meeting, second Tuesday in May

Annual meeting, second Tuesday in November

President	Allen, R. W. . . . .	Heron Lake	Maitland, David P. . . . .	Jackson
Biorn N. A. . . . .	Arzt, Herbert L. . . . .	Jackson	Nusbaum, D. H. . . . .	Jackson
Secretary	Chadborn, A. G. . . . .	Heron Lake	Portmann, U. V. . . . .	Jackson
Moe, Anton J. . . . .	Hitchings, W. S. . . . .	Lakefield	Portmann, Wm. C. . . . .	Jackson
	Leigh, H. J. . . . .	Lakefield	Rose, J. T. . . . .	Lakefield

**Watouwan County Medical Society**

Regular meetings, second Wednesday in the month

Annual meeting, second Wednesday in December

President	Grimes, H. B. . . . .	Madelia	McCarthy, W. J. . . . .	Madelia
Kabrick, O. A. . . . .	Hagen, O. E. . . . .	Butterfield	Rowe, W. H. . . . .	St. James
Secretary			Thompson, Albert . . . . .	St. James
Haynes, B. H. . . . .				

## SEVENTH DISTRICT

COUNCILOR, F. A. DODGE, M. D. (1 year) . . . . . Le Sueur

**Nicollet-Le Sueur County Medical Society**

Regular meetings, September and January

Annual meeting in January

President	Covey, Herman W. . . . .	St. Peter	McIntyre, G. W. . . . .	St. Peter
Blakely, C. C. . . . .	Daniels, J. W. . . . .	St. Peter	Merritt, G. F. . . . .	St. Peter
Secretary	Dodge, F. A. . . . .	Le Sueur	Olson, R. G. . . . .	Nicollet
Le Clerc, Joseph E. . . . .	Eirley, Clara S. . . . .	St. Peter	Phelps, R. M. . . . .	St. Peter
Aitkens, H. B. . . . .	Freeman, Geo. H. . . . .	Willmar	Strathern, F. P. . . . .	St. Peter
Baskett, Geo. T. . . . .	Hartung, H. A. . . . .	Le Sueur	Valin, H. D. . . . .	Fort Wayne, Ind.
Baskett, Olive T. . . . .	McDougald, D. W. . . . .	Le Sueur	Woodworth, L. F. . . . .	Le Sueur Center

**McCleod County Medical Society**

Regular meetings, January, April, July, and October

Annual meeting in July

President	Barrett, E. E. . . . .	Glencoe	Leavenworth, R. O. . . . .	Glencoe
Wheeler, M. W. . . . .	Bolles, D. W.—		Scholpp, O. W. . . . .	Hutchinson
Secretary	2723 Hennepin Ave., Minneapolis		Sheppard, Fred . . . . .	Hutchinson
Maurer, E. L. . . . .	Clement, J. B. . . . .	Lester Prairie	Sheppard, P. E. . . . .	Hutchinson
Axilrod, D. L. . . . .	Kohler, F. G. . . . .	Stewart	Tinker, C. W. . . . .	Stewart

**Scott-Carver County Medical Society**

Regular meetings, first Thursday in March, June, and September  
Annual meeting, first Thursday in December

President  
Landenberger, John..New Prague  
Secretary  
Reiter, H. W.....Shakopee  
Bohland, F. J.....Belle Plaine

Buck, Fred H.....Shakopee  
Cannady, E. E.....Prior Lake  
Fischer, H. P.....Shakopee  
Fischer, P. M.....Shakopee  
Henriksen, H. G.....New Market  
Maertz, Wm. F.....New Prague

Moloney, G. R.....Belle Plaine  
Novak, E. E.....New Prague  
Phillips, Wm. H.....Jordan  
Schneider, H. A.....Jordan  
Westerman, F. C.....Montgomery  
White, J. B.....Belle Plaine

**Goodhue County Medical Society.**

Regular meetings, quarterly.  
Annual meeting in January.

President and Acting Secretary  
McGuigan, H. T.....Red Wing  
Aanes, A. M.....Red Wing  
Anderson, J. V.....Red Wing  
Beyer, A. G.....Red Wing

Claydon, L. E.....Red Wing  
Conley, A. A.....Cannon Falls  
Conley, H. E.....Cannon Falls  
Cremer, M. H.....Red Wing  
Cremer, P. H.....Hastings  
Gates, C. E.....Goodhue

Gates, J. A.....Kenyon  
Johnson, A. E.....Red Wing  
Jones, A. W.....Red Wing  
Olson, C. L.....Pine Island  
Sawyer, H. P.....Goodhue  
Smith, M. W.....Red Wing

**Rice County Medical Society**

Regular meetings, first Wednesday of January, April, July and October  
Annual meeting in January

President  
Rumpf, W. H.....Faribault  
Secretary  
Davis, F. U.....Faribault  
Finley, W. F.....Lonsdale  
Haessly, S. B.....Faribault

Hanson, A. M.....Faribault  
Hunt, W. A.....Northfield  
Huxley, F. R.....Faribault  
Lane, Laura A.....Faribault  
Lee, W. P.....Northfield  
Lexa, F. J.....Lonsdale  
Mayland, M. L.....Faribault  
Phillips, J. G.....Northfield

Plonske, C. J.....Faribault  
Robilliard, Chas. M.....Faribault  
Robilliard, W. H.....Faribault  
Smith, P. A.....Faribault  
Theissen, W. N.....Faribault  
Traeger, C. A.....Faribault  
Wilson, Warren.....Northfield  
Weinburgh, H. B.....Waterville

**Wabasha County Medical Society**

Regular meeting (annually), first Thursday after first Monday in July

President  
Bleifuss, W. F.....Elgin  
Secretary  
Wilson, W. F.....Lake City  
Bayley, E. H.....Lake City

Bowers, J. T.....Lake City  
Cochrane, W. J.....Lake City  
Dempsey, D. P.....Kellogg  
Heagerty, W. B.....Mazeppa  
Nauth, W. W.....Minneiska

Radabaugh, R. C.....Mazeppa  
Rankin, A. A.....Zumbro Falls  
Schmidt, G.....Lake City  
Shaughnessy, M. J.....Wabasha  
Slocumb, J. A.....Plainview

**EIGHTH DISTRICT**

COUNCILOR, H. F. McGAUGHEY, M. D. (3 years)....Winona

**Blue Earth County Medical Society**

Regular meetings, last Monday of each month  
Annual meetings, last Monday in December

President  
Miller, Victor I.....Mankato  
Secretary  
Kelly, T. C.....Mankato  
Andrews, J. W.....Mankato  
Andrews, Roy N.....Mankato  
Benham, E. W.....Mankato  
Curran, G. R.....Mankato  
Dahl, G. A.....Mankato

Denman, A. V.....Mankato  
Franchere, F. W.....Lake Crystal  
Hielscher, Helen H.....Mankato  
Hielscher, J. A.....Mankato  
Holbrook, J. S.....Mankato  
Holman, C. J.....Mankato  
James, J. H.....Mankato  
Kemp, A. F.....Mankato  
Liedloff, A. G.....Mankato  
Lloyd, H. J.....Mankato

Luck, Hilda.....Mankato  
Merrill, J. E.....Amboy  
Osborn, Lida.....Mankato  
Pratt, C. C.....Mankato  
Schlesselman, J. T. Good Thunder  
Schmitt, A. F.....Mankato  
Sohmer, A. E. J.....Mankato  
Wentworth, A. J.....Mankato  
Wohlrahe, A. A.....Mankato  
Williams, Hugh O...Lake Crystal

**Dodge County Medical Society**

Regular meetings, March, June, September, and December  
Annual meeting in December

President  
Smith, F. D.....Kasson  
Secretary  
Bigelow, Chas. E...Dodge Center

Adams, R. T.....Mantorville  
Baker, A. L.....Kasson  
Belt, W. E.....Dodge Center

Clifford, F. F.....West Concord  
Harrison, E. E.....West Concord  
Way, O. F.....Claremont

**Freeborn County Medical Society**

Regular meetings, quarterly  
Annual meeting in May

President  
Berg, J. P. von.....Albert Lea  
Secretary  
Stevenson, Robert G..Albert Lea  
Bessesen, W. A.....Albert Lea

Burns, H. D.....Albert Lea  
Butturff, C. R.....Freeborn  
Calhoun, Frank W.....Albert Lea  
Davis, F. W.....Alden  
Freeman, J. P.....Glenville

Kamp, B. A.....Albert Lea  
McCreight, Geo. ....Albert Lea  
Nannestad, J. R.....Albert Lea  
Palmer, W. L.....Albert Lea  
Schultz, J. A.....Albert Lea

**Houston-Fillmore County Medical Society**

Regular meetings, May and July  
Annual meeting in October

<p>President Kibbe, O. A. . . . . Canton</p> <p>Secretary Fischer, O. F. . . . . Houston Anderson, N. E. . . . . Harmony Browning, W. E. . . . . Caledonia Drake, F. A. . . . . Lanesboro Eby, Cyrus B. . . . . Spring Valley Grinnell, W. B. . . . . Preston</p>	<p>Helland, G. M. . . . . Spring Grove Hvoslef, J. C. . . . . Lanesboro Kendrick, W. N. . . . . Spring Valley Kierland, P. E. . . . . Harmony Lannin, J. C. . . . . Mabel Love, George A. . . . . Preston Love, George R. . . . . Preston Nass, H. A. . . . . Mabel Nelson, M. S. . . . . Spring Grove</p>	<p>Onsgard, C. K. . . . . Rushford Onsgard, L. K. . . . . Houston Rhines, D. C. . . . . Caledonia Simons, E. V. . . . . Spring Valley Tierney, C. M. . . . . Granger Utley, J. D. — 389 N. Snelling Ave., St. Paul Williams, R. V. . . . . Rushford Woodruff, C. W. . . . . Chatfield</p>
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**Mower County Medical Society**

Regular meetings, second Wednesday in January, April, July, and October

<p>President McBroom, D. E. . . . . Adams</p> <p>Secretary Fjelstad, C. A. . . . . Austin Allen, A. W. . . . . Austin Cobb, W. F. . . . . Lyle Grise, W. B. . . . . Brownsdale</p>	<p>Hart, M. J. . . . . Le Roy Hegge, C. A. . . . . Austin Hegge, O. H. . . . . Austin Henslin, A. E. . . . . Le Roy Hertel, G. E. . . . . Austin Lewis, C. F. . . . . Austin McKenna, J. K. . . . . Austin</p>	<p>Mitchell, R. S. . . . . Grand Meadow Morse, M. P. . . . . Le Roy Peirson, H. F. . . . . Austin Rebman, E. C. . . . . Austin Schottler, G. J. . . . . Dexter Torkelson, P. T. . . . . Lyle Warren, C. L. . . . . Le Roy</p>
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**Olmsted County Medical Society**

Regular meetings in April, June, September and December  
Annual meeting, first Wednesday in December

<p>President Meyerding, Henry W. . . . . Rochester</p> <p>Secretary New Gordon, B. . . . . Rochester</p> <p>Adams, A. S. . . . . Rochester Adson, A. W. . . . . Rochester Allen, Wilson A. . . . . Rochester Andersen, C. W. . . . . Rochester Balfour, D. C. . . . . Rochester Berkman, D. M. . . . . Rochester Bonness, Hazel . . . . . Rochester Braasch, W. F. . . . . Rochester Bumpus, H. C. . . . . Rochester Crenshaw, J. L. . . . . Rochester Crewe, John E. . . . . Rochester Dolder, F. C. . . . . Eyota Eusterman, G. B. . . . . Rochester Fawcett, Chas. E. . . . . Stewartville</p>	<p>Giffin, H. Z. . . . . Rochester Graham, C. . . . . Rochester Granger, C. T. . . . . Rochester Granger, Gertrude B. . . . . Rochester Hallenbeck, Dorr F. . . . . Rochester Henderson, M. S. . . . . Rochester Hess, Chas. L. v. . . . . Rochester Heyerdale, O. C. . . . . Rochester Huffman, R. W. . . . . Rochester Joyce, G. T. . . . . Rochester Judd, E. S. . . . . Rochester Kilbourne, A. F. . . . . Rochester Linton, W. B. . . . . Rochester Logan, A. H. . . . . Rochester Mark, A. E. . . . . Rochester Masson, J. C. . . . . Rochester Mayor, C. H. . . . . Rochester Mayo, W. J. . . . . Rochester Moore, A. B. . . . . Rochester Mosse, F. R. . . . . Rochester</p>	<p>Mussey, R. D. . . . . Rochester Ohlinger, L. B. . . . . Rochester Plummer, H. S. . . . . Rochester Plummer, W. A. . . . . Rochester Pollock, Lee W. . . . . Rochester Rosenow, E. C. . . . . Rochester Sanford, A. H. . . . . Rochester Shelden, W. D. . . . . Rochester Sistrunk, W. E. . . . . Rochester Stacy, Leda J. . . . . Rochester Smith, F. L. . . . . Rochester Steven, George . . . . . Byron Stokes, J. H. . . . . Rochester Taylor, Rood . . . . . Rochester Walker, J. C. . . . . Rochester Weyrens, Jos. P. . . . . Rochester Willius, F. A. . . . . Rochester Wilson, L. B. . . . . Rochester Witherstine, H. H. . . . . Rochester Woltmann, H. W. . . . . Rochester</p>
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**Steele County Medical Society**

Regular meetings, first Tuesday of each month  
Annual meeting, first Tuesday in January

<p>President Hart, A. B. . . . . Owatonna</p> <p>Secretary Stewart, A. B. . . . . Owatonna</p>	<p>Adair, J. H. . . . . Owatonna Andrist, J. W. . . . . Owatonna Dalley, W. J. . . . . Blooming Prairie Morehouse, G. G. . . . . Owatonna</p>	<p>Peterson, Christian . . . . . Owatonna Smersh, F. M. . . . . Owatonna Warren, J. W. — 3829 Portland Ave., Minneapolis</p>
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**Waseca County Medical Society**

Regular meeting and annual meeting, second Monday in December

<p>President O'Hara, J. J. . . . . Janesville</p> <p>Secretary Rudolf, A. J. . . . . Waseca</p>	<p>Batchelder, E. J. . . . . New Richland Blanchard, H. G. . . . . Waseca Chamberlin, W. A. . . . . Waseca</p>	<p>Cory, Wm. M. . . . . Waterville Lynn, J. F. . . . . Waseca Swartwood, F. A. . . . . Waseca</p>
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**Winona County Medical Society**

Regular meetings, first Tuesday in January, April, July, and October  
Annual meeting in January

<p>President Neumann, C. A. . . . . Lewiston</p> <p>Secretary McGaughey, H. F. . . . . Winona</p> <p>Bear, H. C. . . . . St. Charles Clay, F. H. . . . . St. Charles Gates, G. L. . . . . Winona</p>	<p>Heise, W. F. C. . . . . Winona Keyes, E. D. . . . . Winona Leicht, Oswald . . . . . Winona Lester, C. A. . . . . Winona Lichtenstein, H. M. . . . . Winona Lindsay, W. V. . . . . Winona Lynch-Schuler, Elizabeth. Winona Lynch, J. L. . . . . Winona McLaughlin, E. M. . . . . Winona</p>	<p>Muir, E. S. . . . . Winona Neumann, W. H. . . . . Lewiston Pritchard, D. B. . . . . Winona Robbins, C. P. . . . . Winona Rollins, F. H. . . . . St. Charles Rosenberry, B. P. . . . . Winona Schaefer, S. . . . . Winona Scott, J. W. . . . . St. Charles Tweedy, G. J. . . . . Winona</p>
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## ALPHABETICAL ROSTER

- Aanes, A. M. . . . . Red Wing  
 Abbott, A. W. . . . . Minneapolis  
 Abbott, Wm. P. . . . . Duluth  
 Abramovich, J. H. . . . . St. Paul  
 Adair, F. L. . . . . Minneapolis  
 Adams, A. S. . . . . Rochester  
 Adams, B. S. . . . . Hibbing  
 Adams, J. L. . . . . Morgan  
 Adams, R. C. . . . . Bird Island  
 Adams, R. T. . . . . Mantorville  
 Adair, J. H. . . . . Owatonna  
 Adsit, A. M. . . . . Hastings  
 Adkins, C. M. . . . . Grygla  
 Adson, A. W. . . . . Rochester  
 Ahrens, A. E. . . . . St. Paul  
 Ahrens, A. H. . . . . St. Paul  
 Aitkens, H. B. . . . . Le Sueur Center  
 Akster, Ward . . . . . Marshall  
 Aldes, Harry . . . . . St. Paul  
 Aldrich, F. H. . . . . Belview  
 Alexander, F. H. . . . . St. Paul  
 Ailing, C. P. . . . . Minneapolis  
 Allen, Wilson A. . . . . Rochester  
 Allen, A. W. . . . . Austin  
 Allen, R. W. . . . . Heron Lake  
 Allen, Mason . . . . . St. Paul  
 Allen, F. H. . . . . Staples  
 Ancker, A. B. . . . . St. Paul  
 Anderson, A. E. . . . . Minneapolis  
 Anderson, C. A. . . . . Rush City  
 Andersen, C. W. . . . . Rochester  
 Anderson, J. V. . . . . Red Wing  
 Anderson, N. E. . . . . Harmony  
 Andrews, J. W. . . . . Mankato  
 Andrews, Roy N. . . . . Mankato  
 Andrist, J. W. . . . . Owatonna  
 Araouni, Khalil . . . . . St. Paul  
 Archibald, F. M. . . . . Mahanomen  
 Arends, A. L. . . . . St. Paul  
 Arey, H. C. . . . . Excelsior  
 Arminen, K. V. . . . . Duluth  
 Arndt, H. W. . . . . Paynesville  
 Arnold, E. W. . . . . Adrian  
 Armstrong, J. M. . . . . St. Paul  
 Arzt, C. P. . . . . St. Paul  
 Arzt, Herbert L. . . . . Jackson  
 Aune, Martin . . . . . Minneapolis  
 Aurdand, W. H. . . . . Minneapolis  
 Ayers, Geo. T. . . . . Ely  
 Avery, J. Fowler. . . . . Minneapolis  
 Axilrod, D. L. . . . . Hutchinson  
 Aylmer, A. L. . . . . Minneapolis  
  
 Bacon, C. G. . . . . Marshall  
 Bacon, Knox . . . . . St. Paul  
 Bacon, L. C. . . . . St. Paul  
 Bacon, R. S. . . . . Montevideo  
 Bagley, W. R. . . . . Duluth  
 Baler, Florence C. . . . . Minneapolis  
 Bailey, H. B. . . . . Ceylon  
 Baker, A. C. . . . . Fergus Falls  
 Baker, A. L. . . . . Kasson  
 Baker, A. T. . . . . Minneapolis  
 Baker, G. L. . . . . Ada  
 Baker, Harry A. . . . . Minneapolis  
 Balcom, G. G. . . . . Lake Wilson  
 Baldwin, L. B. . . . . Minneapolis  
 Balfour, D. C. . . . . Rochester  
 Ball, C. R. . . . . St. Paul  
 Barber, J. P. . . . . Minneapolis  
 Barney, L. A. . . . . Duluth  
 Barrett, Fredrick . . . . . Gilbert  
 Barrett, E. E. . . . . Glencoe  
 Barsness, Nellie . . . . . St. Paul  
 Barton, E. R. . . . . Frazee  
 Baskett, Geo. T. . . . . St. Peter  
 Baskett, Olive T. . . . . St. Peter  
 Bass, G. W. . . . . Minneapolis  
 Batchelder, E. J. . . . . New Richland  
 Baxter, S. H. . . . . Minneapolis  
 Bayley, E. H. . . . . Lake City  
 Beach, George Wm.—  
     State Sanatorium, Cass County  
 Beadie, W. D.—  
     Pokegama, Pine County, Minn.  
 Bear, H. C. . . . . St. Charles  
 Beaty, J. H. . . . . St. Cloud  
 Beaudoux, H. A. . . . . St. Paul  
  
 Beckley, F. L. . . . . St. Paul  
 Beebe, W. L. . . . . St. Cloud  
 Beise, R. A. . . . . Brainerd  
 Bell, J. W. . . . . Minneapolis  
 Belt, W. E. . . . . Dodge Center  
 Benedict, E. E. . . . . Minneapolis  
 Benham, E. W. . . . . Mankato  
 Benephe, L. M. . . . . St. Paul  
 Benn, F. G. . . . . Minneapolis  
 Bennion, P. H. . . . . St. Paul  
 Benson, G. E. . . . . Minneapolis  
 Benson, I. S. . . . . Willmar  
 Berg, J. P. von. . . . . Albert Lea  
 Berg, S. A. . . . . Granite Falls  
 Berge, P. L. . . . . Brainerd  
 Bergh, L. N. . . . . Montevideo  
 Bergquist, K. E. . . . . Duluth  
 Berkman, D. M. . . . . Rochester  
 Berrisford, P. D. . . . . St. Paul  
 Bertelsen, O. L. . . . . Crookston  
 Bessesen, A. N. . . . . Minneapolis  
 Bessesen, W. A. . . . . Albert Lea  
 Bettingen, J. W. . . . . St. Paul  
 Beyer, A. G. . . . . Red Wing  
 Bigelow, Chas. E. . . . . Dodge Center  
 Binet, H. E. . . . . Grand Rapids  
 Binger, H. E. . . . . St. Paul  
 Biorn, N. A. . . . . Jackson  
 Birnberg, T. L. . . . . St. Paul  
 Bissell, F. S. . . . . Minneapolis  
 Blacklock, S. S. . . . . Hibbing  
 Blake, James—  
     Hopkins (Excelsior Ave.)  
 Blakely, C. C. . . . . St. Peter  
 Blanchard, H. G. . . . . Waseca  
 Blegen, H. M. . . . . Warren  
 Bleifuss, W. F. . . . . Elgin  
 Blomburgh, A. F. . . . . Minneapolis  
 Blong, P. H. . . . . Elmore  
 Bock, R. A. . . . . St. Paul  
 Boeckmann, Eduard . . . . . St. Paul  
 Boeckmann, Egil . . . . . St. Paul  
 Boehm, John C. . . . . St. Cloud  
 Bohland, E. H. . . . . St. Paul  
 Bohling, Bernard S. . . . . Sandstone  
 Bohland, F. J. . . . . Belle Plaine  
 Bole, R. S. . . . . St. Paul  
 Boleyn, E. S. . . . . Stillwater  
 Bolles, D. W. . . . . Minneapolis  
     (2723 Hennepin Ave.)  
 Bolsta, Charles . . . . . Ortonville  
 Bolstad, H. C. . . . . St. Paul  
 Bong, J. H. . . . . Jasper  
 Bonness, Hazel . . . . . Rochester  
 Booth, A. E. . . . . Minneapolis  
 Borreson, B. . . . . Warren  
 Bossingham, O. N. . . . . Lake Benton  
 Bosworth, Robinson. . . . . St. Paul  
 Bouman, H. A. . . . . Minneapolis  
 Bowers, J. T. . . . . Lake City  
 Boyer, S. H. . . . . Duluth  
 Boyd, L. M. . . . . Alexandria  
 Boysen, Peter. . . . . Pelican Rapids  
 Braasch, W. F. . . . . Rochester  
 Braden, A. J. . . . . Duluth  
 Brady, P. J. . . . . Hastings  
 Brand, W. A. . . . . Redwood Falls  
 Branton, B. J. . . . . Willmar  
 Bratrud, A. F. . . . . Grand Forks, N. D.  
 Bratrud, O. E. . . . . Fertile  
 Bray, C. W. . . . . Biwabik  
 Bray, E. R. . . . . St. Paul  
 Briggs, F. W. . . . . Moorhead  
 Brigham, Charles F. . . . . St. Cloud  
 Brigham, F. T. . . . . Watkins  
 Brimhall, J. B. . . . . St. Paul  
 Broberg, J. A. . . . . Blue Earth  
 Brooks, D. F. . . . . St. Paul  
 Brown, A. H. . . . . Pipestone  
 Brown, E. D. . . . . Minneapolis  
 Brown, E. I. . . . . St. Paul  
 Brown, J. C. . . . . St. Paul  
 Brown, Le Roy. . . . . St. Paul  
 Brown, Paul F. . . . . Minneapolis  
 Browning, W. E. . . . . Caledonia  
 Brunet, M. L. . . . . Cloquet  
 Buck, Fred H. . . . . Shakopee  
 Buckley, E. W. . . . . St. Paul  
  
 Bullen, F. W. . . . . Hibbing  
 Bumpus, H. C. . . . . Rochester  
 Burch, F. E. . . . . St. Paul  
 Burfiend, G. H. . . . . Afton  
 Burnap, W. L. . . . . Fergus Falls  
 Burns, F. W. . . . . Montevideo  
 Burns, H. D. . . . . Albert Lea  
 Burns, M. A. . . . . Milan  
 Burns, R. L. . . . . Two Harbors  
 Burns, R. M. . . . . St. Paul  
 Burton, O. A. . . . . Minneapolis  
 Bushey, M. E. . . . . Arlington  
 Butler, John . . . . . Minneapolis  
 Butturf, C. R. . . . . Freeborn  
 Butz, J. A. . . . . Monterey  
 Byrnes, W. J. . . . . Minneapolis  
  
 Cabot, Verne S. . . . . Bowerville  
 Caine, C. E. . . . . Morris  
 Caldwell, J. P. . . . . Marble  
 Calhoun, Frank W. . . . . Albert Lea  
 Cameron, J. A. . . . . St. Paul  
 Camp, W. E. . . . . Minneapolis  
 Campbell, E. P. . . . . St. Paul  
 Campbell, J. E. . . . . South St. Paul  
 Campbell, L. M. . . . . Minneapolis  
 Cannady, E. E. . . . . Prior Lake  
 Cannon, C. M. . . . . St. Paul  
 Cannon, Harry . . . . . St. Paul  
 Carman, C. L. . . . . St. Paul  
 Carman, J. E. . . . . Detroit  
 Carman, Paul I. . . . . St. Paul  
 Carroll, Wm. C. . . . . St. Paul  
 Carstens, C. F. . . . . Hibbing  
 Cary, H. E. . . . . Minneapolis  
 Catlin, John J. . . . . Buffalo  
 Catlin, T. J. . . . . Palisade  
 Cavanaugh, J. O. . . . . St. Paul  
 Chadbourn, A. G. . . . . Heron Lake  
 Chance, J. P. . . . . International Falls  
 Chamberlin, J. W. . . . . St. Paul  
 Chamberlin, W. A. . . . . Waseca  
 Chambers, W. C. . . . . Blue Earth  
 Chapman, T. L. . . . . Duluth  
 Chapman, W. E. . . . . Litchfield  
 Charpentier, A. A. . . . . St. Paul  
 Chatterton, C. C. . . . . St. Paul  
 Cheney, E. L. . . . . Duluth  
 Christensen, E. P. . . . . Two Harbors  
 Christie, G. R. . . . . Long Prairie  
 Christison, J. T. . . . . St. Paul  
 Cirkler, A. A. . . . . Minneapolis  
 Clark, C. H. . . . . Duluth  
 Clark, G. E. . . . . Stillwater  
 Clark, H. S. . . . . Minneapolis  
 Clark, T. C.—  
     Soldiers' Home, Minneapolis  
 Clay, E. M. . . . . Renville  
 Clay, F. H. . . . . St. Charles  
 Clayton, L. E. . . . . Red Wing  
 Clement, J. B. . . . . Lester Prairie  
 Clifford, F. F. . . . . West Concord  
 Cobb, S. G. . . . . St. Paul  
 Cobb, W. F. . . . . Lyle  
 Cochrane, W. J. . . . . Lake City  
 Cole, A. B. . . . . Fergus Falls  
 Cole, H. B. . . . . Franklin  
 Collie, H. G. . . . . McGregor  
 Collins, A. N. . . . . Duluth  
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 Cremer, M. H. .... Red Wing  
 Cremer, P. H. .... Hastings  
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 Daniels, J. W. .... St. Peter  
 Danielson, Karl A. .... Litchfield  
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 Daugherty, L. E. .... St. Paul  
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 Davis, F. W. .... Alden  
 Davis, Herbert .... St. Paul  
 Davis, H. S. .... Duluth  
 Davis, I. G. .... Little Falls  
 Davis, Lloyd T. .... Wadena  
 Davis, Luther A. .... Wadena  
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     St. Paul (931 Portland Ave.)  
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Kelley, B. W. . . . . Aitkin  
Kelly, John V. . . . . St. Paul  
Kelly, Paul H. . . . . St. Paul  
Kelly, T. C. . . . . Mankato  
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Laney, R. L. . . . . Browns Valley  
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 Meierding, W. A. . . . . Springfield  
 Meighen, J. W. . . . . Ulen  
 Meilicke, W. A. . . . . Nicollet  
 Mellby, O. F. . . . . Thief River Falls  
 Merrill, B. J. . . . . Stillwater  
 Merrill, J. E. . . . . Amboy  
 Merritt, G. F. . . . . St. Peter  
 Mesker, G. H. . . . . Olivia  
 Metcalf, J. N. . . . . Monticello  
 Metcalf, F. W. . . . . Winton  
 Meyer, E. L. . . . . Minneapolis  
 Meyerding, Henry W. . . . . Rochester  
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 Miller, Victor I. . . . . Mankato  
 Miller, W. A. . . . . New York Mills  
 Millspaugh, J. G. . . . . Little Falls  
 Mitchell, F. J. . . . . St. Paul  
 Mitchell, R. S. . . . . Grand Meadow  
 Moe, Anton J. . . . . Heron Lake  
 Moersch, Fred P. . . . . Minneapolis  
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 Moir, Wm. W. . . . . Minneapolis  
 Moloney, G. R. . . . . Belle Plaine  
 Molzahn, H. E. . . . . St. Paul  
 Monahan, R. H. . . . . International Falls  
 Moore, A. B. . . . . Rochester  
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 Moore, W. J. . . . . Wood Lake  
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 More, C. W. . . . . Eveleth  
 Morehouse, G. G. . . . . Owatonna  
 Morell, C. E. . . . . Verndale  
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 Morley, G. A. . . . . Crookston  
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 Morsman, L. W. . . . . Hibbing  
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 Moynihan, A. F. . . . . Sauk Centre  
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 Murphy, I. J. . . . . St. Paul  
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 Schmitt, A. F. . . . . Mankato  
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 Schneider, J. P. . . . . Minneapolis  
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 Schoch, R. B. J. . . . . St. Paul  
 Scholpp, O. W. . . . . Hutchinson  
 Schons, Edw. . . . . St. Paul  
 Schottler, G. J. . . . . Dexter  
 Schroder, C. H. . . . . Duluth  
 Schultdt, F. C. . . . . St. Paul  
 Schultz, J. A. . . . . Albert Lea  
 Schulze, A. G. . . . . Duluth  
 Schwartz, A. H. . . . . Duluth  
 Schwyzer, Arnold. . . . . St. Paul  
 Schwyzer, G. . . . . Minneapolis  
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 Scott, J. W. . . . . St. Charles

- Seashore, D. E. . . . . Duluth  
 Seashore, Gilbert . . . . . Minneapolis  
 Sedgwick, J. P. . . . . Minneapolis  
 Seham, Max . . . . . Minneapolis  
 Seifert, O. J. . . . . New Ulm  
 Senkler, G. E. . . . . St. Paul  
 Serkland, J. C. . . . . Rothsay  
 Sessions, J. C. . . . . Minneapolis  
 Sewall, G. M. . . . . Deerwood  
 Sewall, R. J. . . . . Deerwood  
 Shaleen, A. W. . . . . Hallock  
 Shannon, E. A. . . . . Bemidji  
 Shapiro, E. Z. . . . . Duluth  
 Shaughnessy, M. J. . . . . Wabasha  
 Shelden, W. D. . . . . Rochester  
 Shellman, J. L. . . . . St. Paul  
 Sheppard, Fred . . . . . Hutchinson  
 Sheppard, P. E. . . . . Hutchinson  
 Sherman, C. L. . . . . Luverne  
 Sherman, H. T. . . . . Monticello  
 Sherwood, George E. . . . . Kimball  
 Shelver, H. J. . . . . Appleton  
 Sherring, O. Th. . . . . Fergus Falls  
 Shimonek, Anton . . . . . St. Paul  
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 Shrader, J. S. . . . . Springfield  
 Shulean, Nellie S. . . . . Cambridge  
 Simison, C. W. . . . . Hawley  
 Simon, Geo. H. . . . . St. Paul  
 Simons, E. V. . . . . Spring Valley  
 Sistrunk, W. E. . . . . Rochester  
 Sivertsen, Ivar . . . . . Minneapolis  
 Skinner, H. O. . . . . St. Paul  
 Slocumb, J. A. . . . . Plainview  
 Smallwood, J. T. . . . . Worthington  
 Smersh, F. M. . . . . Owatonna  
 Smith, B. A. . . . . Crosby  
 Smith, Chas. E., Jr. . . . . St. Paul  
 Smith, F. D. . . . . Kasson  
 Smith, E. H. . . . . Bemidji  
 Smith, F. L. . . . . Rochester  
 Smith, H. W. . . . . Crookston  
 Smith, L. G. . . . . Montevideo  
 Smith, M. W. . . . . Red Wing  
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 Smith, P. A. . . . . Faribault  
 Smith, Wm. H. . . . . Cass Lake  
 Sneve, Haldor . . . . . St. Paul  
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 Sohmer, A. E. J. . . . . Mankato  
 Souba, F. J. . . . . Minneapolis  
 Spalding, A. E. . . . . Luverne  
 Spicer, F. W. . . . . Duluth  
 Spurbeck, R. G. . . . . Cloquet  
 Stacy, Leda J. . . . . Rochester  
 Stangl, P. E. . . . . St. Cloud  
 Steen, A. H. . . . . Cottage Grove  
 Stemsrud, A. A. . . . . Dawson  
 Sterner, E. G. . . . . St. Paul  
 Sterner, O. W. . . . . St. Paul  
 Steven, George . . . . . Byron  
 Stevens, F. A. . . . . Lake Elmo  
 Stevenson, Robert G. . . . . Albert Lea  
 Stewart, A. B. . . . . Owatonna  
 Stierle, Adolph, Jr. . . . . St. Paul  
 Stokes, J. H. . . . . Rochester  
 Stolpestad, H. L. . . . . St. Paul  
 Stowe, A. J. . . . . Rush City  
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 Strathern, F. P. . . . . St. Peter  
 Strickler, O. C. . . . . New Ulm  
 Strobel, W. G. . . . . Welcome  
 Strout, E. S. . . . . Minneapolis  
 Stuhr, Henry C. . . . . Minneapolis  
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 Sutton, Chas. S. . . . . St. Cloud  
 Swanson, Cephas . . . . . St. Hilaire  
 Swartwood, F. A. . . . . Waseca  
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 Sweetser, H. B. . . . . Minneapolis  
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- Taft, J. O. . . . . Minneapolis  
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 Thomas, Geo. H. . . . . Minneapolis  
 Thomas, Gilbert J. . . . . Minneapolis  
 Thompson, Albert . . . . . St. James  
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     Marine-on-St. Croix  
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## ORIGINAL ARTICLES

### RECENT VIEWS ON ALIMENTARY DISTURBANCES IN INFANCY.\*

ISAAC A. ABT, M. D.,  
*Chicago, Ill.*

Instead of making a regular address, I thought I would speak informally on some of the problems concerning alimentary disturbances in infancy which have been confronting us for the past few years. It is a well known fact that the study of alimentary disturbances in infancy is of rather recent origin. The ancients knew nothing about them. They regarded their large infant mortality as a matter of course and wrote very little about it, except on such matters as the necessity of breast feeding, bloody flux, etc. It was not, in fact, until the late part of the eighteenth and the early part of the nineteenth century that anything of genuine significance was done in connection with the study of alimentary disturbances.

Of course, as medicine progressed, these studies developed. Thus it happened that the first intelligent discussion that we have of the alimentary disturbances occurred about the time when the study of cellular pathology began to make its rapid development. The early studies of the gastro-intestinal diseases were coincident with the time of Rokitansky. Probably the most illuminating contributions on the subject following him were made by Kundrath and by Wuderhofer, who wrote an excellent treatise on the pathology of the subject. These

pathologists divided the gastric disturbances into Catarrhs; Gastritis: Acute Gastric Catarrh; Chronic Gastric Catarrh; Dyspepsia; Gastro-enteritis; Cholera Infantum, etc.—a classification which was adopted by the American Pediatric Society and followed more or less closely by physicians throughout the world. The pathologists, however, soon came to the conclusion that autopsy findings explained but little, that they were insignificant as compared with the infantile illness.

Next came the bacteriological era. When bacteriology first made its appearance, everyone thought that most diseases could be explained on the basis of infection by specific organisms. Thus it happened that the most conscientious search was made for the organism in gastro-intestinal diseases, both mild and severe. When finally, however, the bacteriologists had exhausted the avenues of investigation, such men as Escherich, who was a bacteriologist as well as a clinical pediatrician, Booker of Baltimore, Sternberg of the Army Medical Service in Washington, and men everywhere who were studying these conditions, came to the conclusion that aside from certain infections of the gastro-intestinal tract such as tuberculous infection of the intestine, streptococcus infections, diphtheroid infections, typhoid, dysentery, and gas bacillus, there remained a great group of diseases that bacteriology could not explain.

The next step in the study of alimentary disturbances occurred when Czerny classified them on an etiological basis. The etiological factors, as he saw them were three:

1. Diseases of the gastro-intestinal system due to food disturbances, the most important of which were produced by fat and carbohydrates.

\* Address delivered before the Southern Minnesota Medical Association at Mankato, Minnesota, November 27, 1917.

Thus, according to Czerny, a baby fed on cow's milk might be receiving enough food to satisfy its bodily requirements, and yet be readily affected by an excessive amount of fat in the milk, so that it would fail to gain in weight, or would develop diarrhea, vomiting, or soap stools.

2. Disturbances of the gastro-intestinal system produced by specific bacterial infections, such as streptococcus, staphylococcus, diphtheroid bacillus, etc.

3. Disturbances due to anomalies of the constitution. Thus, babies who are born feeble, who have congenital heart weakness, congenital syphilis, spina bifida, etc., are extremely difficult to feed, and are, therefore, easily predisposed to alimentary injuries.

Finkelstein with his clinical classification of the gastro-intestinal disturbances, made the next step forward in the study of these conditions. Briefly, this classification, which has up to date proven the most applicable from a clinical standpoint and which will be discussed here in detail, is as follows:

Balance Disturbances, or failure to gain in weight.

Dyspepsia.

Decomposition.

Alimentary Intoxication.

Babies suffering from balance disturbances or failure to gain in weight have no fever. They usually have soapy stools and a tendency to constipation. They get well if given a fat free, or carbohydrate diet. If however, an excessive quantity of fat is given for a long time, these babies are likely to reach a condition of decomposition. Babies likewise fail to gain in weight if given an excessive amount of starch for a long time. Czerny and others have proven that such feeding may lead to extreme atrophy and decomposition, or the body becomes hypertonic and rigid, or may lead to atrophy and edema, so that the baby soon becomes water logged. Then there is the condition described by Finkelstein as the paradox reaction, where the baby receives all the food it needs, i. e., 45 calories per pound of weight, whose diet is well balanced, and who at the same time is losing in weight.

The next division in Finkelstein's classification is dyspepsia, the most important etiologic

factors of which are improper diet, too much sugar, too much whey, excessive fat, overfeeding with unsuitable or improper food mixtures, or the administration of spoiled, germ-laden milk. Dyspeptic children are very often those who have suffered balance disturbances. They are pale, drowsy, restless, and have disturbed sleep. Their minds are clear, so that they are sometimes active and fussy. The heart action and breathing are usually normal. The weight curve is rarely stationary; usually it is slightly falling.

Every baby has a normal tolerance. In other words, it can take no more than a certain amount of breast milk, or other food, if artificially fed, which, if exceeded, leads to overfeeding and illness. In artificial feeding, if the milk is unsuited to the digestive capacity of the baby, even though it be sterile or chemically correct, it may cause a dyspepsia.

Dyspepsia may be produced by infection, which need not necessarily occur in the intestinal tract, but may have a parenteral origin. There was a baby in our clinic recently with a severe congenital syphilis who had diarrhea and was vomiting. We were certain in this case that the syphilitic lesion was located outside the intestinal tract and that it was producing a toxemia which was causing dyspepsia. We also had another baby who had a high temperature and some diarrhea and vomiting. The food was stopped for twenty-four hours, but although the stools improved a little, the temperature continued. In this instance, likewise, we were certain that the trouble was not due to something in the gastro-intestinal tract, for the digestive disturbances were not in proportion to the amount of fever and the severity of the infection. Consequently, we made a further examination and found that the child had double otitis media. The ears were pierced and discharged a purulent fluid. The intestinal symptoms then abated. Thus it may readily be seen that the so-called parenteral or outside infections produce intestinal symptoms that are very likely to be mistaken for infections of the gastro-intestinal tract.

When an infection exists, there is fever and diminished appetite. The mucous membrane of the mouth is very red. Thrush may be present. This disease, which is rarely found in a normal

baby, develops only in those whose resistance has been diminished, who are suffering from gastro-intestinal or balance disturbances, dyspepsia, or worse conditions.

The treatment for dyspepsia consists of starvation for a period of twelve to twenty-four hours. A longer period may result in a precipitous and dangerous fall in weight. During the starvation period, the babies are given water or weak tea with a minute quantity of saccharine. After this period, they are put on skimmed milk, buttermilk, albumin milk, or breast milk. In tiding a baby over from a dyspeptic to a normal condition, it must be remembered that his tolerance has been damaged, so that he cannot take care of much food; and such food as he requires should be poor in fat and low in sugar. If he receives too much food, he is going to develop alimentary intoxication, loss of weight, or show a striking paradox reaction. If he receives sugar in any appreciable quantity, he will develop fermentation. In short, the best diet for his condition is one consisting of skimmed milk, buttermilk or barley water, albumin milk, or, best of all, the specific food in small quantities: breast milk.

An important consideration in regard to the giving of breast milk is that the baby's tolerance for all food has diminished and that he can assimilate but a small quantity at a time. At the Sarah Morris Children's Hospital, where we have on hand three or four wet nurses, we detoxicate the babies who are critically ill, with very small doses of breast milk, in some cases repeated every two hours. This treatment seems to revive a good many. Often when the baby shows marked signs of improvement, when the eyes regain their lustre, the skin its elasticity, and the baby is happy and behaving in the manner of a normal child, there is still no appreciable gain in weight. This seeming backwardness is due to the fact that the child is going through what we call the reparation period. A little later, when he has had enough food to repair the damages, he starts to gain in weight.

The next division in Finkelstein's classification is decomposition. This condition may be the result of acute and chronic infections, such as syphilis, infantile sepsis, or severe pneumonia. More than anything else, however, it is

due to improper feeding, too long continued fat or starch diets, or underfeeding. The decomposition baby may be described as follows:

The skin is pale. The eyes are wide open and staring. The mentality is normal. Although the emaciation is extreme and death is near, the baby is still bright and able to smile. The face is senile in appearance; the mouth appears large; the abdominal walls are thin; the pulse is slow. Often the breathing is irregular and the temperature is subnormal. Very frequently these babies have pyelitis or otitis, or may show a markedly lowered resistance to infections. The stools may be tarry, thus showing a minute hemorrhage due to a duodenal ulcer. More frequently, however, they are soapy and hard, a condition that is due to the fact that fat is given in excess. The fat splits up into the fatty acids, and these combine with the alkalis to form soaps. Two conditions result. The body is robbed of its alkalis, becomes alkali poor, and is consequently demineralized. Secondly, since no alkalis remain to neutralize the acids, the latter are present in excess in the body fluids, and acidosis may result.

The most striking feature of decomposition is the continued loss of weight, sometimes amounting to one-third of the original weight of the child. In such a case, of course, the prognosis is absolutely bad. Feeding these babies is a matter attendant with considerable difficulty. After a preliminary period of starvation, which should be made as short as possible owing to the danger of continued loss of weight, the baby may be given breast milk in small quantities or the albumin milk of Finkelstein. This is made by mixing the curd from a quart of milk with a pint of water and a pint of buttermilk, adding carbohydrate as indicated. Boiled skimmed milk in small quantities or buttermilk in small quantities may also be used. It is important not to give an excessive amount of fat or sugar, since fat is always demineralizing, and sugar given in excessive quantities, will readily change the condition of decomposition into active fermentation in the intestinal tract and thus lead to alimentary intoxication.

Alimentary intoxication, the last division of Finkelstein's classification, corresponds somewhat to what was formerly known as cholera infantum. This condition is due to overfeed-

ing with improper food mixtures, such as spoiled or infected milk, excessive carbohydrates, or sugar. The exact cause of this condition is at present uncertain. Some think that the improper food causes fermentation; some, that the food and fat act in some specific way on the intestinal tract; while others maintain that alimentary intoxication is due to bacterial action, in which the organisms damage the intestinal wall and permit incompletely digested food products to gain access to the body fluids.

More babies die of this form of alimentary disturbance in the summer than at any other time. Whether or not there are any extraneous causes producing this high infant mortality at this season is not known. The prevailing view maintains that the extreme heat reduces the resistance of the body so that intoxication becomes possible.

There are nine symptoms:

1. Fever. This is usually alimentary in origin. Enteric fever tends to disappear when the food is diminished. The baby that is suffering with alimentary intoxication has usually been fed milk mixtures. When given tea or plain water for twenty-four hours, the temperature falls very materially, or in many cases, disappears entirely, showing that the food itself in some way, by the changes which it undergoes, contributes to the production of the fever.

2. Glycosuria; not real, but resembling lactosuria.

3. The baby may have albumin and casts, showing the toxic effects of this condition on the kidneys.

4. Stools are ejected forcibly from the body with great gush and noise, due to fermentation and gas production in the bowels.

5. Marked loss of weight.

6. Disturbance of the mental functions. First the child is restless and peevish. He cries much; throws himself about frequently. In the intervals, he shows an abnormal lassitude and drowsiness, often reaching a condition of coma. As the condition progresses unfavorably, the restlessness increases, and the movements of the extremities become automatic. As he calms down, he shows a statuesque pose. His trunk and extremities may become rigid. Occasionally he picks at the covers as if in delirium.

His face is pinched, and he shows an anxious expression. His cry is shrill, and, with interruptions, lasts for hours. With this symptom the excitation reaches its height. From now on, he gradually merges into a state of depression. An ominous quiet comes over the patient. His face becomes rigid and mask-like. The eyes lose their lustre. They may be set and staring. Strabismus may occur. The pupils are contracted. During this stage, convulsions may occur.

7. Breathing is rapid and irregular, like that of children suffering from acid intoxication.

8. Leukocytosis.

9. Collapse. The extremities and the nose become cold. The reflexes are absent or become extremely sluggish. The corneal reflex is diminished or lost. The pulse is hardly perceptible. The heart sounds are indistinct or distant. Finally, one or the other becomes inaudible. The skin assumes a brownish or grayish appearance. Death ensues.

The treatment of alimentary intoxication consists first of all in prevention. The most important preventative measure that can be taken is to feed the baby breast milk; for, artificially fed babies are the ones who succumb most frequently to alimentary intoxication. Another preventative measure is the practice of boiling the milk. Such a measure, especially in the summer, is not only calculated to prevent such milk borne infections as hoof and mouth disease, scarlet fever, and typhoid, but will also render the milk more easily digestible. In diet treatment, the baby should be deprived of food for twenty-four hours. Then he should be placed on a tea diet, to be replaced later by skim milk. Sugar and fat should be excluded in these cases. Albumin milk or breast milk are recommended.

If the stomach is irritable or the baby is vomiting a great deal, stomach washing may be indicated. Restlessness may be treated by warm packs or by the administration of one or two grain doses of chloral hydrate. Normal salt solution may be infused under the skin or may be given by rectum. These babies may be given bicarbonate of soda to counteract the acidosis from which they are suffering. Other medicines seem to be rather futile, except as they are indicated by the symptoms. Alkaline calcium carbonate is often of considerable value.



It might be well at this point to bring up the question of the use of laxatives, both for these sick babies and for those that are well. Nearly all babies are dosed with laxatives. A mucous stool will prompt a mother to give her child half a bottle of magnesia. Fever will be treated with one or two grains of calomel. At the Sarah Morris Children's Hospital, we gave calomel for a little while to normal babies, with the result that they became quite sick. We also demonstrated that after using cathartics, we would find free blood, microscopic blood, and also find blood by the Weber test. If the laxatives are irritative, they produce mucus.

In very many cases, the baby's bowels can be regulated by food. Young infants in good health may be given malt soup extract. Older children may have fruit for breakfast, for luncheon, and for supper. This in most cases will prove to be all the laxatives needed. Occasionally the baby needs a physic, but a laxative should not be given when it is not needed or when the baby is acutely ill.

### PREVALENT PHYSICAL DEFECTS OF OLDER CHILDREN.\*

A. E. JOHANN, M. D.,  
*Minneapolis, Minn.*

Almost without exception, emphasis in pediatrics has been placed upon the care of infants, while older children are permitted to develop as best they may without medical supervision. That the pendulum has swung too far in this direction is the belief of many who specialize in this field, for unquestionably physical defects are more frequent in older children.

Medical inspection in our public schools has given us the most accurate and comprehensive data at present available concerning the nature and prevalence of physical defects in children of school age. These statistics, although widely published and of common knowledge, even among the laity, merit our brief consideration. In his report for 1915-16, based upon the examination of approximately ten thousand school children, Dr. Chas. H. Keene, Director of Hy-

giene in the Minneapolis Public Schools, records the following most common physical defects expressed in percentages:

Defective teeth . . . . .	33.5%
Enlarged glands . . . . .	24.0%
Hypertrophied tonsils . . . . .	22.0%
Hypertrophied adenoids . . . . .	17.0%
Pulmonary tuberculosis . . . . .	0.2%

It is not to these defects, however, that I would call your attention, but to another class of defects of great frequency though usually disregarded.

Nervousness, usually classified as a functional condition, is so intimately associated with physical defects that it deserves consideration with them. It is evident to the most casual observer that nervous instability is on the increase in all ranks of society. That this should be true with regard to children is to be expected when one considers the factors of heredity and the "speeding up" process of training now forced upon our school children by the ever-increasing complexities of civilization.

The importance of septic foci in tonsillar tissues as causative factors in the production of chorea and lesser nervous manifestations is usually not overlooked, but it is unusual for the physician in his routine examination to carefully inspect the deciduous and permanent teeth for the presence of other foci of infection.

Eye-strain, so commonly a cause of nervousness, is rarely considered by the physician and more rarely detected by instruments of precision. Only the more severe cases of eye defects are diagnosed by physicians in their routine examinations, yet tests which reveal all but the more minute errors of refraction may be made by the physician with a reasonable amount of training and of effort. Unquestionably, the doubtful cases and those definitely pathological should be referred to the oculist for more accurate diagnosis. Preliminary tests of vision should be a part of the physician's routine examination and in the case of the nervous child should be made with especial care.

There is abundant evidence that in younger children nervous instability may be profoundly influenced by diet. The disease spasmophilia, with its associated hyper-irritability of the central nervous system and with its frequently at-

\*Read before the Annual Meeting of the Minnesota State Medical Association, St. Paul, Oct. 11 and 12, 1917.

tending convulsions, has been shown to be intimately connected with abnormalities of calcium metabolism. In such cases the complete removal of milk from, and the rigid restriction of fat in, the diet, are usually attended by surprisingly beneficial results. Clinical investigation has shown that many of the milder cases of nervous instability, not definitely spasmophilic, are also greatly improved by a similar milk-free, fat-restricted, diet, yet frequently do we see such children fed milk and eggs.

Mild degrees of orthopedic defects are very common in children of school age, and most frequent of these are weak arches and ankles. These defects either are unattended by symptoms, or only by vague leg aches, frequently considered rheumatic. The rapid increase in weight which so frequently accompanies puberty, imposes additional strains upon the already weakened arches, and flat feet with their distressing symptoms soon develop. Unfortunately, even when this defect is recognized early the physician usually resorts immediately to some form of arch or ankle support, thereby restricting muscular action and favoring further development of the muscular weakness already present. The resort to rigid supports is justifiable only in cases where the child is too young to carry out proper exercises designed to strengthen the muscles of the legs and feet, or in cases where such exercises faithfully practiced have proven a failure. It may be said in passing, that it is not beneath the dignity of the physician to see that his patients are provided with properly fitting shoes.

Stooped shoulders with flat chests and prominent scapulae are also frequent. Here again, resorting immediately to mechanical supports is to be condemned. The majority of cases of stooped shoulders are the result of muscular weakness and, as in the case of weak feet, splinting the already weakened muscles only conduces to further weakness. Furthermore, stooped shoulders may be the result of some obstruction to respiration, or of posture assumed voluntarily by a near-sighted child. Obviously the treatment of stooped shoulders should be directed toward the removal of the fundamental cause; consequently, shoulder braces are rarely desirable.

Physicians are prone to consider the mouth the exclusive field of the dentist, and fear to trespass. Unfortunately, many parents who secure medical attention for their children consider dental care unnecessary. The importance of the eradication of septic foci has been mentioned. Faulty occlusion and contraction of the upper arch of the teeth are frequent, and if best results are to be secured, treatment must be instituted early, preferably before the sixth or seventh year. In the majority of cases it is the physician who must recognize these defects and induce parents to secure their correction; for such children, unless directed by the physician, will not visit a dentist until the optimum years for orthodontia have passed. The value of orthodontia is frequently underestimated. For example, many children who continue to show signs of nasal obstruction after thorough adenoid removal, will be found to have contraction of the upper dental arch. In such cases, widening the arch and lowering the roof of the mouth frequently enlarge the nasal passages and serve to correct an otherwise incurable nasal obstruction.

In the active and rapidly growing child it is inevitable that severe strains be inflicted upon the circulatory system, and that cardiac lesions, both organic and functional, occur. The frequency of focal infections in the production of endocarditis is well recognized. Permanent valvular insufficiency usually does not develop without warning, for routine examinations of the hearts of children affected with rhinitis and tonsillitis will reveal in many instances a soft systolic murmur audible only at the cardiac apex. Such murmurs disappear and reappear a number of times before becoming permanent. If more frequent examinations were made of the hearts of growing children, and rest, in addition to the elimination of the source of infection, more conscientiously enforced, the incidence of permanent valvular injury could be markedly reduced. Functional cardiac lesions are common in school children. Irregularities in rhythm, impurities in the sounds (more frequently the first sound), and systolic murmurs, sometimes audible only after exercise, are evidence in the vast majority of cases of functional conditions. The cause of such phenomena is usually ascribed to insufficiency of the cardiac

musculature and, if this be true, the folly of rigidly restricting the activities of such children is evident. These children need graduated exercises instead of restraint, and if supervised, should be encouraged to participate in athletic sports.

If rest is indicated in organic heart disease, and exercise is desirable in functional cardiac conditions, it is obviously necessary, although sometimes difficult, to differentiate between the two. The absence of demonstrable foci of infection, the finding of a murmur not maximal at the cardiac apex, or appearing only after exercise, point to a functional condition. On the contrary, cardiac enlargement is almost conclusive evidence of organic disease.

The author is well aware that the topics so superficially presented, are not new, but believes the importance of the recognition and correction of physical defects cannot be over-emphasized. The use of drugs merely for the relief of symptoms has no place in the care of the growing child, but diagnosis based upon thorough and frequent examinations is of paramount importance. To satisfactorily make such examinations, the physician must invade not only the field of pediatrics, but dentistry, ophthalmology and orthopedic surgery. This is the obligation of the physician in whose care the child of school age is placed.

#### DISCUSSION.

DR. WALTER R. RAMSEY, St. Paul: I am very glad to have heard this paper myself, and I wish to compliment Dr. Johann, because it is a field which is altogether too much neglected, and we have been very prone in the past to regard children as simply immature adults; and that has been the attitude of the medical profession in the past. They simply have treated children as immature adults, not recognizing that young children have a physiology and a pathology of their own.

I would like to say a lot about this thing, but I just want to mention a few words that Dr. Johann did not emphasize as much as he wanted to, I am sure, in the short time he had.

The first thing I see in my notes here is the question of teeth. I am quite sure that bad and carious teeth in children are among the most common causes of bad health, which frequently undermine the entire constitution of the child. We cannot hold bad teeth as simply a thing by itself. It has to do with all the other organs of the body.

The next thing we must consider is this question of tonsils. Just now there is a great disposition to leave a great deal to the nurse. We have in our city and in Minneapolis a large corps of visiting nurses, who go about the schools; and to a great extent those women are little, if any, supervised by the medical profession. They are allowed a great deal of latitude; and without having sufficient training many times to tell them really what is the real significance of the things that they find.

I find constantly that those nurses are sending children home with a card saying that they have big tonsils and that they must have them out, and that they must have their adenoids out. They could not make any mistake in saying that they had bad teeth, and that they must have their teeth fixed, but they do make serious mistakes here, and there is no question but that this question of tonsil removal is tremendously overworked; and as Dr. Tuohy said this morning it was the open season for gall stones, it is certainly the open season for tonsils.

There is no question at all but that tonsils if they are really diseased ought to be enucleated; but the simple fact that a child's tonsils are large does not mean that they are diseased, because normally children's tonsils are large. Some are larger than others, but they are all large, and unless those tonsils have abscesses in them, unless they are really diseased, there is no reason on earth why they should be removed.

So that it is a question of the individual case, of very carefully choosing the individual case, because the removal of tonsils is a major operation; it is not a small matter.

Regarding adenoids; that is a different matter. I always explain it to people; and they are pretty prone to say that it is a fad, too, this question about adenoids, but I explain that children have three tonsils, two pharyngeal tonsils and one tonsil up behind the nose, in the pharynx, known as the third tonsil, and that when it is large it is an adenoid. It simply means an enlarged third tonsil. If it is big enough to block the pathway through the nose it ought to be removed, because the nasal passage is the normal passage for breathing. It obliterates the area, and children who do not breathe through the nose will surely be defective. They will have coughs and will have physical defects, and it will act later on in a deforming way. So that adenoids should always be removed. Tonsils should be removed only if they are diseased and not if they are simply enlarged.

I do not think we should allow our nurses anything like the latitude without supervision, that they are having and enjoying now in most cities. I think they ought to be more thoroughly educated and better supervised.

As to the question of eyes, the nurse can very easily, with a little perfunctory examination, determine whether children need further eye examination, and I think that every child before entering school, from

time to time should have a routine examination of the eyes made as to proper vision.

I remember a good many years ago a man who had a studio right next to my office, a professor of music. I was just beginning my practice; and he told me that he had a little girl, and was very much worried about her, because he was pretty sure that she was defective mentally, and he did not show her to anybody if he could help it. His other children were bright, but this little girl was very dull, and he had been told that she was defective.

Finally I saw her, and I noticed that she went like this (illustrating by holding an article close to the eyes). So I sent her down to Dr. Williams. This was twenty years ago; and he very quickly and promptly fitted her with a pair of glasses. She had the most extreme myopia, that is, near-sightedness. The girl was fitted with glasses, and she was perfectly bright after that, and I saw her recently, and she is now an accomplished musician and a very bright young woman.

So that there is no doubt but that there are many, many of these children who are thought to be deficient mentally, dull or backward, who are suffering simply from physical incompetence of the eyes.

Chest deformities are so common that they ought to be recognized and treated, but Dr. Johann emphasized that, and I wish to emphasize more and more that the best braces for these children are the muscles, and that of course means physical exercise, proper training, and the working of these muscles that hold the chest erect, with proper systematic deep breathing; and it is perfectly wonderful what can be done in a very short time with those children.

DR. ELEANOR J. HILL, Minneapolis: I feel that the condition of nervous instability in children should be gone into a little more carefully. There is no question but that it is on the increase. In my work with school children I find that it is increasing. I believe that malnutrition, under-nourishment and bad teeth in conjunction with coffee drinking have much to do with nervous conditions in children.

DR. GEORGE D. HEAD, Minneapolis: I have been very much interested in Dr. Johann's paper. In the practice which each one of us engages in, we are likely to look at this matter of ill-nourished persons, whether children or adults, from our own special angle, and inasmuch as he did not mention what I have in mind to say, I would like to present it just as it appears to me.

In my diagnostic work, all of the factors which Dr. Johann has mentioned enter into the study of malnutrition in young persons and children, although I do not see very many of the latter. I want to say this, however, that very frequently, especially in persons from twelve to twenty years of age, this situation has arisen in my own experience. It will have been noticed by the parent that the patient is losing weight, is breaking down under the wear and tear of school work or some employment. Some of these

patients have been put to bed to recuperate from the exhaustion of their physical and nervous reserve. Physicians have been consulted and the diagnosis of neurasthenia, hysteria, psychasthenia, etc., has been made. In the search for a cause their tonsils have been removed, the teeth have all been looked over and extracted, their adenoids have been operated upon, the sinuses of the head examined, they have been treated as neurotics and neurasthenics and worn-out individuals, without proper hereditary stability, and without proper cell stability, and yet nobody has apparently seemed to think that a latent form of tuberculosis, which I have called the concealed type, could be responsible for the whole clinical picture.

Now I agree exactly with what Dr. Ramsey has said. I think that tonsils have been much overdone in these ill-nourished children and adults, and I think the teeth are going to be much overdone.

What I want to say is this: gentlemen, never forget that tuberculosis is a disease that we have always with us, both in children and adults. It is a disease that "par excellence," causes slow developing debility, weakness, loss of strength and loss in weight. The profession has carried too long in its mind's eye the clinical picture of cough and sputum, sweats and fever and all that sort of thing, as the chief clinical picture of tuberculosis. We have both in children and in adults, the latent, the silent, as I have called it, the concealed tuberculosis which is very common. Do not forget this type of the disease as a cause of malnutrition, or of nervous exhaustion or of psychasthenia, both in children and in young adults. It is a very important factor. We have not as yet begun to appreciate its importance.

In many of these children you will not find it unless you test for it with a specific test. Sometimes you will find a little tubercular pleurisy tucked off somewhere in some portion of the pleura. It may be only the mediastinal pleura. It may be far down close to the diaphragm. It may be only that fluoroscopic and X-ray studies of the chest will show a little involvement in the mediastinal lymph glands. No matter where the focus, it can produce a low grade fire of tuberculous toxæmia expressing itself in these clinical pictures, slow tuberculous toxæmia which is making these children and young adults sick. I think all of these persons should be studied from this standpoint before they are operated on for anything. And the same kind of a clinical picture as has been emphasized once or twice can be produced by lues, congenital or acquired. It is a very silent picture. It presents itself in such an obscure form that we are all the time overlooking it and we are thinking today too much in the terms of tonsils and teeth and not enough in the terms of concealed forms of tuberculosis and syphilis. I do not think, gentlemen, that today a child's tonsils ought to be removed until that child has been looked over carefully for concealed tuberculosis and syphilis congenitalis. I do not think they ought to be removed until that child has been

thoroughly tested, to determine the presence of concealed tuberculosis and lues.

There is scarcely a week goes by that I do not see a young adult whose tonsils have been removed, who is going right downhill with an active tuberculous lesion which must have been present prior to the removal of the tonsils and, as Dr. Ramsey has said, tonsillectomy is a major operation.

DR. J. W. ANDREWS: I wish Dr. Head would tell us how to recognize concealed tuberculosis.

DR. HEAD: I heard Dr. Andrews' remarks this morning about the tuberculin reaction; and with all due deference to his gray hairs—mine are also gray, so I can begin now to talk of experience. I have accumulated about twenty years of it, so that I can talk also from the standpoint of experience.

I want to say that for twenty years, gentlemen, I have studied the use of the tuberculin tests of one kind or another in the attempt to use it in detecting these cases of which we are talking today, and I want to tell you now that of all the diagnostic procedure that I have at my command, I value it more today than I ever did before and it is nonsense for any man to say that it is of no value. It is of the greatest value, and especially in children. In children, the simple Von Pirquet test is perfectly harmless and of great value. In adults the subcutaneous test, if my technique is followed, is harmless, and this is the best method in use of detecting concealed tuberculosis.

Anybody who is making tuberculin tests knows that everybody does not react. I have a series of between five hundred and six hundred persons that have been subjected to the subcutaneous tuberculin test with the old Koch's tuberculin. Not over 55 per cent have reacted. None of the persons tested were healthy. All came to me seeking advice because of poor health. Everybody does not react to the tuberculin test. Everybody has not tuberculosis, either concealed or active. We do not know anything about it, because we have not tested all the population. Largely, our clinical experience has been gathered from clinics and places where persons complaining have come for examination. Most of our statistics upon the subject have been gathered from the European clinics, a vastly different situation from ours in America. If all the individuals in this city were tested up today, specifically tested for tuberculosis, and tuberculin is a specific test without any question, not more than 10 per cent would react.

What is misleading us then? It is the post-mortem evidence. Post-mortem evidence is reliable but it gives the whole life history of the individual from babyhood to the grave. When the man is dead and you cut him up you find evidence of tuberculosis. That does not mean, however, that if you post-mortem him at sixty and find tuberculosis that he had tuberculosis at thirty-five, or if you post-mortem him at thirty-five and find tuberculosis that he had tuberculosis when he was ten or five years of age. From

all his accumulated life history you judge a man from the post-mortem point of view. This is very misleading. Doubtless very few persons living to fifty years of age escape some kind of a tuberculous infection, but the tubercle bacillus is picked up all along man's journey through life.

Tuberculin is a specific test for tuberculosis. Used with reasonable care, it is a harmless procedure. The profession should cling to it and use it intelligently and not throw aside as worthless so valuable a diagnostic agent in the practice of a profession in which so much uncertainty reigns in the field of diagnosis.

DR. J. W. ANDREWS, Mankato: Mr. Chairman, I do not presume for a moment to differ with the splendid authority who has just spoken, and I am obliged to him, and I am very glad to hear this. But I want to right here give a little of my own experience, my limited experience, with these tests.

Three or four years ago when my son, Dr. Roy, came with me fresh from college, he had new ideas, and we were desirous of diagnosing tubercular cases in their very incipiency, before there was any evidence in the way of physical examination, that is, by an examination of the chest, or before any sputum was available that we could examine. So we used these tests frequently, where there was the least reason to suspect that there might be tuberculosis, and they were nearly all positive, positive, positive. And we began to feel that they must be unreliable, because they were positive in cases where we felt that there was no tuberculosis.

So we experimented upon our own families and ourselves; my wife and myself, my son's wife and Roy, and the girls in the house, the servants, and the office girl, and every one gave a positive reaction. I gave a positive reaction, and I never had any tuberculosis. Is there tuberculosis in my system? Is there evidence of tuberculosis that I have had some time, that a post-mortem would determine? Well, I do not know, but if there is, then the test is of no value so far as that is concerned.

If 90 per cent, as some say,—Dr. Head does not say that—have had tuberculosis and these tests are positive in 90 per cent, we will say that at least half of that number have latent tuberculosis. We care nothing about that. That does not help us in our diagnosis.

So far as the conjunctival test is concerned, I got a little uneasy about Dr. Roy's eye, it got so bad, and yet I have no reason to suspect the least tuberculous taint in him. It is not hereditary, and we have never had any symptoms of it. That has been my experience with these tests.

But this coming from so great an authority as it does, I am willing to try these tests again. I would hate to go through my own family again, because I got a little uneasy, but the facts that led up to that were, that so many of our patients who came to us gave a positive reaction.

DR. E. L. TUOHY, Duluth: I fear we are getting too far away from the subject matter of Dr. Johann's splendid paper, but this matter of tuberculosis is so important that we should be permitted possibly to over-emphasize it. I can readily see how Dr. Andrews is confused.

The Von Pirquet is surely of no value except in young children. The subcutaneous tuberculin test in proper hands is just as surely a good procedure; in the hands of Dr. Head with his large experience in its interpretation, and his clinical balance, it is most useful. If there were no other means of arriving at an early diagnosis of pulmonary tuberculosis it would be more valuable. Personally, I have come to rely more and more upon stereoscopic roentgenograms. The chief danger of tuberculin is the likelihood of confusion of fairly effective immunity as meaning activity.

I noted with interest last summer that the physicians at Saranac Lake, for example, were not using tuberculin nearly so much diagnostically as formerly. It was stated that it was not because they condemned it, but rather that they were finding other means to supplant it.

With the subject matter of this paper, however, it is generally agreed that the X-ray is not so valuable, because the parenchyma of the lungs in children is usually not affected with tuberculosis.

I realize that Dr. Head speaks with deep conviction and from long experience on the diagnostic use of tuberculin. It looks to me this way: everyone does not wear the same kind of clothes or drive the same kind of car; every man has his own individuality and the right to come to certain conclusions, according to his own methods; one physician is skilled in the elicitation of physical signs; another may be more skilled in their interpretation. The writer of this paper tells us much that we can all afford to be on the lookout for in growing children.

DR. T. L. BIRNBERG, St. Paul: I have enjoyed Dr. Head's remarks on tuberculosis. The trouble with the tuberculin reaction, and the reason so many people disagree about it is, I suppose, because they do not quite understand what the other one means. There are various forms of the tuberculin reaction. One talks about one form and the other is thinking about another form. There are the subcutaneous, the Von Pirquet, the Morrow, and the eye test as well, and when we discuss the tuberculin test, we say roughly, the Von Pirquet test, etc.

I fully agree with Dr. Head as to the great value of the tuberculin reaction, especially in children. The Von Pirquet test we use as a matter of routine. It is absolutely harmless and painless. It shows positively that the patient has or has had tuberculosis. Do not forget the "has had." That is why so many adults have a positive Von Pirquet, because they undoubtedly have had tuberculosis.

But its great value in children in this. We know that tuberculosis is a chronic disease. It does not

last one day or one week. For instance, suppose you have a little chap four months of age, healthy and happy, with a very strong Von Pirquet reaction. That child is probably going to die, although he is happy and has ruddy cheeks and no temperature, because tuberculosis at one year of age is very fatal, and because this child is only four months old. He has a positive Von Pirquet. That means that he has, or has had, tuberculosis, and four months of age is no time for "has had." It means that he has. Therefore its extreme value in infancy, and its real value in children is because it means there is an active lesion.

Q. What lead you to make this test in a four-months-old child?

A. Routine. In certain clinics which we take care of that is the routine procedure. You will be surprised how valuable it is. In doing any kind of work, we get all the evidence before us and draw our conclusions from all of the evidence and not merely from a part. Therefore we use the tuberculin test as one of the evidences.

DR. E. J. HUENEKENS, Minneapolis: I would like to emphasize what Dr. Head said about the value of the Von Pirquet test. I do it as a matter of routine in all of the older children that come to me, and I have never had occasion to doubt that tuberculosis was present if the reaction was positive with the Von Pirquet test. You can prove it by the X-ray and by inquiring into the family history.

I want to emphasize one other point which Dr. Johann brought out, and that is as to the value of orthodontia. For the last year I have been in rather close association with an orthodontist, and I have been surprised at some of the results obtained by orthodontia. In many cases, where a complete physical examination was made, including the Von Pirquet test, and no organic cause found for indefinite nervous symptoms, etc., by having mal-occlusions taken care of, all of these symptoms have cleared up. That includes many cases of mouth breathing which have persisted after the adenoids and tonsils have been removed. I think the subject of orthodontia is one which we have not paid sufficient attention to heretofore. It is comparatively new, and I believe it is something which is going to grow. The more we study it the more we will become impressed with its value.

DR. D. O. THOMAS, Minneapolis: I wish to say a word in favor of tonsillectomy, which has been somewhat disparaged this afternoon. I think that in many cases the removal of the adenoids alone is not sufficient. Where there is defective hearing and chronic catarrhal congestion of the nasal mucosa, the removal of the tonsils, as well as the adenoids, is justified in order to reduce the congestion and restore the impaired functions.

DR. A. J. GILLETTE, St. Paul: I wish to congratulate the doctor on his excellent paper, and his calling attention to the use of braces. It may surprise you, but really I remove more braces in my office than I apply. Take for instance, flat-foot. Flat-foot is not a disease. I never allow that to go down as a diagnosis in my office. It is a symptom and may be due to weak muscles, a rheumatic condition, bad teeth, or it may be due to bad shoes and all that sort of thing, but the idea of trying to cure a child with flat feet by applying braces, when it is nothing else in the world but muscular weakness, is a bad one. When you put on the braces you interfere with the motion and the natural development, and by and by they will get so bad as to require operation to overcome the bad effect of the braces.

Now in regard to stoop-shoulders—in this case, too, I remove more braces than I apply for back trouble. Patients are constantly coming in with weak muscles and undeveloped chests. The worst thing in the world you could do is to put on braces. That is just exactly what they do not need.

And now just a word about tonsils. One condition often seen in our office in a case of chronic joint disease is that the tonsils have been removed and it has done no good. Once in a while we see joints that we think are infected from possibly the tonsils and we advise their removal, but very seldom does the removal of the tonsils relieve the joint trouble. We have records of just three cases in our office in the last twenty years where we can say that tonsillectomy removed the symptoms in the joint condition.

DR. A. E. JOHANN (closing the discussion): Time does not permit passing in review all of the things which have been brought out in the discussion.

It seems to me that the subject of tuberculosis has appealed most to the fancy of the audience, but I believe that tuberculosis is after all only infrequently detected in children.

I agree with what Dr. Head has said in regard to the value of the Von Pirquet test. I think the Von Pirquet is of especial value in children of school age in letting us know which children are not tuberculous. If children such as Dr. Head mentioned do not react to it, I feel justified in coming to the conclusion that they have not tuberculosis.

Dr. Head is widely known for his work in tuberculosis, and consequently people with that disease are more likely to consult him. But I would say from my own little experience, that in these cases of ill-nourished children, surely not over 5 per cent. give a positive reaction to the Von Pirquet test.

The importance of these other defects has not received so much attention.

The point I want to bring out is that these examinations should be done as a matter of routine by the physician who is caring for a child of school age; this is the point I want to leave particularly in the minds of the audience.

## TIC DOULOUREUX AND ITS TREATMENT.\*

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In discussing the subject of Tic Douloureux it is best in the beginning to define the type of neuralgia to which, in the writer's opinion, this designation should be limited. As it is at present, the term is somewhat loosely applied, and there is a tendency to enroll all forms of pain in the area of the trigeminal nerve under it. Naturally, for this reason, there has arisen considerable confusion, and many apparently contradictory experiences as to the etiological factors which cause it and the best means of affording relief to those afflicted with it. In consulting the various authorities as to the etiology, we find that this subject is discussed under the heading of trifacial neuralgia in general and thus a long list of causes are mentioned, such as neuropathic inheritance, infectious diseases, diseased processes in the mouth, in the various sinuses of the head, carious teeth, impacted teeth, exostoses, narrowing of the bony canals and foramina through which the nerve, and its various branches, ramifies, etc. In these days—especially when so much emphasis is being laid on focal infections,—teeth, tonsils, and sinuses have suffered in our eagerness to find the causative factors and remove them. We are continually thinking in this affection as in many others, especially where the nervous system is involved, of exogenous influences, which we can see and better understand, and are apt to pass over lightly or ignore completely endogenous agencies, which are more intangible and difficult of comprehension. This has been the situation also with regard to epilepsy and migraine. We have been slow in making the distinction between the symptomatic or exogenous types of this disease and the so-called idiopathic or endogenous. Our confusion in this regard is clearly revealed in our treatment.

In epilepsy, if there is anything we haven't done, I do not know what it is. We have per-

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formed the rites of circumcision without religious justification, removed the appendix, taken out the ovaries, tonsils, etc., and recently a former President of the American Medical Association has been removing a section of the colon.

Our experience in migraine has been much the same. Eye muscles have been made crooked and then made straight again. Oculist after oculist has fitted glasses, sinuses have been operated upon, and the general surgeon, not to be robbed of his share in the treatment, has come in and operated on the gall bladder, the stomach and the ovaries.

I believe we are learning by experience in these diseases, however, and I do not think the stamp of medical approval could now be obtained for circumcision in epilepsy, or ovariectomy in migraine. We are learning to differentiate at present between idiopathic epilepsy and migraine and the symptomatic forms, the etiology of which may be due to a multitude of causes, exogenous in nature, such as brain syphilis, tumor, arterio-sclerosis, frontal sinus diseases, eye strain, etc. We should apply some of our knowledge painfully gained in epilepsy and migraine to Tic Douloureux and stop the foolish things which are being done for its relief. We must learn to differentiate between a true Tic Douloureux, idiopathic in origin, and a neuralgia or neuritis in the fifth nerve, which is symptomatic in character. The useless, painful and mutilating procedures to which many of these patients have been subjected, is a reproach to the profession. I rarely see a patient who has not been a victim in one way or another. One of my patients who has been afflicted with this disease for twenty-two years has, in this time, had fourteen operations; all of his teeth have been extracted, operations have been done on his nose, throat and sinuses, and finally the entire right superior maxillary bone has been removed, and this has been done without affording him any relief. Another patient, after having the teeth extracted as a matter of course, and the usual operations on the nose and sinuses, had both her uterus and ovaries removed,—also, without receiving any benefit.

The consensus of opinion in regard to the etiology of this affection is that a neuropathic

predisposition is the chief predisposing factor. I want to emphasize this view. If we can conceive of it as of similar origin to migraine, epilepsy and the functional neuroses and psychoses, this gives us at once a better conception of the disease and a clearer understanding of its treatment. Head says that these patients are in no sense of the word neurotic. Beekmann, of Rochester, thinks because they suffer agonies for years and seldom become drug addicts, indicates that their mental, if not their nervous stability, is above the average. Oppenheim says that a neuropathic predisposition plays a very important role, and Grasset, that a nervous temperament is the principal predisposing factor. Patrick thinks his patients were rather more nervous than the average. My own observation is that some of these patients are extremely nervous and some are not, using the term nervous in the sense we ordinarily apply it; but the same thing may be said in regard to patients about whose neuropathic classification there can be no doubt. An epileptic, for example, between attacks, may be one of the most unemotional and phlegmatic of persons. All the authorities, whom I have quoted, hold the view that Tic Douloureux is a separate entity, which involves as a matter of course the nervous system. Patrick, in a recent article on the subject in which he discusses his experiences with 220 cases, says, "So far as I have been able to ascertain these were all cases of true facial neuralgia, typical Tic Douloureux, le grand neuralgie of Levy, not migraine, not sinus disease, not herpes, or any other symptomatic pains about the face. As Head says, this is a separate disease of the nervous system. As a German colleague puts it: "Etwas fur sich" something sui generis, not to be confused in nature or doings with anything else." When under these circumstances we deny the neuropathic origin as a predisposing factor, we contradict ourselves.

The relationship between migraine and Tic Douloureux is interesting. Putnam, Dana, Levy, Patrick and others have noted their frequent association. In Patrick's cases, migraine has been the most frequent neurological concomitant, occurring in 40 out of some 200 cases. In my own cases, a history of migraine has been obtained very often. We have found frequent-



ly in our cases when at the first examination in the taking of the family history migraine was denied, that a more extended observation and a different manner of questioning the patient, has revealed migraine attacks during some period of their lives. Often inquiries concerning stomach disturbance have resulted in obtaining a history of migraine when questioning in regard to headaches failed entirely.

I have come to regard negative statements in case histories especially with reference to inherited nervous tendencies very much as denials concerning a syphilitic infection. They do not exclude the existence of these tendencies any more than a negative statement excludes syphilis. In most of our cases with migraine, the migraine has been present during their earlier life and the tic affection has appeared very late, usually some time after the cessation of the migraine attacks. In a few cases the attacks of tic neuralgia have appeared very soon after the disappearance of the migraine, suggesting the transformation of the latter type of neuralgia for the former.

The following cases illustrate the association of migraine and Tic Douloureux, also the neuropathic factor. They are further interesting because their symptoms and experiences in their search for relief from pain are quite typical. The success of the alcohol injection in two is worthy of note.

Case I. Mr. J. K., age 53; bookkeeper, married; father is 86 and in good health; mother died at 74, was subject to neuralgia of the head and face during the last few years of her life. Family history otherwise not significant. Patient has had no accidents, no serious illness or no operations except those to be mentioned later. He has suffered a good deal with sick headaches, which were severe in character, until the beginning of his neuralgic attacks when the headaches disappeared. He has been married 26 years; has 5 children, all living and well. His wife has had no miscarriages.

Present trouble: Began 6 years ago, in 1911, like a toothache; the pain was transient in nature and would come and go without any apparent cause. It sometimes lasted for hours and was at first not very severe. The nerve in one tooth was killed and this tooth was treated by a dentist, but the pain still continued. Finally

it disappeared of itself and remained away for eight months, when it returned. He now had this tooth, which had been treated, pulled, but without relief. His doctor told him that he had antrum trouble and must go to the hospital for an operation; he entered the University Hospital where an opening was made in the alveolar process of the upper jaw but no inflammation or pus was found. The pain remained the same. He next consulted a nerve specialist. The specialist told him it was his teeth and sent him to have an X-ray picture taken of them. The X-ray pictures were negative but the dentist killed the nerves in two more teeth and finally extracted them. Shortly after this he came to me in a rather irritable and disgusted state of mind.

At this time his symptoms were typical of a Tic Douloureux involving the second branch of the nerve. Three alcohol injections were given this patient at this time,—that was four years ago, which have relieved his pain completely until recently when it returned. He has been again injected and the pain relieved. He now hopes for another four years of comfort.

Case II. Mrs. M., widow, age 66; German; mother living, age 91; always has been in good health except for frequent headache which began with her menstruation and ended at the menopause. Nothing else in family history significant.

Past history: Has 3 children,—1 boy and 2 girls—all living; no miscarriages. The son was very nervous as a child and lately has been subject to fainting spells in which he falls down and loses consciousness. He also complains of pain in the back of his neck which his physician says is caused by nervousness. Both daughters are well but inclined to be nervous, and the younger one has frequent and severe sick headaches. The patient says she was well up to the time of her menopause which occurred at the age of 39, when she began to have sick headaches which came as often as once in two weeks. Fourteen years ago she was taken suddenly with a very sharp pain which came in flashes in her right lower jaw; the pain was started by talking, eating, and touching the lower lip. This lasted for nine months and resisted all the usual methods of treatment. She finally had the third branch of the trigeminus removed at

the mental foramen. She was now free from pain for nine months when it returned in the same place as before. She then had another operation on the nerve and was relieved for six months, when the pain again returned. She had another operation on the nerve and secured relief for three months, when the pain returned. She now endured the pain for two years and during this time could not eat solid food or talk; she felt she could endure the pain no longer and returned to the surgeon who had performed the operation on her nerve. This time he gave her eight alcohol injections at intervals of about one week without affording her relief. She returned home worse than ever. Shortly after this, she came to me.

I injected her right Gasserian ganglion with alcohol. Her pain stopped immediately and she has never had a tic pain since. This was ten years ago. About two years ago, under unusual excitement, her sick headaches returned and she has had them at intervals ever since.

Case III. Mr. M., age 43; Swedish, farmer. Family history: Father and mother are both living; mother has been subject to severe attacks of migraine but since her menopause these have disappeared; she, also, as long as the patient can remember, has had convulsions at times; in these convulsive attacks she becomes unconscious; her body is rigid; she froths at the mouth and sometimes bites her lip and tongue. One sister of the patient has fainting spells. One brother has asthmatic attacks. The history otherwise is not significant.

Personal history: As a child the patient was subject to nightmare and used to walk in his sleep; he has never had sick headaches. He has 3 children; wife has had no miscarriages; one boy is healthy; one suffers severely with periodical headaches; and a girl, age 14, has spells coming on when she is sleeping; in these spells she becomes very frightened, imagines some one is going to hurt her, wants to run away and does not seem to recognize anyone; afterwards she has no recollection of the attack. She is also subject to periodical headaches.

Present trouble: Started about 18 years ago with a creepy feeling in the lower lip, right side, and sometimes a sharp shooting pain in the same region. This pain came first once or twice a year, later on more frequently, usually

when talking, eating or touching the face; seven years ago it became so bad that he could not talk, eat or sleep; the slightest movement or touch of the face would start it; it always came in flashes. This patient went through the usual experiences with his teeth.

He was injected first at this time, and since then he has returned about once a year for a re-injection. In two of these cases there is not only a history of migraine but also of epilepsy.

The absence of any definite pathology is what one might expect in any condition where the neuropathic predisposition is the chief etiological factor. Some observers have reported changes in the Gasserian ganglion in these cases of an inflammatory and degenerative character. Oppenheim, in speaking of the pathology cites Dana as reporting disease of the vasa nervorum. Putnam, sclerotic and degenerative processes in the nerve. Krause, Keen, Spiller, and Schwab, sclerotic and degenerative changes in the cells and fibers of the Gasserian ganglion. He also quotes Krause who thinks the importance of these findings are rather doubtful and calls attention to the fact that these changes occur only in persons whose trigemini have been subjected to operative procedures. Coenen, who examined ganglia after they had been removed by Lexer, found no changes in those where operations on the peripheral nerve had not previously been performed. The negative objective symptoms in all of these cases substantiate a negative pathology; except for hypersensitive areas during the period of an attack, I have never observed any change in the functions of the 5th nerve. Sensation remains unaltered for all qualities and the nutrition of the cornea undisturbed. In a neuritis, whether due to pressure or infection, disturbances of function would certainly occur, especially in cases extending over a period of years.

If Tic Douloureux is a distinct and separate entity, a disease sui generis, as it seems to be, then the removal of perfectly good teeth, and operations on the sinuses, throat, nose and other organs for its relief, are entirely unnecessary and wide of the mark. For our own professional welfare we should do all in our power to discourage such procedures. In many of the cases which I have seen, diagnosis may truly be

said to have been made by elimination—the elimination of everything removable in the nose, throat and mouth. A better method would be that of differentiation, a recognition of Tic Douloureux as a distinct entity and of its characteristic symptomatology and a differentiation of it from the various symptomatic pains occurring in the distribution of the 5th. Intelligent and successful treatment depends entirely upon this distinction.

The pain of this affection has distinguishing features which differentiates it from that of any other painful condition occurring in this region. It is paroxysmal in character, beginning and ending suddenly. It strikes a patient like an unexpected blow and one severe pain may follow another in rapid succession with only short intervals between. Patrick says, shoot, stab, jab, flash, dart, knock, zipp and twinge are some of the words his patients have used in describing it. One of my patients said, that the pain in his face felt just as if someone was twisting the nerve around a redhot iron. Another one compared it with the shooting off of skyrocket on the Fourth of July, one rocket following another in quick succession; he could hear the sizzling noise with its beginning in the lower jaw which continued all the way as it rushed upward through his face to the top of his head, ending there with a culminating terrific pain as if the top of his skull was being wrenched off. A number of such pains sometimes follow one another in rapid succession. One of the characteristic features of the pain is that it is not continuous. It begins suddenly and ends suddenly with a variable length of time between each pain during which the patient is pain free. In the majority of cases the pain is started by a definite impulse coming from a certain area in the region of the face,—this may be movement of the jaws or tongue as in eating and talking, a draught of cold air on the face, the slightest touch on certain places on the cheek, teeth, gums, nose or lips, which are hypersensitive. These hypersensitive zones have been well named by Patrick “trigger zones.” The slightest irritation in these zones is sufficient to cause the paroxysms of pain. Many of the patients cannot wash their face, clean their teeth, or comb their hair, for weeks at a time. Sometimes the

“trigger zone” seems to lie in the emotions, and any surprise, disappointment or even sudden joy will produce an attack; the disease started in a number of my patients at a time when they were undergoing a severe nervous strain. I recently had an old lady 87 years of age under my care, who, while she had the usual “trigger zones” in the tongue and lips, any surprise, as walking into her room unexpectedly, was sufficient to set up her pain. The “trigger zones” are of very great importance in the successful treatment of the patient with injections of alcohol. It often happens that these zones lie outside of the branch of the nerve in which the pain is experienced. As, for example, there are many cases where all the pain is centered in the area supplied by the 2nd branch of the nerve, but the “trigger zone” exists in the 3rd branch, either in the lower lip or tip of the tongue. In such a situation a perfect injection of the 2nd branch will fail to stop the pain. In order to relieve the patient it will not only be necessary to inject the 3rd branch but to produce analgesia in that part of it in which the “trigger zone” is located.

We hear so much about the terrible pain of Tic Douloureux and this is true; the pain is usually very severe and sometimes terrific, but it would be a mistake to get the idea that this is always so. It may be mild in the beginning and vary in intensity in different attacks or even in the same attack. Its distinguishing features, however, remain the same,—a sudden, darting, jabbing pain, often accompanied by a twitching of the facial muscles complete in itself with a free interval, and then another pain and so on. Sometimes in these severe attacks these jabs may be continuous, giving the patient no rest day or night. At other times, hours, days, weeks and months may elapse between the paroxysms. In the commencement of the disease it may be difficult to differentiate it from the symptomatic pains so often occurring in this region, but as a rule the characteristics of the pain, together with the presence of the “trigger zones” or hyperaesthetic areas from which the pains are started, make the diagnosis easy.

It is now over ten years since I began treating Tic Douloureux with deep injections of alcohol. I remember some of the objections

which were made the first time I presented this method of treatment to a medical audience,—one was that it was not scientific since it only stopped the pain and did not endeavor to find and remove the cause. Since then I have had an excellent opportunity of observing the work of those scientifically inclined and their pursuit of the cause in the multitude of mutilations in the patients who have come to me for injection. The alcohol injections were thought unnecessary by one who spoke highly of the value of the "aconite and salts" plan of treatment, and thought this satisfactory in most cases. I have had some experience with this method. The aconite used in sufficiently large doses produces tingling in the tongue and numbness in the fingers. The salts move the bowels,—there is no doubt about that. So far the treatment is a splendid success. The only fault that I have to find with it is that it fails to stop the pain. The surgeons were inclined to think the method dangerous. They said, the sticking of a needle into the base of the skull blindly, without being able to see where you were going was a highly unsurgical procedure. You should cut down on the nerve, of course, expose it, resect it or bisect it, do it up proper; never mind the danger of infection,—the fact that resection is not a success, the resulting scar, etc., which was very good surgical reasoning to be sure.

In spite of these criticisms, however, I kept on with this method of treatment and soon found that my patients viewed it in an entirely different light. They did not seem particularly interested in the scientific aspect nor could they see the advantage of having their faces cut open when their pains could be instantly relieved by the insertion of a very small calibre needle into the offending nerve and the injection there of a few drops of alcohol. What the patients were seeking was relief with a minimum of discomfort and inconvenience, and this they found in the alcohol injections.

In my first paper on this subject ten years ago I said that the deep injections with alcohol of the nerve in a case of Tic Dououreux afforded the most brilliant and striking result from a therapeutic standpoint with which I was familiar. I still desire to affirm my belief in the truth of this statement.

In conclusion, I wish to call attention again to the neuropathic and endogenous origin of Tic Dououreux, to its association with migraine, and also to its distinct entity, for as Patrick says: "It is not migraine, not sinus disease nor any symptomatic pain around the head or face," but a disease *sui generis*. If we hold fast to this conception we will save ourselves many times from humiliation before the eyes of our patients and in addition lay another fagot on the altar of medical efficiency.

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#### DISCUSSION.

DR. H. A. BEAUDOUX, St. Paul: The subject of tic dououreux is of much interest to the rhinologist and I think we perhaps see as many cases of neuralgia and tic dououreux as any other members of the profession, except the neurologist. Dr. Ball has had no opportunity to speak at length of the syndromes, but they are so different from sinus disease and neuralgia that one cannot mistake them, or the history, for that of tic dououreux. The symptoms are not the same. The chief symptom of tic is quick, sharp, spasmodic, lancinating pain, while that of sinus disease is usually constant and more or less acute and is never the terribly acute, lancinating pain of the dououreux as compared with the other pain of neuralgia and sinusitis. There is one kind of pain, however, which simulates it at times. This is the pain that perhaps is next in severity to that of tic dououreux, of the sharp, darting variety, namely, neuralgic, caused by poor dental work or apical abscesses in the teeth. It was my good fortune to relieve several of these cases by resection. Resection of the infraorbital nerve and removal of teeth yielded me some very startling results. I do not believe now that these were true tic dououreux, and the fact that they were relieved is conclusive, in my opinion, that they were only cases of neuralgia. The removal of teeth in a number of cases has produced phenomenal cures, and they should always be scrupulously examined before undertaking more severe or serious measures, and should not be confused with tic dououreux. The alcoholic treatment is undoubtedly the least dangerous and destructive, and has given in Dr. Ball's hands apparently more gratifying results than

some of the more serious operations and various surgical procedures, without any of the subsequent deformities or functional disturbances, and for these reasons should at least be given a trial before any other surgical procedure.

DR. A. W. ADSON, Rochester: I enjoyed this paper immensely. I had the privilege of reading this paper in detail and Dr. Ball has emphasized three very important points in this paper. First, he has apparently established a relationship between migraine and tic douloureux. Second, it is important to differentiate tic douloureux from ordinary neuralgia of the face. This disease has a definite entity with a definite symptomatology. Third, in the treatment of this particular type of trouble it is important to determine the exact condition, making sure you are dealing with tic douloureux. If you are, alcohol is an excellent treatment. Some patients have received definite and permanent relief from alcohol injections. It is true that a large group of patients will have return of pain in a few months; others will be relieved for several years. For those patients we advise the ganglion operation. It has been our experience that such treatment is most satisfactory and can be done without very much risk. Dividing the second and third branches will help a certain percentage of patients, but will not relieve all. In one case it became necessary to do the second operation, at which time the posterior root was evulsed, resulting in the permanent relief from pain. We have observed that the evulsion of the posterior root is as effective as the removal of the ganglion and is an operation with less hemorrhage. This operation can be performed upon any patient who is able to take an ether anesthetic. The only postoperative complication is the dryness of the cornea and the possibility of ulceration. In view of this, we advise an eye shield for the eye involved when subjected to wind and dust for the first six months, after which time conditions become normal.

When patients come to the clinic complaining of tic douloureux, we advise one alcohol injection if the patients have not been injected before. If this fails to give relief, we then advise the evulsion of the posterior root if the condition of the patient warrants an operation.

DR. J. C. MICHAEL, St. Paul: I am sorry Dr. Ball was unable to present the entire paper. There is one principal point in his paper that strikes me, and that is the recognition of the neuropathic predisposition. The average practitioner tends to overlook this. The nerve specialist not infrequently observes individuals who have been subjected to many surgical procedures with the hope that nervous symptoms would be relieved, only to eventually see a more disappointed

patient, where a carefully taken history would have established the diagnosis of a definite neuropathic or psychopathic disorder. What is this predisposition? We have to consider first of all the entire patient, the circulation, the glandular system, the mind and the nervous system, metabolic conditions, etc. The patients are individuals whose histories indicate remarkably often the absence of other diseases. This is strange but true. Doctor Ball has indicated the necessity of getting the thorough history. No matter how hard you try, you can do it effectively only after many attempts. Speaking of migraine, it seems apparently to have association with tic douloureux. We must remember that there are few people who do not have migraine in some form at some time of their lives.

DR. J. W. ANDREWS, Mankato: In my several years of experience I imagine I have had my share of these cases. I am going to relate briefly two cases; both were women, adults. In one, after removing the supraorbital nerve there was temporary relief. Relief was not permanent because the nerve regenerated. Finally we resorted to the operation of the Gasserian ganglion. Dr. J. E. Moore of Minneapolis, performed section of the nerve just in front of the ganglion. The patient was permanently cured. This was eight years ago and I think the patient is living and well.

Another, a female, rather older, past middle life upon whom I employed everything in the way of medication, including codein; nothing but hypodermic injections of morphine would give anything like temporary relief. Other means did very little good. This was ten years ago. I sent her to Doctor Ball. He injected the alcohol and she came back practically well. There was some little pain afterward but she gradually got better and has remained well to this day. One patient was operated on; an uneventful operation and a rather stormy convalescence. The other did not have to go to bed at all. She had two or three injections and came home cured, and remained cured. Is alcohol for this disease scientific? If it cures it is scientific, leaving no untoward results. In this case it has left no such results.

DR. BALL (closing): I merely wish to thank the society for their attention and to those who have discussed the paper for their kindly remarks. As regards Doctor Andrews' case, this was a case in which I gave one injection because she had had other injections with surgical treatment. I injected the Gasserian ganglion. The relief is more or less permanent. If the injection of the nerve is made, as in this case, after it makes exit from the intima, the injection will be found to be more durable.

## SHORTER ISOLATION PERIODS IN INFECTIOUS DISEASES.

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There is abroad in public health circles an uneasy feeling that our quarantine periods are too long in some of our ordinary infectious diseases.

Remarkable "cuts" have been made in the established periods, notably by the New York City Board of Health.

I have watched our vital statistics in London, Canada, during my term as health officer; have experimented with shorter periods; and have come to some conclusions which I wish to offer. Let me first, however, emphasize how much a week more or less of isolation means to the community, by pointing out that the reduction recently made by the Provincial Board of Health in measles from three weeks to two weeks, applied to the 22,000 cases of measles reported during the year, saves about 400 years of isolation and about \$44,000 in cash, not to speak of other advantages, such as lessening absence from school, reducing the number of concealed cases, etc. Amongst soldiers, the saving possible to the nation of money and time otherwise lost in unnecessary isolation is remarkable. Thus 20,000 saved a week apiece means half a million dollars saved besides the time; the latter equivalent to complete isolation in idleness of a whole battalion for five months.

The method of investigating the length of the infectious period which we have used is as follows:

In all instances where cases of infectious disease are kept at home, we tabulate the dates at which other cases, if any, follow in the same family. By counting back from this date the shortest incubation period accepted for the disease in question, we have the latest date at which the original case actually infected some one, and comparing this date with the date on which the original case became ill, we have the

period during which this original case was known to be infectious. Of course an infectious case may have been infectious after the latest date on which our records show infection to have occurred, but, given a sufficiently large number of instances, the grouping of the dates shows the period of greatest infectiveness. If a very small number or no cases are infected after a certain time, we may conclude that the danger of infection after that time is small.

Our results were as follows:

Whooping cough, a total of 240 families were investigated. In 96 of these families, cases, subsequent to the first case, followed to the number of 111. Of these 111 subsequent cases, 33 occurred on or before the sixth day after the original case and, taking the incubation period as 7 to 14 days, could not have been infected from it, but must have been infected from some outside source, presumably the same that operated to infect the original case. Of the remaining 78 cases, 39 occurred on or between the seventh and thirteenth days of the disease of the original case, and presumably were derived from that case, but, by assuming 14 days incubation for all of these, they may be imagined as occurring from outside sources. This group then is the group of uncertain source.

The remaining 39 cases were doubtless infected within the family. Assuming that they were infected by the nearest preceding case that began not less than seven days preceding, we find that 30 of these developed on or before the twenty-sixth day of the disease of the preceding case, the remaining nine developing respectively on the 30th, 31st, 32nd, 33rd, 36th, 40th, 49th, and 61st days.

Evidently then, three weeks' real isolation for the cases which infected these would have left us with nine cases, if we insist on the minimum seven days' incubation period throughout. We know, however, that the incubation is often ten, sometimes fourteen days, and if we allow fourteen days' incubation for these nine cases, we find five of them satisfactorily accounted for. Hence, four cases only in 96 families would have occurred as the result of adopting three weeks' isolation as sufficient; or to put it another way, the adoption of three weeks' isolation instead of six would make an

error or slip of about four to five per cent only. The adoption of four weeks would reduce this slip to two per cent.

In mumps, a total of 151 families were investigated. In 26 families, 29 cases subsequent occurred to the first case. Of these 29, fourteen fell on or before the thirteenth day, and hence, taking 14 to 25 days for incubation period, were not derived from the original case. The remaining fifteen occurred on or before the thirtieth day of the first case (14 on or before the twenty-first day) and hence were infected on a 14-day basis not later than the 17th day of the first case (14 of them not later than the seventh day). Hence the error in making the mumps' isolation period three weeks would be zero. It might be made two weeks, so far as this evidence goes, with an error (taking 14 days' incubation) of but four per cent. Allowing 25 days' incubation in extreme cases, this error would disappear, and seven days' isolation would prove entirely adequate. I would feel no fear in releasing cases of mumps having a normal temperature, no sore throat or nose bleed, no swelling of the glands or orchitis, in two weeks, or even less in light cases.

In real measles, 451 families were examined. In 143 families, subsequent cases occurred totalling 164. Of these 164 subsequent cases, 32 occurred on or before the eighth day after the original case, and hence, taking nine to eleven days as the incubation time, could not have been infected from it. Of the remaining 132, 69 occurred on the ninth or tenth day, and hence, may have been infected from the original case or from outside. Of the rest (63 in number), 60 showed development on or before the 21st day of the infecting case, and hence, taking the shortest incubation period of nine days, they were infected on or before the twelfth; all but two on or before the ninth day. The remaining three developed on the 23rd, 33rd, and 34th days, respectively.

Hence, two weeks' isolation of measles would have allowed only three cases to develop from persons too early released on a nine-day incubation period; only two cases, allowing for 11 days' incubation. Therefore on this basis the error is two per cent or less—quite as good as bacteriological release by two cultures in diphtheria.

In German measles, a large personal experience of this amongst soldiers shows that one week is all sufficient to prevent spread. In mumps similar evidence shows three weeks ample, indeed, too long. In scarlet fever, on the other hand, I can quote case after case where the disease arose from patients released much later than even six weeks—up to 14 weeks, where ear discharges were present—and I do not think that even the cleanest cases should be released short of five weeks, and only then if everything, temperature, ears, nose, glands, etc., have been absolutely normal for at least one week. Where there is the slightest suggestion of sore nose, throat or ears, or any open wound or discharging area of any kind, patients should not be released. I am beginning to think that acute glandular enlargement itself is reason for continuing isolation.

In epidemic cerebro-spinal meningitis, I am satisfied with two weeks but prefer the smear method, i. e., three consecutive negative smears, 24 hours apart, from nose and throat.

In poliomyelitis, three weeks is sufficient unless the acute symptoms continue.

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#### THE GENERAL PRACTITIONER, HIS FIELD AND HIS FEES.\*

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The writer realizes that this is a large subject and one to be considered from many angles, and that in the short time allowed for this paper he can only touch in a desultory manner on some of the more important points as he sees them.

That the general practitioner is not held in as high esteem as formerly, when the family doctor was a very essential and important factor in his community, consulted not only for his medical acumen, but in regard to many other important matters, I think will be generally admitted.

In fact, it sometimes seems to me, in these later days of enterprising surgery and multi-

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plying specialties, that one almost feels like apologizing to have to admit that he is only a general practitioner, who does not undertake abdominal or other major operations, or dip into the field of the specialist.

For this reason, and for the further one, that those branches are so much more profitable, the general practitioner is naturally tempted to invade these fields, even though the still small voice warns him to keep hands off.

It sometimes seems to me as if the main body of the medical profession had gone operation mad, and that eventually surgery and the other specialties would have general practice backed off the boards.

I do not, for a moment, intend to minimize the importance of the skilled surgeon or other specialist to general practice, whether his special knowledge and ability comes from years of general practice, with special attention and training in his chosen field, or from post-graduate work and hospital experience. But for the medical fledgling, or older practitioner, to undertake serious operations in surgical or other special lines, in which he has had little training and less experience, is to be deprecated.

When surgery becomes standardized, so to speak, and only those who have made sufficient preparation, undertake the more serious operations in surgery and the special branches, a great step in advance will have been made, and the safety, and lives and health of the people will be more conserved than at the present time. Then will be ushered in the day of safe and sane surgery. That such a day is coming, such organizations as the American College of Surgeons, and the American Congress of Surgeons, give promise.

There are also movements on foot to standardize the hospitals of the country. Both these movements should have the support of the best men of the profession, and should go hand in hand for the betterment of surgery and the comfort and safety of those who must seek surgical treatment. For it can scarcely be denied, I think, that the small and poorly equipped, and poorly manned, hospitals that are springing up like mushrooms at the small hamlets and cross-roads of the country, are anything but an unmixed blessing. The unsophisticated layman is easily misled; especially when the

local paper acts as a voluntary press agent for the man who does the operating, and for whose advertising and financial benefit the hospital too often exists.

From certain viewpoints there is reason to be pessimistic in regard to the future of general practice. With surgery and the other specialties occupying so prominent a place in the public eye, one is apt to wonder what will eventually be left for the general practitioner.

One answer to this question is, that a greater number of medical graduates of the future will take up these better paying and, in a way, less exacting branches, resulting in less competition in the ranks of regular practice.

Another factor that is certain to have a curtailing effect on medical practice of the future is the steady advancement in preventative medicine, sanitary science, and hygiene, in controlling epidemics and contagious diseases, and in keeping people well by giving them a better understanding of the laws of health.

To offset this tendency toward the narrowing of the medical field, the above mentioned subjects will attract an ever increasing number of the younger medical men and so relieve the pressure to that extent. I think in the future there will be a continually growing demand for medical graduates to become sanitarians, medical inspectors for schools, county and city health officers, etc., at attractive salaries.

Then there are the widening fields of bacteriology and pathology that offer careers to an ever-increasing number of medical men.

Another field that promises a career for many of our future graduates is anesthetics. Not a few medical men are now making this a specialty, and in some states either laws have been passed, or efforts have been made to pass them, requiring that all anesthetists should have a medical degree. This movement will increase, no doubt, as time goes on.

Another thing that is happening to brighten the future outlook of general practice is the raising of the standards of medical education and medical colleges. This will reduce the number of matriculates and graduates, while at the same time it will result in a more scientific and better equipped personnel in the ranks of the profession.



The practitioner of the future must become, more and more, an educated, scientific, and broad-minded man. In this way he can greatly enlarge his field of usefulness in his community and, at the same time, be entitled to, and receive, greater financial reward.

One of the disagreeable things the physician has to contend with is the irregular practitioner. This will include the advertising quack, all sorts and kind of healers, more especially the chiropractic and the osteopath.

Then there are the various faith cures, and lastly the obsession of Christian Science.

Quackery and faith cures we have always had with us in one form or another and will, no doubt, continue to have to some extent. I think however, that the gradual advance of medicine toward an exact science and the better understanding as to things medical that will come to the laity in the future will greatly curtail the humbug nuisance.

As to osteopaths, chiropractors, and the like, they do not cut into general practice as much as might seem on the surface. For their practice is to a considerable extent artificial and creates its own demand to a large degree. As to Christian Science, so-called, while it may continue for some time to come as a religion, there are already signs that its influence as a means of healing is on the wane.

The treatment of acute diseases, or bedside practice, is of course, the general practitioners' special field. On the whole this practice is about the most satisfactory of all. For in no branch of medicine can more relief or comfort be given than here. Nowhere does the skillful, obliging, and painstaking physician gain the good will and gratefulness of his patient as here.

A very important branch of medicine that will likely remain to the general practitioner largely, is obstetrics. While in the larger centers of population there is some tendency to specialize in this field, yet the great bulk of this practice is still in the hands of the general practitioner and, for obvious reasons will remain there. And it behooves him to keep abreast of all advancement in this important field. He should be satisfied with nothing less than clean, careful, and scientific midwifery.

When obstetrics is looked upon a little more as it should be, as a serious undertaking for both the expectant mother and her child, and the practice of it as a scientific art, it will be a fortunate day for society.

Then let us hope that the medical profession will not have to compete with the ignorant midwife or the old mother of the neighborhood.

Then physicians will give better service in the way of advice and attention, both before and after, as well as during labor, and will receive better pay.

A very important part of a general practice are every-day injuries and accidents. This includes besides minor and trifling injuries, that most important branch of fractures and dislocations. These injuries make up an important and paying part of a general practice, and it is up to the man who would succeed here to make special preparation and to put his heart into it. There is no greater satisfaction comes to a doctor than success in these branches, and no greater heartburnings and regrets for unsatisfactory results, whether blameworthy or not.

Lastly I will mention office practice. Some general practitioners make much of this, and others little. However, in a well balanced practice, office work should be an important and paying part of one's practice.

In this connection it occurs to me that the average practitioner is too apt to turn a deaf ear to the many tales, of what seem to him to be trifling and minor ills, and to neglect them; whereas, if he would trace them up by a thorough and painstaking examination of the patient, he would often find them guide-posts to more serious troubles. And even if not so, he will be given credit for being a careful and scientific physician who goes to the bottom of his cases.

It is in office practice that the physician meets with a large variety of ills, not only minor and transient ailments, but chronic disorders of many shades and varieties. And here is where a working knowledge of the special branches is almost a necessity if one is to be successful.

A good library is a requisite for the office man; his reading must be extensive if he would keep in touch with the advances made in the different fields of medicine.

In a way, the general practitioner's office should be a clearing-house for the specialist, and he should be honest enough to give his patient the benefit of any doubts as to his ability to diagnose and treat his disease, and send him on to the specialist while yet there is promise of a cure, and not, from false pride or for mercenary reasons, hang onto his case until it falls into the last resort category.

And after all, there should be the best of feeling between the regular practitioner and the specialist, and without jealousy or rivalry they should both work together for the good of sick humanity.

The general practitioner should have a working knowledge of the special branches and the specialist should keep well in touch with general medicine. In this way both will succeed better, as general medicine and the special branches are so interwoven, and touch each other at so many points, that no specialist can make his greatest success without a working knowledge of general medicine, nor can the general practitioner accomplish much who remains ignorant of the special branches.

I have not time to more than mention the present demand for physicians as army surgeons, a demand that seems certain to decimate the ranks of the general practitioner to the extent of causing a shortage of men at home. So, for the immediate future, there promises to be plenty for those who will be left to do.

And after the war is over there will likely be a considerable demand for army surgeons. For it is reasonably certain that we will have a large standing army for years to come, and that the country will adopt universal military training as a permanent policy.

In the few moments that remain I can only touch in a general way on the subject of medical fees.

It will not be denied, I think, that as compared with the specialties, and surgery in particular, the pay of the general practitioner, for services rendered, is ridiculously small. When one stops to think that the yearly income of the average practitioner amounts to no more than specialists, and surgeons in particular, frequently make in a week or two, it must be admitted that something is wrong somewhere.

I have seen statements in articles published in leading medical journals, written by men of standing in the profession, that the average annual income of physicians throughout this country is from seven hundred to a thousand dollars. These statements were based on knowledge gained from writing to a large number of physicians throughout the country, and in other ways also. Allowing for the usual unreliability of statistics generally, and admitting a fifty per cent error, this would bring the income to from fifteen hundred to two thousand dollars. As the above statistics were based on information gotten from surgeons and specialists as well as general practitioners, it is easy to see how the average general practitioner comes out. When one thinks of the hard life of the general practitioner, and the country doctor in particular, the wonder is that so many enter the profession. Certainly it cannot be because of money inducements.

And this brings up the question of splitting fees. No doubt here lies the chief reason for this disgraceful practice which has of late received so much attention, and has been so bitterly attacked. I mean the contrast between the charges of the surgeon and the pay of the physician who sends his patient to the former for an operation.

I am not condoning the practice, as I am absolutely against it, but I am only mentioning the principal reason for the practice as I see it.

Why the average physician does his work so cheaply that in long years of practice he rarely accumulates sufficient means to retire to a well-earned ten or twenty years of rest, or partial retirement, in the decline of life, is one of the serious questions for the profession at large to answer and take steps to remedy.

And what if disease or accident overtakes the doctor in his earlier years and puts him out of business with a family to support and educate? It is a near-tragedy then.

I have in mind a number of medical men who are now going through the above experience, and lacking almost the necessities of life, largely because they received too small compensation for their work.

Possibly in many cases the above is true because of poor business ability and failure to collect bills. Admitting this, there is all the more

reason for greater charges in order to bring up the average yearly income.

Why the average practitioner receives so small pay for the important services rendered is not readily explained. No doubt custom that has come down to us from the older generation of doctors has much to do with it.

Is not the principle of charging largely wrong? We charge for the number of visits made, or for the mileage, rather than for the professional services rendered, no matter how valuable those services, or how much the responsibility assumed. Possibly this does not apply to all physicians but as a rule it is true.

On the old plan of charging, under which most of us are now working, a doctor may attend a patient for two or three weeks or more, through some serious sickness like pneumonia, typhoid fever, inflammatory rheumatism, or the like, steering him past the danger points, through the rocks and shoals of a treacherous disease, studying the case in its various phases, almost sweating blood at times, and bringing him back safely to restored health, and for a less financial reward often, than the surgeon receives for a few moments of work on a case of appendicitis, for example.

Certainly there is need for readjustment in the matter of physicians' charges in general practice. It is up to the general practitioners to say when they will charge for professional services rather than for making a certain number of visits, or going so many miles.

#### DISCUSSION.

DR. F. A. DODGE, Le Sueur, Minn.: Mr. President and Members of the Society, the general practitioner's field is truly broad. One's life is too short to compass it all, and the mind of the average practitioner is not capable of storing all the knowledge necessary to deal with every branch of medicine and surgery. I believe he should aim, first of all, to become a good diagnostician and then, by consulting his conscience, he would know whether or not he should attempt the treatment in a given case. By working sixteen to eighteen hours a day for twenty-five or thirty years, a general practitioner can, if he is a good business man, become fairly well to do. By working twelve hours a day he will be able to maintain a comfortable home and educate his children, but will have nothing left for his maintenance after his working days are over. On an eight-hour basis, with the same schedule of fees, he can barely exist,

but will be unable to keep abreast of the progress of the profession and do efficient service.

Compared with the fees received by men who do special work in medicine and surgery, those of the general practitioner are altogether too small. I don't know the remedy, but there should be a reasonable adjustment of fees.

DR. H. A. BAKER, Minneapolis, Minn.: Mr. Chairman, Gentlemen: I gather from the paper and the discussion that the path of the general practitioner in the small town is not one of roses. I can bring to them a message from the general practitioner in the city: it is equally as bad and possibly a little worse, the general practitioner in the city not charging for mileage. So they might get together. Misery loves company. The doctor said that the mind of the general practitioner was not equal to all the advances in medicine. I think he is somewhat modest about the mind of the practitioner. It is not within the capabilities of any mind to master all the arts and sciences and particularly the ever-changing and advancing science of medicine where one has to wade through so much chaff to get a bit of wheat. The brain has its limitations as other organs of the body. It is the divine good fortune of just a few to know it all.

The fees have diminished just as the field has increased. The fees of the general practitioner are about the only ones that remain as they did in the Stone Age. The butcher, the baker, automobile mechanic and plumber now have office hours and make professional charges, while those of the general practitioner, to my mind, never commensurate with service and responsibility, now are thought too much. I think it was Micawber of Dicken's fame, who said that if a man's annual expenses are a shilling over his income, the ultimate result is unhappiness. Many business firms, large and small, have gone bankrupt because they did not attach to their wares the freight and overhead expense, and lasted only until the original capital and credit was exhausted. The equipment of the modern specialist requires an outlay that will stagger and stun an embryo—that of the general practitioner, even though capable of all the arts, necessitates an endowment fund. And so I think with the doctors, that the general practitioner (I know it is true in the city) is moribund; in another decade or two he will be dead. I regret it very much, for to my mind, with the passing away of the general practitioner, there also passes away the heart of medicine, and in its place steps cold science,—statistics, records, numbers and the knife. It was the combination of humanity and skill that made the general practitioner possible; it was the joint exertion of heart and hand in the restoration of health that made him great. We still have a lot of doctors who are practicing as general practitioners. They may well be termed the "Last of the Barons." I really think it timely and fitting that the general practitioner be eulogized while he in a measure is still with us, for his disappearance is so slow and

gradual that when complete, there will be none left to do him honor.

In the light of our present day knowledge, we can't but wonder how public and practitioner got along as well as they did. But it was because, though oftentimes incapable of the sciences, he never was incapable of the virtues. He was to the public like unto the village schoolmaster,—and, "still the wonder grew that one small head could carry all he knew." His faults were but those of omission and should be written upon the sands—but the faults of his successors, the surgeons, scientists, and specialists are those of *commission* and engraved upon tablets of stone. If there are, or remain, any general practitioners in the future, they will be very much in demand; but I believe he will be as difficult to get as a University President or a leader of the Symphony Orchestra; someone familiar with all the parts and specialties, but only as they apply to the harmonic whole, the *tout en semble*. To my mind the practice of medicine is becoming more and more institutional. We will have in this country, if I may predict, four, or at most six, large medical educational centres with their hospitals and research laboratories, Minnesota, Johns Hopkins, Columbia, Harvard, possibly Philadelphia and Chicago. Radiating from these will be the open municipal and the closed private hospitals; and the closed private hospitals to be recognized must be standardized, and to be useful, and advantageous, and enjoy public confidence, must number among the directorate, a general practitioner, if one can be found, or else a doctor with a conscience, who can step up to the surgeon and say, "non licet," "verboten." Otherwise the hospital may take on the appearance in the eyes of the public of a surgical abattoir. Of the diseases of the future, the greatest in number will be the functional,—the metabolic. These may be recognized in an institution, but their prevention and treatment is only possible in the home. There again is where the general practitioner will be most missed,—in the home—for home and general practice are synonymous,—useless, one without the other. With the return to the hearth and the fireside may come the return of the old-time physician.

Mr. Chairman: We belong to a state the general practitioners of which have been the best people on earth. To me it is a source of great satisfaction to have enjoyed the tutelage of some, and had the inspiring example of others. It is because of their illustrious examples that the doctors of the state are measuring their loyalty to the country only by the strength and the length of their lives. In the new order of things, I am sure the general practitioner, though with reluctance, steps aside, and leaves the field and the fees to the surgeons and the specialists with the hope that in this dawn of a better day, they will help work out the evolution of the *superman*,

the exemplar of all the world, *the new and the true American*.

I would like to add one word to strengthen the thought of Dr. Andrews: the general practitioner should charge as large fees as he can for I think he is entitled to every dollar he can get, but I advise that he get into disguise, camouflage if you please, otherwise the public will not stand for a raise. He should assume some sort of specialty and then do as the surgeons and specialists are doing; charge. The eminent specialists of today are the general practitioners of yesterday. We of the profession recognize them as such, but the dear public see in them only the dear specialists. I believe their greatness is due in no small measure to the fact that they have been general practitioners in the past. So I repeat: get into a specialty and charge.

DR. J. W. ANDREWS, Mankato, Minn.: Mr. Chairman, Members of the Society: I think the physicians alone, the country practitioners, are to blame for the small fees, and I believe that times are changing in reference to that; it is my observation now, that the country practitioners, those in the small towns, are beginning to realize that they are worth something, for they are worth a great deal. Many are as competent as the average doctor in the city. I do not refer to specialists in their line, but they have come to feel that if they charge reasonable prices they will not get the business. It is all wrong in principle and practice. The physician who does good work can charge good fees and the patient will be better satisfied than if he does poor work and charges a low fee. I hope the time has passed when the patient comes to the physician's office, the physician takes a chair opposite to him, asks him a few questions, and diagnoses,—shall I say diagnoses?—and then, with pencil in hand, writes a prescription. The patient is entitled, unless the condition is very trifling, to a good, thorough examination. The physician should use all the means which modern medicine has given him, to look into the case, and charge well for it. The patient will be well satisfied. As referred to by the last speaker, the other trades, businesses, and professions are not slow to ask prices which they feel are commensurate for service rendered. The farmer charges the highest prices possible and wants his pay on the spot. They are not satisfied with dollar wheat; they are clamoring for three-dollar wheat. The farmers are well-to-do. Why should not these physicians in the rural communities charge for their services? But do good work, then you can get good pay, and no fault will be found. I do not believe there is any place in Southern Minnesota where the physicians are charging the old fees; but it is not so long since they were charging fifty cents a mile, a dollar a visit, ten dollars for an obstetrical case, etc. These are ridiculously low fees. I hope those days have passed, and passed forever.

# Minnesota Medicine

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## EDITORIAL

### THE CARREL-DAKIN TREATMENT OF INFECTED WOUNDS.

Amongst the numerous methods employed in caring for the wounded in this great war probably none has been given greater publicity, both in the medical and lay press, than the Carrel-Dakin treatment.

The solution used in this method of handling infected wounds—Dakin's fluid—is a 0.45 to 0.5 per cent solution of sodium hypochlorite. Stress is laid upon the point that the strength of the hypochlorite solution must be absolutely fixed between 0.45 and 0.5 per cent, as solutions that are weaker are of no value, while those that contain more than 0.5 per cent of the hypochlorite are irritating to the tissues. Care must also be taken that the fluid be free from traces

of caustic soda, and that great attention be paid to the other details of the solution's preparation, viz., titration, etc.

From a small volume recently issued (see *Minnesota Medicine*, Vol. I, No. 2, p. 80), in which a colleague of Dr. Carrel's, M. le Dr. J. Dumas, and Dr. Carrel's wife, Anne Carrel, have very clearly and concisely detailed the technic of the treatment, it is evident that the originators of the method hold the accurate preparation of the solution to be a most important element in its successful employment.

Likewise in the direct application of the treatment to infected wounds, adherence to specific details, of course, balances the issue. In the French hospitals the solution is carefully tested by skilled chemists, the operative technic and the after-dressings are carried out by the surgeon himself with as much care as in any aseptic operation, and the discharges are regularly examined by a skilled pathologist. So soon as the wound fluids are sterile or are found to contain only one or two germs in several microscopic fields, the wound can be completely closed from end to end by sutures and it heals like a primary operation wound.

Multiple irrigation tubes, perforated along their whole length, 4 mm. calibre and 30 cm. long, are inserted into the depths and recesses of wounds, and enable the nurse to flush the wound with a little of the solution every two hours by means of a clip on a tube leading from a glass reservoir suspended over the patient. In this way the wound is kept constantly bathed with the Dakin solution.

According to the well known English surgeon, Mayo-Robson, the appearance of the patients thus treated is very striking. They have a clear complexion, are free from pain, have no rise of temperature, have a good appetite, and, with few exceptions, even the most extensive and foul wounds become sweet and clean and can be completely closed by suture within a fortnight, or even earlier in some cases.

The method also receives the endorsement of many other men of note. Thus, William H. Welch writes (*Jour. A. M. A.*, Vol. 69, No. 23) that he was most favorably impressed with the Carrel treatment of wounds, and believes that Carrel should receive credit for calling attention to the possibility of the sterilization of in-

fectured wounds by chemical means. He holds that while undoubtedly the technic of the Carrel treatment is elaborate and requires an intelligence and skill on the part of the surgeon which cannot be counted on for the average surgeon, and that while the preparation of the neutral solution of sodium hypochlorite also requires chemical skill, surgeons should acquaint themselves with the principles and technic, and try to overcome the difficulties of applying the treatment.

Dr. W. W. Keen of Philadelphia, believes every surgeon in the various military and naval forces, and also those in civil life who have to do with industrial and other accidental wounds, should know the technic of the method by heart and practice it with exactness, as they will be rewarded by a most gratifying success.

Well known advocates of the method, therefore, expressing their strong endorsement in no half-hearted fashion, are numerous.

Few, on the other hand, are the critics, but amongst them we are somewhat surprised to find Arthur Dean Bevan, who holds (*Jour. A. M. A.*, Vol. 69, No. 20) that the value of the Carrel-Dakin method of treating infected wounds has not been established. He has been forced to the conclusion that Carrel's work does not meet the requirements of scientific research. Bevan believes that the choice of antiseptics in the treatment of infected wounds is of little moment, and that the use of the Carrel-Dakin fluid, like Koch's lymph, Bier's hyperemia, and the vaccine therapy of acute infections, will have a short period of popularity.

At first glance, perhaps, it is difficult to reconcile such views as those of Mayo-Robson's, Welch's and Keen's, on the one hand, with Bevan's, on the other. But on close analysis, can there really be any serious doubt concerning the value of a method, the practical application and the results of which are so entirely open to those who wish to investigate them? We believe not.

With results so conclusive, so definite, as those now being unquestionably obtained by the use of the Carrel-Dakin method in the actual theatre of war, we do not hesitate in at once handing down a decision most certainly in its favor. Whether the method meets all the requirements of scientific research or not, need

not at this time restrain us from warmly advocating its value, as no matter how closely parallel to, or how widely divergent from the established lines of scientific endeavor run the avenues of surgical and medical efforts in this great war, only by their results—the saving of human life and the restoration of shattered health—can such efforts now be judged.

As the fruit of this particular surgical effort—an effort made especially brilliant by reason of its grim and desolate background, War,—we have before us, beyond all question and in striking numbers, results that count. Therefore, apart from all other merits or demerits, and judged only from the standpoint of such results, the Carrel-Dakin method stands forth as a real surgical advance in the antiseptic treatment of infected wounds—an achievement, indeed, worthy of record.

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#### THE NEEDS OF THE MEDICAL SERVICE.

Under the above caption, Lieut. Col. R. E. Noble, M. C., U. S. A., presented before the last meeting of the Southern Medical Association a most admirable paper, which convincingly answers many of the questions which have caused perplexing hours of thought with many doctors.

The communication appears in full in the December issue of the *Southern Medical Journal* and should be read by every doctor in this country.

In a previous paper by the same writer, presented prior to the time that the United States entered the world struggle, as in the above referred to communication, Col. Noble said: "On the medical profession rests a heavy responsibility, for with the medical profession rests the subject of medical preparedness."

This is a particularly impressive paragraph and pregnant with truth, and its meaning should sink deep into the heart of every doctor in America. What was a fact before we entered the struggle is more than a fact now, since we have joined forces with our Allies in a world war, and which will only be terminated by the success of our arms.

We have not a sufficient number of medical officers to care for the combatant and other forces now in training. With the new draft soon to be called and the possibility of the raising of an army of between five and ten million,

as has been authoritatively foreshadowed, we would repeat "On the medical profession rests a heavy responsibility, for with the medical profession rests the subject of medical preparedness."

The responsibility of the medical profession of the United States and its importance in the successful outcome of the war cannot be too forcibly impressed upon every doctor who is mentally and physically fit and within the age limit, and they are urged to offer their services now.

That the Surgeon General should have an immense Corps of Medical Reserve Officers upon which to draw, enabling him to place the individual where he will be best fitted for the service, is manifestly apparent. This will mean efficiency, and by efficiency alone can the responsibility now resting upon the medical profession of this country be lessened.

Apply at once for a commission in the Medical Reserve Corps and thus relieve the responsibility which you owe to your country, your profession, and yourself.

**THE "WAR EXCESS PROFITS TAX LAW" AS IT CONCERNS PHYSICIANS.**

As the time for making income tax returns has been extended to April 1st, we have sought the opinion of Mr. William H. Oppenheimer, attorney for the Minnesota State Medical Association, on certain phases of the above law, trusting that it would be of assistance to our readers.

Mr. Oppenheimer's letter, in reply to ours, is given in full in the Correspondence columns, and, it will be found, very fully covers the details of the Excess Profits Tax Law.

**PHYSICIANS LICENSED BY THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS.**

January, 1917.

By Examination.

- Arnson, Johan Martin - Northwestern, 1917
- Knapp, Frank Norris - Bowdoin College, 1917
- Nedergaard, Niels - - - - -
- University of Nebraska, 1917
- Nugen, Dorcie R. - - - - - Rush, 1917

**Through Reciprocity.**

- Barnes, Elbert Maltby - Northwestern, 1901
- Gibbons, James Minor - Northwestern, 1908
- Hickey, Robert Emmet - Marquette, 1910
- Hunt, Verne Carlton - - - - - Rush, 1913
- Leonard, Lawrence Joseph - Creighton, 1916
- Lillie, Harold Irving - U. of Michigan, 1912
- Morsman, Leslie William - U. of Nebraska, 1906
- Pemberton, John de Jarnette - U. of Pa. 1911
- Sanders, Audley - - - - - Rush, 1911

**OF GENERAL INTEREST**

The Children's Bureau of the U. S. Department of Labor at Washington very rightly asks, why should the United States, especially the newer rural states, be satisfied with a less favorable infant mortality rate than that which New Zealand can show? The New Zealand rate has steadily gone down, notwithstanding the war, and is now almost precisely half the rate for the registration area of the United States; that is, in New Zealand one baby in twenty dies, while in the United States one baby in ten dies. The most favorable state rate in the registration area is 70, that of Minnesota. Why should Minnesota not enter the race with New Zealand?

Information has recently been received in this country that Dr. F. Truby King of New Zealand has sailed for Vancouver on his way to England. Dr. King is known as the active head of the New Zealand Society for the Health of Women and Children, an organization which, in co-operation with the government, is credited with a large share of responsibility for the lowering of the New Zealand infant mortality rate in recent years. This society was organized when Lord Plunket was Governor of New Zealand, and its nurses are known as Plunket nurses in honor of Lady Plunket, who gave much aid to the society.

It is significant that Dr. King is now going to England to undertake similar work there at the request of a society in which Lord and Lady Plunket are moving spirits.

Dr. Truby King expects to be in the United States about three weeks. He writes that he wishes to be informed as to the latest develop-

ments in child welfare work in the United States, and his plan is to visit various cities where notable work is now under way. The visit of Dr. King just now gives added emphasis to the importance of the nation-wide campaign for infant welfare which the State and National Committee of Defense and the Children's Bureau are undertaking.

The tuberculosis sanitarium erected just south of Thief River Falls, Minn., by the counties of Pennington, Marshall and Roseau, was formally opened to public inspection on December 31, 1917.

The principal address was delivered by Hon. Geo. F. Mathson of Roseau county. He spoke of the work accomplished during the past twenty years in combating the most fatal of all diseases and showed how it is easily yielding to sensible treatment and proper care. The toll is still very heavy, said Mr. Mathson, but an enlightened world is learning something all the time concerning the best way in which to check its onslaughts, and institutions such as this sanitarium have been found to be the one most effective method of dealing with it.

Dr. Robinson Bosworth, executive officer of the sanitarium commission of the state board of control, was present and spoke briefly.

The commissioners and speakers of the day referred often to Dr. G. S. Wattam of Warren, to whose work in behalf of tuberculous patients the people of the state owe a great deal. He was one of the first to advocate sanitariums in this northern section and took an active part in securing action by the people on the proposition of building the tri-county hospital.

Dr. Charles Newell Burton of Blue Earth, Minn., died at his home, February 1st, from apoplexy. He was a graduate of the University of Michigan Medical Department, 1889, and had practiced medicine 29 years. He was 51 years old.

Captain Ralph St. J. Perry has been placed in charge of the examinations of applicants for commissions in the Medical Reserve Corps from the Northwest. Those desiring to take the examinations for any of the medical branches of the service should apply to him at 416-417 Pillsbury Building, Minneapolis, Minn.

The following physicians constitute the Medical Advisory Board for Brown and Sibley counties:

Dr. O. C. Strickler, New Ulm.  
 Dr. M. Sundt, Hanska.  
 Dr. G. F. Reineke, New Ulm.  
 Dr. J. Welleome, Sleepy Eye.  
 Dr. C. A. Hintz, D.D.S., New Ulm.

## NEW AND NON-OFFICIAL REMEDIES

During January the following articles were accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

**The Abbott Laboratories:**  
**Chlorazene Surgical Powder.**  
**Calco Chemical Company:**  
**Betanaphthyl Salicylate (Calco).**  
**Merck and Company:**  
**Acetylsalicylic Acid-Merck.**

### NEW AND NON-OFFICIAL REMEDIES.

**Sterile Solution Coagulen-Ciba (3 per cent) 1.5 Cc. Ampoules.**—Each ampule contains 1.5 Cc. of a 3 per cent solution of coagulen-Ciba. A. Klipstein and Co., New York City.

**Sterile Solution Coagulen-Ciba (3 per cent) 20 Cc. Ampoules.**—Each ampule contains 20 Cc. of a 3 per cent solution of coagulen-Ciba. A. Klipstein and Co., New York City.

**Tablets Coagulen-Ciba 0.5 Gm.**—Each compressed tablet contains 0.5 Gm. coagulen-Ciba and 0.46 Gm. sodium chloride. A. Klipstein and Co., New York City.

**Dichloramine-T (Calco).**—Paratoluenesulphonedichloramide.—This is said to act much like Chloramine-T, but is capable of being used in a solution of eucalyptol and liquid petrolatum, thus securing the gradual and sustained antiseptic action. Like Chloramine-T, dichloramine-T (Calco) is said to act essentially like the hypochlorites, but to be less irritating to the tissues. Dichloramine-T (Calco) is said to be useful in the prevention and treatment of diseases of the nose and throat. It has been used with success as an application to wounds, dissolved in chlorinated eucalyptol and chlorinated paraffin oil. Manufactured by the Calco Chemical Co., Boundbrook, N. J.

**Halazone-Calco.**—Parasulphonedichloramidobenzoic acid.—It is said to act like chlorine and to have the advantage of being stable in solid form. In the presence of alkali carbonate, borate and phosphate, it is reported that halazone in the proportion of from 1:200,000 to 1:500,000 sterilizes polluted water. Manufactured by the Calco Chemical Co., Boundbrook, N. J.



**Chloramine-B (Calco).**—Sodium Benzenesulphochloramine.—It contains from 13.0 to 15.0 per cent available chlorine. The actions, uses and dosage for Chloramine-B (Calco) are claimed to be essentially similar to those given in New and Non-official Remedies, 1917, for Chlorazene. This compound was introduced into medicine by Dakin. Its physical and chemical properties are similar to those of chloramine-T. Manufactured by the Calco Chemical Co., Boundbrook N. J. (Jour. A. M. A., Jan. 12, 1918, p. 91).

### PROPAGANDA FOR REFORM.

**The Carrel-Dakin Wound Treatment.**—William H. Welch writes that he was most favorably impressed with the Carrel treatment of wounds, and believes that Carrel should receive credit for calling attention to the possibility of the sterilization of infected wounds by chemical means. He holds that while undoubtedly the technic of the Carrel treatment is elaborate and requires an intelligence and skill on the part of the surgeon which cannot be counted on for the average surgeon, and that while the preparation of the neutral solution of sodium hypochlorite also requires chemical skill, surgeons should acquaint themselves with the principles and technic, and try to overcome the difficulties of applying the treatment. (Jour. A. M. A., Dec. 8, 1917, p. 1994).

**Hemo-Therapin.**—The Council on Pharmacy and Chemistry reports that, according to the Hemo-Therapin Laboratories, New York, Hemo-Therapin is a "combination of highly refined creosols and phenols (which have been detoxicated by special processes) with salts of iron, potassium, sodium, phosphorus and calcium in minute but physiologic proportions—the solution as a whole being designed to approximate closely in various fundamental details the chemistry of the blood." No statement is made, however, as to the quantities of the several ingredients, nor is any information given as to the identity of the "creosols" and "phenols," or as to the nature of the processes whereby these are "detoxicated." The Council explains that the Hemo-Therapin Laboratories ask physicians to believe that the occasional intravenous administration of this liquid will benefit or cure a long list of ailments, including erysipelas, septicemia, pyemia, puerperal infection, malaria, pneumonia, typhoid fever, diabetes, chronic Bright's disease, goiter, arteriosclerosis and locomotor ataxia. The testimonials which are presented for the claims bear a striking likeness to those found in "patent medicine" almanacs. One of the cases is a woman who was bitten by a snake seventeen years ago and who, on the anniversary of the bite, suffers severely from the original bite. (Jour. A. M. A., Jan. 5, 1917, p. 48).

**Venosal.**—The Council on Pharmacy and Chemistry reports that Venosal, sold by the Intravenous Products Company, Denver, Colo., is inadmissible to New and Non-official Remedies because its chemical composition is indefinite; because the therapeutic

claims are exaggerated, and because the composition is unscientific. Venosal is a solution of sodium salicylate containing also colchicum and an insignificant amount of iron. Since it is possible to obtain the salicylate effects promptly and certainly by oral administration, the inherent dangers of intravenous medication render its routine employment unwarranted. At this time, when economy is a national policy, a further objection to the use of Venosal is the unnecessarily high expense of Venosal itself and the administration. (Jour. A. M. A., Jan. 5, 1917, p. 48).

**Our Archaic Patent Laws.**—The reports of the Council on Pharmacy and Chemistry on Secretin-Beveridge and the Need for Patent Law Revision are opportune. At the request of the National Research Council, the "Patent Office Society," an association of employees of the U. S. Patent Office, has created a committee to study the U. S. Patent Office and its service to science and to arts. There is no question that one of two things is needed: either a radical change in the patent law itself or the application of more brains in its administration. Now the United States Patent Law is too often used to obtain an unfair monopoly of a medicament or to abet quackery. (Jour. A. M. A., Jan. 12, 1918, p. 95).

**Secretin-Beveridge and the U. S. Patent Law.**—In 1916, A. J. Carlson and his co-workers demonstrated that commercial secretin preparations contained no secretin, and that secretin administered by mouth or even into the intestine was inert. Yet a U. S. patent was subsequently issued to James Wallace Beveridge, for a process of preparing secretin preparations which would contain secretin when they reached the consumer, and in a form resisting destruction in its passage through the stomach. At the request of the Council on Pharmacy and Chemistry, A. J. Carlson and his associates studied the stability of the secretin made according to the Beveridge patent. The investigation shows that the patent gives no process for the manufacture of commercially stable secretin preparations, nor any means for preventing the destruction of secretin by the gastric juice when administered orally. (Jour. A. M. A., Jan. 12, 1918, p. 115).

**Need for Patent Law Revision.**—The Council on Pharmacy and Chemistry publishes a report prepared by its committee on patent law revision, which is an appeal for an amendment of the patent law which governs the issuance of patents on medicinal preparations, and more particularly for a revision on the procedure under which such patents are issued. The report points out that to increase our national efficiency, the government must protect and stimulate science, art and industry, and at the same time curb waste of the country's resources; and that, to this end, the patent office should encourage discoveries which go to increase national efficiency, and refuse patent protection when such protection is not in the interest of national efficiency, conservation of energy and material resources. The report presents a considerable number of specific instances which demen-

state that patent protection has been given where it was not deserved and not in the interest of the public. The report concludes with a reference to the investigation of a patent granted for a preparation of secretin, apparently without any attempt to confirm the highly improbable claims of the patent applicant. (Jour. A. M. A., Jan. 12, 1918, p. 118).

**Arsphenamine.**—No, this is not a new chemical; it is simply the name adopted by the Federal Trade Commission for the Hydrochloride of 3-diamino-4-dihydroxy-1-arsenobenzene—in other words, salvarsan. The three firms which have been licensed to manufacture this drug are permitted to have their own trade names for it, but the official name “arsphenamine” must be the prominent one on the label of all brands. Hence physicians should at once make it a point to learn and use the name “arsphenamine.” (Jour. A. M. A., Jan. 19, 1918, p. 167).

**Cactina Pillets.**—According to the manufacturer of Cactina Pillets (The Sultan Drug Co.), “cactina” is “invaluable in all functional cardiac disorders such as tachycardia, palpitation, arrhythmia, and whenever the heart’s action needs regulating or support.” The manufacturer gives no information as to the mode of action of “cactina,” but states that it is totally unlike that of digitalis. An examination of the literature indicates that *Cactus grandiflorus* is therapeutically inert, and no one except Mr. Sultan of the Sultan Drug Company claims to have isolated an active principle of it. The Council on Pharmacy and Chemistry examined the literature relating to cactus and certain proprietary preparations, including Cactina Pillets, alleged to be made from cactus, and reported that the literature does not afford a single piece of careful, painstaking work which lends support to the claims made for Cactina Pillets. Since then, Hatcher and Bailey examined genuine *Cactus grandiflorus*, and also found that the drug was pharmacologically inert. (Jour. A. M. A., Jan. 19, 1918, p. 185).

**Surgodine.**—The A. M. A. Chemical Laboratory having found Surgodine (Sharp and Dohme) to contain 2.51 Gm. free iodine (instead of 2.25 per cent as claimed) and 1.78 Gm. combined iodine (probably chiefly hydrogen iodide), the Council on Pharmacy and Chemistry reports that it is essentially similar to the official tincture of iodine except that it is considerably weaker and, instead of potassium iodide, it presumably contains hydrogen iodide and probably ethyl iodide to render the iodine water-soluble. Its composition, however, is secret. The Council held Surgodine inadmissible to New and Non-official Remedies because its composition is secret; because the therapeutic claims made for it are exaggerated and unwarranted, and because it is an unessential modification of the official tincture of iodine. Surgodine is a good illustration of the economic waste inseparable from most proprietary medicines. While the free-iodine strength of Surgodine is only about one-third that of the official tincture, its price is between two and three times as high. (Jour. A. M. A., Jan. 26, 1918, p. 257).

**Dionol.**—If physicians take the word of the Dionol Company, the therapeutic possibilities of Dionol are apparently limited only by the blue sky. Even the company admits that “the unprecedented range of action” of this marvel “may come as a surprise.” A glance over the published case reports confirms the inference. Dionol is furnished in two forms: as an ointment and as an emulsion. Dionol itself is a sort of glorified petrolatum, the use of which is said to prevent the leakage of energy from the nerve cells, and by overcoming the short-circuiting always said to be present in inflammations, is asserted to accomplish its wonders. (Jour. A. M. A., Jan. 26, 1918, p. 257).

## REPORTS AND ANNOUNCEMENTS OF SOCIETIES

### MINNESOTA NEUROLOGICAL SOCIETY.

The meeting of the Minnesota Neurological Society was held January 15, 1918, with Arthur S. Hamilton, the President, in the chair. The program was as follows:

Dr. Crafts reported the following:

Abstract of Preliminary Material on “An Original Test for the Pathologic Great Toe Sign.”

In going over a remarkable grouping of reflex and other disturbances in the following case of back injury the writer’s attention was attracted to **sharp dorsal extension of the great toes on upward stroke, with blunt point, over the anterior surface of the ankle.**

Mr. T., 52, single. Reaching under a section of barn floor which was being lifted by several men, was doubled over sharply when they accidentally let it down on him. Felt a band of numbness about mid-body. Continued his work. Dull pain about body for 3 months. Gradual improvement, followed by sharp “cramp-like” pains in same zone. These diminished, followed by numbness in feet, gradually extending to waist line. About 3 weeks later weakness in legs. Then complete loss of motion in legs; retention of urine next day.

Nutrition poor; has lost 30 pounds. Upper extremities and face normal; leg muscles wasted; patellar response absent on both sides; no ankle clonus. A marked Babinski. Oppenheim and Gordon on both sides, and after an interval of about a second the great toe on the other side extends accompanied by contraction of the adductors of the thigh. Moderate dulling of both pain and tactile sense over legs and up to point 2 inches below umbilicus, and of tactile sense alone to a point 2 inches above this point. And as pin point passes the lower line there is extension of the great toe and retraction of leg. Motor power abolished in both legs. Abdominal reflexes abolished. Great toe extends on stroke over ankle. Laminectomy by Dr. H. B. Sweetser, May 5, 1917,

removing dorsal spines from 9th to 12th. Opposite ninth disc and extending over bodies of ninth and tenth vertebrae a fusiform brownish mass, extradural, was exposed, which extended around under the cord on the right, dissected and chiselled out.

May 10. Patient reports legs feeling more comfortable. Oppenheim and Gordon signs absent, Babinski present on both sides, but does not diffuse to opposite side now. Upward stroke over surface of ankle produces extension of great toe. Slightly improved sensation in zone of 9th and 10th segments, and just above this level a zone of hyperaesthesia.

May 14. Babinski present on both sides, and with the test the arm on the same side developed muscular contraction. Stroke over ankle gives active extension of great toe. Zone of hyperaesthesia corresponding to 8th segment has disappeared.

May 28. Sensation normal down to line 2 inches below umbilicus. No improvement below this. Occasional extension of great toe as pin point passes downward over this line. No power in legs. No control of bladder. Patellar response absent; no clonus, Babinski response on both sides, and extension of the great toe on similar irritation of skin over each ankle. Slight Oppenheim on the left.

July 28. Reported that patient is stronger but no power in legs.

October 23. Patient gaining strength, some power in legs, can get into wheel chair alone.

January 12, 1918. Reported that patient can flex and extend legs, move toes, and can lift either foot from floor. Some pain about right side of body all the time.

Since finding new toe reaction in this case, all cases of organic central motor involvement coming under writer's observation have been studied and the response has been found more uniformly present than either the Oppenheim or Gordon, and nearly as constant as the Babinski, as shown by the following four selected cases of various types.

Of these four cases two are of multiple sclerosis, reported in detail in writer's paper published in *Journal A. M. A.*, October 6, 1917, as cases two and thirteen. In case thirteen the test is shown. Case two had not at that time been examined for this reaction, but recent test shows its presence.

A case of cerebral apoplexy, Mrs. E., 47, while reading, suddenly became aphasic, right arm powerless, right leg weak, consciousness retained. Face not involved, left pupil large, no sensory disturbance, arm reflexes overactive on right, no motor power. Right patellar and achilles accentuated, no clonus, Babinski and Oppenheim on right, and extension of great toe on upward stroke over ankle surface. Two weeks later Oppenheim had disappeared, while stroke on plantar surface and over the dorsal surface of ankle both produced extension of great toe.

The fifth case presented is one of head injury with very peculiar symptom groupings. Mr. B., 31. On train, coach derailed, thrown against side of car, right side of head and right shoulder injured. Mus-

cular spasm of right face, right arm weak, hand trophic, right leg numb and weak at first. No qualitative changes in reflexes at first. Two months later, spasm of facial muscles more extensive, hand less trophic, mental disturbances, epileptiform seizures, and marked qualitative changes in reflexes in left leg, with overactive patellar response, moderate Babinski, sharp Oppenheim and Gordon and active extension of great toe on stroke over dorsal surface of ankle, no clonus.

Attention called to the varying presence of these different reactions all supposed to indicate organic damage to the central motor neuron, in different cases, and speculative consideration of reasons for the variations.

Dr. Arthur Sweeney presented a case of multiple sclerosis with unusual features. The patient, Miss G. M., 21 years of age, had an attack when fifteen months old of paralysis of the left side of the body, with some rigidity, and during her childhood walked with a somewhat spastic gait. She was dull in school, stammered, was timid and diffident, and at eighteen years had advanced only to the seventh grade in school work. At eighteen she tried to clerk in a store, but found difficulty in making change and was puzzled by complicated transactions.

In May, 1917, she complained of being tired and irritable, and in June had a sudden attack in which her left arm began to shake and her left leg to lose power. Since then there has been a gradual deterioration of the left side of the body, with marked intention tremor but without material loss of power. The leading features of the case are a tendency to laughter, scanning speech, spasticity of the left leg and arm, tendency to stagger to the left, and a marked intention tremor. Any attempt to use the left hand is accompanied by a slow shaking, five per second, of large amplitude and continuing a considerable period after the action is accomplished. When asked to touch her nose with the index finger of the left hand, the movement resembles the act of playing a jew's harp and she is unable to touch the nose. All reflexes are exaggerated, deep as well as superficial. There is no ankle clonus, and there is a rather doubtful Babinski reflex on the left foot. The case is interesting because of the early paralysis, the sudden apoplectiform character of the attack in June, and the wide amplitude of the intention tremor.

Dr. Hamilton reported a case where the symptoms were all of bulbar origin, but were of the irritative type rather than the paralytic type of ordinary bulbar paralysis. The clinical history in brief was as follows:

Male, age 57, married, merchant. Family and previous personal history negative. Seen November 24, 1915. In October, 1914, he had some trouble with his teeth and had some of these extracted in January. He thinks his jaw may have been dislocated at the time, though there is no good evidence that this actually happened. Shortly after the extraction he began to have trouble with eating and after some

months there was trouble in swallowing and a coarse, continuous choreic-like movement began in tongue and face.

When first seen the physical examination was practically negative except for the movements mentioned. These were present in his tongue, lower jaw, lips and face, but involved especially the tongue and the masseter and temporal muscles. The patient could restrain the movements for a very short time, but this period was followed by additionally violent movements. He could close his mouth and hold it shut for a short period, but had difficulty in breathing through his nose, though there was no demonstrable obstruction in nose or throat. There has been little change in the patient's condition since he was first observed except that the movements have grown rather more violent and possibly have spread somewhat. There is increased difficulty in swallowing and a rather marked tendency for mucus to collect in the throat and the patient has difficulty in expelling this. He is very thin but there is no definite localized atrophy.

The examination of the blood, urine and spinal fluid has been entirely negative.

E. M. HAMMES,  
Secretary.

#### SIOUX VALLEY MEDICAL ASSOCIATION.

The Twenty-second Semi-annual Session of the Sioux Valley Medical Association was held at Sioux City, Iowa, Tuesday and Wednesday, January 22 and 23, 1918.

#### PROGRAM.

- Is the Fowler Position Always Desirable in Abdominal Drainage?—Dr. E. A. Jenkins, Sioux City, Iowa.
- Essentials in Pediatric Diagnosis—Dr. G. E. Zimmerman, Sioux Falls, S. D.
- Radium Technic—Dr. D. T. Quigley, Omaha, Neb.
- Prostatectomy—Dr. L. J. Townsend, Sioux City, Iowa.
- Subdiaphragmatic Abscess. Illustrated—Dr. Emanuel Friend, Chicago, Ill.
- Military Surgery—Dr. James M. Neff, Chicago, Ill.
- A Clinical and Experimental Study of Metastatic Joint Infection. Illustrated—Dr. Phillip H. Kreuzer, Chicago, Ill.
- Diseases of the Nasal Accessory Sinuses in Children—Dr. L. W. Dean, Iowa City, Iowa.
- The Rational Basis of the Artificial Feeding of Infants—Dr. Albert H. Beifeld, Iowa City, Iowa.
- Blood Pressure: A review of the present status of our knowledge concerning blood pressure, causes and pathological significance of variation—Dr. H. J. G. Koobs, Scotland, S. D.
- Intestinal Disorders in Children—Dr. Chas. P. McHugh, Sioux City, Iowa.
- Possibilities of Local Anesthesia in Major Operations—Dr. G. G. Cottom, Sioux Falls, S. D.

The next meeting, which is the annual meeting, will be held at Sioux Falls, S. D., in July.

## CORRESPONDENCE

### THE WAR EXCESS PROFITS TAX LAW.

To the Editor: Relative to your inquiry as to the "War Excess Profits Tax Law."

The "War Excess Profits Tax" must be distinguished from the "Income Tax." The first excess profits tax was passed on March 3, 1917, but inasmuch as it did not apply to incomes derived from personal services, physicians were not effected. This law was repealed October 3, 1917, and the present excess profits tax adopted.

Under the Excess Profits Tax Law all individuals, partnerships and corporations engaged in "trade" or "business" are subject to the tax. The law expressly defines the word "trade" and "business" to include "professions and occupations." So far as physicians are concerned, they, having no invested capital as that term is used in the law, are not subject to a graduated tax, but must pay a tax of 8 per cent of the net income derived from their professions less a deduction from the income of \$6,000. In other words, if a physician's net income was \$10,000 he would deduct \$6,000 and pay a tax of 8 per cent on \$4,000, or \$320.

In general the methods of determining net incomes under the Income Tax Laws govern in determining this item under the Excess Profits Law. If two or more physicians are in partnership the tax is upon the net income of the partnership business, less but one deduction of \$6,000.

By treasury decision filed December 20, 1917, partnerships were allowed to deduct as an expense in determining the net income, reasonable salaries or compensation paid to individual partners for personal services actually rendered during the taxable year. With respect to any period prior to March 1, 1918, no previous agreement is necessary in order that such deduction may be made. In case any deduction of salaries as an expense is sought to be made after March 1, 1918, such salaries must be provided for in the articles of co-partnership, and physicians who are practicing as partners, if they desire the benefit of this exemption, should amend their articles of co-partnership accordingly. It is perhaps needless to add that the salaries or compensation must not be unreasonable.

On the same date, in order to remove any doubt about partners being taxed a second time on their shares of partnership profits, the Treasury Department ruled that a partner in his individual capacity will not be considered as engaged in trade or business with respect to his share of the profits in the partnership and consequently will not be subject to excess profits tax thereon. He is, however, subject to the Excess Profits Tax, if any, with respect to salary or compensation from the partnership for personal services.

The provisions of the War Excess Profits Tax Law places a tax on professional incomes, and has been

severely criticized upon the ground that it has no relation to "Excess Profits" or to the income earned prior to the war and because it is alleged to constitute "a very heavy extra income tax levied on certain classes of persons who are getting their income not from accumulated wealth or from the exertions of other people but from their own exertions" (Outlook, October 17, 1917), and that it is not based upon profits arising out of war conditions (Outlook, October 10, 1917). Again, it is criticised because those that do not work for a living but who derive their incomes from investments pay no tax under this law.

On the other hand it should be borne in mind that business enterprises having an invested capital pay a graduated tax running up to 60 per cent on all profits in excess of 33 per cent of the capital, and upon this basis it has been held that the tax is not unreasonable.

For your information we might add that England has no Excess Profits Tax on professions such as medicine, though their income tax is far heavier than that imposed in this country.

Trusting this answers your inquiry, we are,

Yours very truly,

MOORE, OPPENHEIMER & PETERSON,  
By W. H. Oppenheimer.

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#### UNJUST CRITICISM.

To the Editor:

The following dispatch from Camp Dodge, Iowa, to the public press, has recently been brought to my attention:

"Ears of draft board physicians in Minnesota and North Dakota would burn if they could hear some of the things army officers at Camp Dodge say of their carelessness in examining men of the first draft. That there was inexcusable carelessness, and in some cases complete disregard of common sense, in passing drafted men is an opinion repeatedly heard here.

"I should like to be the employer of some of those physicians for about five minutes,' was the way one of the 88th division's officers put it. I am not 'knocking' the men sent here from Minnesota. A big percentage was made up of remarkably strapping specimens, especially those from Northern Minnesota. And it is not often a man's fault if he is physically disabled. There is, however, no excuse for the way physicians have sent the unfit to us.

"Men with four toes and with six toes, seriously lame men, men with chronic illnesses which have sent them repeatedly to hospital, and men with such apparent physical defects that any civilian could recognize them, have been sent here.

"Some of the worst cases of unfit men have been discharged from the army. Several with minor defects have been operated on, under the army regulation permitting surgeons to remedy minor physical

defects by operations that do not endanger the patient's life.

"Officers here vary widely in their opinion of the drafted men sent from Minnesota. One today expressed a hope that second draft men would measure up to first draft standards. Another said he took it for granted that Minnesota had been getting rid of all her barroom hangers-on and I. W. W. in the first draft contingent sent down.

"It seemed to depend on the luck of a particular commander whether he liked the Minnesotans or not."

The above dispatch, I believe, unjustly criticises hundreds of medical men who have been giving the best that is in them freely, and mostly without compensation, to the government by making the examinations referred to in that article.

I am one of that bunch of "incapables," and when first reading the article felt like making reply. However, on perusing it again I came to the conclusion that it had been inspired by some recent hospital intern who had perhaps three months post-graduate training at government expense.

No doubt there are some grounds upon which to base criticism, but when you consider that we were allowed only ten cents per head for each examination (and then asked to make it a gratuitous service, which most of us did), and then ordered to complete the work as rapidly as possible irrespective of, and at a sacrifice of, our necessary professional work, it looks as if this wholesome criticism is hardly fair. Myself and my assistant examined as many as eighty in one day, filling out many of the blanks personally, and in many cases making two copies of the same, that is doing a great deal of clerical work because we could find no one else to do it.

Again, in case of doubt, we were instructed to give the benefit of that doubt to the government, which was interpreted to mean that these men were to undergo a final examination at camp by men whom the government had specially trained for the work. Of all the men sent from our county, I am informed that not one has been returned on account of being unfit. Evidently there is a screw loose somewhere, possibly in the head of some medical stripling at Camp Dodge.

X. Y. Z.

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#### NOTICE.

The BEEBE LABORATORIES wish to apologize for the typographical errors in the front cover advertisement of last month. We referred to Histological Examinations of tissue specimens.

The point we wished to emphasize was that our extensive and varied experience in this work places us in a position to render the profession valuable assistance.

BEEBE LABORATORIES, Inc.,  
St. Paul.

## PROGRESS IN MEDICINE AND SURGERY

**SALVARSAN AND OTHER REMEDIES IN OPHTHALMIC SURGERY:** Freeman Fergus (Arch. of Ophth., Vol. XLVII, No. 1, Jan., 1918), speaks with candor in the expression of his opinion in regard to the efficacy of some of the therapeutic agents employed in the treatment of ocular conditions. Remedies appear upon the market from time to time which are lauded to be of special benefit under certain conditions, drugs that in after years are rarely if ever mentioned. Nevertheless, such remedies not infrequently establish themselves so firmly on an empirical basis that the physician employs them without a thought as to their scientific merit.

To lend emphasis to the above statements the reviewer shall quote from the original article directly: Fergus states, "One or two examples will illustrate our meaning. Some years ago certain organic preparations of silver were supposed to supersede everything else in the treatment of various forms of conjunctivitis. Three of the best known were protargol, argyrol, and collargol. The first was largely brought into notice by a book written by Dr. Darier of Paris and translated for the English public by Mr. Sydney Stephenson. A more disappointing book we never read. It is absolutely destitute of any scientific information on the subject. It is a piece of empiricism and tolerably crude at that. How these remedies came to be popular and sold in the way they were, as germicides with important actions, is a mystery, for if there is one thing certain, it is that their germicidal actions are practically negligible. Many experiments have been made with strong solutions of these drugs. Cultures have been immersed in solutions of them for hours together and then sub-cultures have easily been obtained. It is difficult to believe that anybody can still hold that a few drops of a solution of any of these drugs introduced into the conjunctival sac for a few seconds can have any influence whatsoever on the flora of the conjunctiva."

The essayist, soon after beginning the practice of ophthalmology, came to the conclusion that conjunctivitis is the result either of an error of refraction or an infection with micro-organisms. In the treatment of the latter any attempt to kill the organisms will prove futile; only effort extended in removal of the infective agent may bring about the desired result.

In the treatment of cancer, Roentgen ray and radium are, in the opinion of the author, being more and more discarded. He adds: "I do not suppose there is a single instance on record in which a case of cancer has been cured by these means, any more than there is on record a case of cancer which was cured by the Count Mattei blue or white electricities. It is possible, perhaps, that the employment of these remedies may give some relief in cases of inoperable cancer, but the evidenc is totally lacking that the

treatment by radium or treatment by the Roentgen rays has ever cured cancer."

Salvarsan in the treatment of syphilitic eye affections has been highly recommended in influential quarters as being of great value in these conditions. The fact that certain British practitioners are to be appointed by the state for its administration clearly suggests a danger element, though remote, attending its use. There is in fact a "very fair death roll" connected with the use of the drug. The author remarks: "The vital question thus comes to be: Is this treatment so overpoweringly superior to any other that we are justified in running the risk? Is salvarsan or neosalvarsan so immeasurably superior to mercury that we are justified in running a moderate percentage of risk? If it were proved that these new drugs are infallible remedies for this terrible disease I would answer that question in the affirmative."

Fergus then cites four cases in which the organ of vision was involved by syphilitic disease otherwise than by keratitis and in all of which salvarsan or neosalvarsan had been used.

Case 1. An officer consulted the author for acute iritis some six years ago. He was put on mercury and atropine and the condition steadily improved. Hearing of salvarsan he was anxious to try the new remedy which was duly administered to him. Thereafter a Wassermann test was taken and proved negative and the patient pronounced permanently cured. Ten months afterwards the patient reappeared complaining of pains in his lower extremities. The Wassermann test was again positive.

Case 2. A patient came complaining of defective vision in the left eye which proved to be a slight optic neuritis. The patient admitted having syphilis. He wished to try the new treatment for lues, salvarsan. The injections were duly given and after the Wassermann reaction was found to be negative he was pronounced cured. Within six months the patient returned with an acute iritis which yielded readily to treatment with mercury. There had been no chance for reinfection.

Case 3. The patient when first seen had symptoms of well-marked paralysis of the external rectus muscle of the right eye. He had many years previously acquired syphilis and now was placed upon mercury by the mouth and by inunctions and made a thoroughly good recovery. Hearing of neosalvarsan as a remedy which would entirely remove syphilis from his system he later consulted a practitioner who administered it to him. Two years after this he returned to the author complaining of complete blindness of the left eye. He remarked that the usual acuity of the left eye was good until after this drug had been employed. "The administration of the drug may have had nothing to do with the onset of this atrophy, but in view of the facts which we know about soamin which was previously supposed to be a perfect and safe cure for syphilis, the onset of the atrophy could not but raise suspicions," comments the essayist.

Case 4. This case had had no fewer than eight injections. The first four were given in July and August, 1916, and the last in March and April, 1917. In August, 1917, he attended the oculist, who found that the patient complained of diplopia due to complete paralysis of the internal rectus muscle of the right eye. There was a slight dilatation of the right pupil, the visual acuteness of the eye being 6-12. There were also symptoms of spinal sclerosis. "It was quite evident that in this case the drug had not so relieved him of the protozoon as to prevent nerves hitherto unattacked becoming affected."

Case 5. The patient received five injections in Sydney about the month of February, 1916. A Wassermann was done and he was pronounced perfectly free from the disease. In July of this year he was admitted to the Fourth Scottish General Hospital with acute choroïdo-iritis of the left eye, Professor Muir pronouncing the Wassermann to be again positive.

In concluding his monograph the author states: "My experience of syphilis is small. One swallow does not make a summer, and five even such striking cases as the above do not entitle one to do more than hold his opinion in reserve, but that I certainly am doing. I would suggest, however, that all cases in which the drug has been used should be registered and followed up for some years. If the drug is more efficacious than mercury and more lasting in its results and does not cause any ulterior damage, then it may be justifiable to run the risk; but if not, then it should not be used."

PAUL D. BERRISFORD.

**SYPHILIS OF THE INNER EAR AND EIGHTH NERVE:** George W. Mackenzie (American Journal of Syphilis, February, 1918), states that reliable statistics show that from 30 to 60 per cent of congenitally syphilitic children are deaf. Syphilis is a far greater cause of deafness than is ordinarily supposed; 52 per cent of the cases having lesions of the eighth nerve give positive Wassermann reactions. The eighth nerve being the least resistant to the syphilitic poison of all the cranial nerves, practically all cases of bilateral internal ear or nerve deafness in adults, excluding fractures of the skull and meningitis, are syphilitic.

Both sides are attacked suddenly, the condition progressing rapidly to complete deafness. Congenital cases show a more gradual onset of the deafness.

Syphilis may affect the nerve or inner ear alone or in combination. It affects the nerve directly by a neuritis or indirectly by pressure through narrowing of the bony canal, intracranial gumma or basilar meningitis.

Involvement of the inner ear or nerve has been recorded as early as the seventh day following an initial lesion.

Previous or present suppurative or adhesive pro-

cesses favor early or active syphilitic involvement of the inner ear.

The order of the attack in hereditary lues in the very young is first the meninges, then the nerve, and eventually, if the case survives, the inner ear.

E. L. WARREN.

**THE DIAGNOSTIC, PROGNOSTIC, AND THERAPEUTIC VALUE OF LUMBAR PUNCTURE IN SPINAL INJURIES:** Neuhof (Archives of Diagnosis, Vol. X, No. 2), calls attention to the importance of lumbar puncture in the diagnosis of spinal injuries. Its main value lies in the demonstration of the presence or absence of blood in the spinal fluid. The author believes that the presence of blood in the spinal fluid (especially if upon repeated punctures there is evidence of continuation of bleeding) is a definite indication for operation. In the First Surgical Service of Bellevue Hospital, lumbar puncture is employed as a routine measure in all cases of injury to the back. Frequently, blood in the spinal fluid was the only definite evidence of vaguely suspected spinal injuries. A diagnosis can be made fairly accurately, even when the patient is in a semi-comatose condition.

The group of cases, in which blood in the spinal fluid is of great diagnostic help are:

1. Suspected spinal injury in individuals suffering from acute or subacute alcoholism.
2. Suspected injury in patients in coma or in confused mental states.
3. Injuries suspected in cases of hysteria.

It must be borne in mind that bloody spinal fluid may be also due to a skull injury or accidentally at the time of lumbar puncture. The therapeutic value of the withdrawal of subdural collection of bloody fluid is evident. In cases with marked hemorrhage, the author advises repeated washings and irrigation of the spinal canal with sterile saline solutions until the return flow is no longer colored. He reports one case so treated with a decided immediate improvement.

E. M. HAMMES.

**PASTEURIZATION OF MILK SUPPLY:** J. A.

Boudoin (Public Health Jour., Vol. IX, No. 1), believes that one of the most pressing duties of the hour is to preserve as many units as possible to make up for the great losses of war. A most grave loss is through infant mortality and the important causes of infant mortality are:

1. Prenatal influences (alcoholism, syphilis, overworked mothers, etc.).
2. Gastroenteritis due to (a) decrease in breast-feeding and increase in artificial feeding, mostly cow's milk; (b) unhygienic feeding, irregularity, etc.; (c) summer heat and poor housing; (d) general hygiene of the baby.
3. Diseases of the respiratory tract.
4. Contagious diseases.
5. Tuberculosis.

Gastroenteritis takes the heaviest toll of deaths and this can be reduced by improvement of the milk supply and education of the mothers. The best way to safeguard the milk supply is through pasteurization. This method properly conducted kills all the germs of communicable diseases of man which can be transmitted through milk. Many cities are not adequately provided with this important means of improving their milk supply or do not carry it out properly.

The writer found through his questionnaire that in the last decade the number of cities using pasteurization had increased from 8 to 34, and the percentage of raw milk sold dropped from 95.3 to 29.69, while the percentage of pasteurized milk sold rose from 47.7 to 70.31, a rapid increase in the proportion of pasteurized milk. Minneapolis and St. Paul each report 60 per cent of their milk supplies pasteurized in 1916. In Minneapolis two of these plants are located in the producing area and 16 in the city proper. In St. Paul 5 plants are located in the city. It is important to pasteurize as near the time of production as possible.

In all the cities examined, except Detroit, pasteurization is made by the dealers. In 10 of the 32 cities it is controlled by the city. The milk averages 15 hours old when pasteurized and 31 when received by the consumer.

The average bacterial count of the milk supplies of these 32 cities is most interesting. It is as follows: Raw milk, certified, 11,946; not certified, 203,500; pasteurized milk, before pasteurization, 4,541,000; after, 39,727; when delivered, 82,644. This table admits of the deductions (1) that a reduction of 99.13 per cent is obtained in the bacterial count as a result of pasteurization, (2) the bacterial content has been reduced 98.19 per cent at delivery by this method of control, (3) the count of pasteurized milk at delivery is 59.34 per cent lower than that of not certified raw milk. (The individual tables for cities show that required standards are given in many instances instead of actual counts. This, of course, might lower the figures for averages).

An average decrease in infant mortality is noticed in the 12 cities using pasteurization for a part of their supply and from which figures were obtained is 29.82 per thousand births.

The average decrease in infant mortality in the 3 cities provided with municipal nurses in connection with baby welfare work and from which figures were obtained is 28.325 per thousand births.

When both nurses and pasteurization are utilized the reduction has been 35.8. The writer concludes that a system of education through the visiting nurse and the pasteurization of the milk supply is the framework of the methods in the attempt to reduce infant mortality, and strongly recommends it to all cities.

CHARLES E. SMITH, JR.

**THE RECOGNITION AND TREATMENT OF INTESTINAL DIVERTICULA:** Dudley Roberts (Surg., Gyn. and Obs., Vol. XXVI, No. 2), says that every "pot-bellied" individual over sixty should be under strong suspicion of having multiple diverticula of the colon, particularly if there is a history of long standing constipation and lower abdominal discomfort. Surgeons have learned that acute diverticulitis and peridiverticulitis are by no means rare. Radiography now makes possible the recognition of the presence of these diverticula by daily studies of the colon, stereoscopic plates, satisfactory intensifying screens and proper degree of opaqueness of the enema. An analysis of twenty-four cases is given in detail.

According to the author medical treatment of diverticula has proved to be exceedingly satisfactory.

Laxatives should be avoided as they produce abnormal pressure in the colon and fluid faeces to fill the pockets. In spite of the long-standing constipation, it is usually found that the bowels will move satisfactorily on a vegetable diet, plus daily doses of agar and the mineral oils, or the more solid petrolatum jelly. If necessary, small injections of warm oil may be used immediately preceding the time for defaecation.

Large doses of bismuth weekly, one ounce in emulsion or buttermilk, is exceedingly useful. In such doses it is seldom constipating, sometimes being actually laxative. Something must fill these pockets, and a non-toxic, unabsorbable, bland substance would seem to be preferable to putrefactive faeces.

In cases with sigmoidoscopic evidence of subacute catarrhal inflammation, injections of eight ounces of a 10 per cent solution of gelatin introduced into the sigmoid at a temperature of 120° F. have been found to be excellent.

In a few cases, severe spasm of a particular section or the entire colon, attended with very severe pain, has made necessary the use of anti-spasmodics as bromides, belladonna, veronal and luminal.

Surgery is indicated for the sequellae—rupture with acute localized peritonitis, peridiverticulitis with obstruction, and cancer.

GEORGE EARL.

**THE OPERATIVE INDICATIONS IN HOUR-GLASS STOMACH:** Downes (Surg., Gyn. and Obs., Vol. XXVI, No. 1), states that before the Roentgen ray came into general use as an aid to the diagnosis of stomach lesions, hour-glass contraction was considered to be somewhat of a novelty and was usually discovered after the abdomen had been opened. The information gained by the surgeon through the use of the X-ray is of great assistance in determining the operative procedure best suited to a given case.

The one absolute requirement of any operation employed in the treatment of hour-glass contraction is



the relieving of the symptoms due to obstruction. It is of great advantage to use a method by which the ulcer or the cicatrix of a healed ulcer can be excised. This, however, is not always possible as these cases usually are seen in a state of weakness caused by inability to take or retain sufficient food.

Downes points out that at least four procedures, i. e., gastroenterostomy, gastroplasty, gastrogastrostomy and mediogastric resection or resection in continuity, are available in the treatment of hour-glass contraction. Pylorotomy should be added as the method to be adopted if the contraction is near the pylorus, thus forming a small distal pouch.

Gastroenterostomy is the operation most generally used for the relief of this condition and as a rule the intestine should be anastomosed to the cardiac pouch. This operation is indicated in cases in which the constricted area is of wide extent and in those where adhesions prevent mobilization of both pouches.

Gastroplasty has a limited field in the treatment of hour-glass contractions due to the fact that it is suitable only for cases in which the pouches are movable, their walls free from induration and the constricted area narrow. It may be combined with pyloroplasty or gastroenterostomy if there is a stenosis of the pylorus. The result in this group of cases was most satisfactory.

Gastrogastrostomy is especially adapted to the cases in which the stomach is adherent along the lesser curvature to the liver, in which the pouches are relatively large, nearly equal in size, and can be approximated at their dependent portions. Downes had good results from this procedure.

Mediogastric resection is the ideal operation of hour-glass deformity of the stomach provided the pylorus is not stenosed. The ulcerated area, active or quiescent, as well as the constricted portions of the stomach wall, is removed by this method. The end results have demonstrated the value of this method.

Downes points out from his study of the subject that each of the four operative procedures above mentioned gives equally good results provided the correct one is applied in a given case, and is executed in a proper manner.

E. M. JONES.

**CONTROL OF VENEREAL DISEASE:** E. H. Marsh (Pub. Health Jour., Vol. XIX), says that reports of the U. S. Public Health Series show that there occur annually in the United States, two and one-half million cases of venereal disease. The Surgeon General of the U. S. Army shows the ratio of venereal disease among civilians of military ages (21-31) inducted into the national army by draft to be at times 288 per thousand. These figures show how important are venereal diseases from the standpoint of public health and how enormous is the task.

Logical steps: Provide laboratory facilities and train doctors to use them.

Pass laws. (1) Applicant for marriage license to sign statement not had venereal disease in the last 5 years but if has had, then has had laboratory tests which show negative findings. (Useless but has educational value).

(2) Advertisements of venereal remedies or quack institutions to be illegal.

(3) Venereal disease—contagious. Treat accordingly. Give pamphlet of education.

Venereal Diseases Problem is a public health problem and must be rated as typhoid, etc., because each venereal disease is a potential menace to health of public until cured. Establish dispensaries and see that hospitals take such patients. Standardize dispensaries and hospitals.

Educate physicians that laboratory methods are necessary.

Teach patients that the cure of venereal disease is a serious matter of individual health as well as public health.

Use meetings, booklets, exhibits, notices, correspondents, newspapers.

Health Departments. Find carriers and cure them. Follow up work.

In armies in Europe today more men are incapacitated by venereal disease than any other way.

In our own army for years highest known admission rate of venereal disease of any army has existed. Furthermore, ratio of venereal disease among men of military age in U. S. is over three times as high as that in the regular army.

Only by the combined efforts of all agencies and all known utilities of control can we hope to cope with the situation.

CHARLES E. SMITH, JR.

## BOOK REVIEWS

*NEUROSYPHILIS.* Case History Series, 1917. (By E. E. SOUTHARD, M. D., Sc. D., and H. C. SOLOMON, M. D. Published by W. M. Leonard, Boston. Price \$5.00.)

In this volume, the author discusses his cases of neurosyphilis in a manner resembling to a great extent that followed by him in his daily staff rounds at the Psychopathic Hospital. His large experience enables him to draw from a great variety of material. After taking up the nature and forms of neurosyphilis and their systematic diagnosis he devotes chapters to Puzzles and Errors, Medicolegal relationships, Treatment, and finally the Influence of War upon Nervous Syphilitic diseases. The book should prove most valuable indeed to the man interested in this particular subject.

J. C. MICHAEL.

*INTERNATIONAL CLINICS.* Vol. II, Twenty-seventh Series, 1917. (By various authors. Edited by H. R. M. LANDIS, M. D., Philadelphia, U. S. A. Published by J. B. Lippencott Company. Price \$2.00.)

Volume II, of the Twenty-seventh Series of International Clinics has a most able list of contributors and contains lectures on a wide variety of subjects. These lectures are written in a very instructive and fascinating style and give the last word upon the subjects considered, often in terse sentences, as in the clinics on Vertigo: "vertigo is essentially an ear study." The lectures on treatment are very sane and free from fads especially those on Intravenous Medication, the Treatment of Syphilis and of Dementia Praecox. The book is well illustrated and closes with a historical tribute to Giovanni Maria Lancisi, 1654-1720, pathologist, clinician, sanitarian and epidemiologist.

B. H. OGDEN.

*GYNAECOLOGY AND PELVIC SURGERY.* (By ROLAND E. SKEEL, A. M., M. S., M. D., Associate Clinical Professor of Gynaecology, Medical School of Western Reserve University; Visiting Surgeon and Gynaecologist to St. Luke's Hospital, Cleveland; Fellow of American Association of Obstetricians and Gynaecologists; Fellow of American College of Surgeons. Published by P. Blakiston's Son and Company, Philadelphia. Price, \$3.00.)

The book is called a "Manual of Gynaecology and Pelvic Surgery for Students and Practitioners," and for the price is very satisfactory. It does not pretend to and cannot be compared with the operative Gynaecologies that are at present published, but they of course cost three or four times as much money as the average student would feel like putting into a textbook. Its value is in teaching.

GEORGE EARL.

*PUBLIC HEALTH NURSING.* (By MARY SEWALL GARDNER, R. N., Superintendent of the Providence District Nursing Association, President of the National Organization for Public Health Nursing, 1913-16. With an Introduction by M. ADELAIDE NUTTING, Professor of Nursing and Health, and Director of Department Teachers' College, Columbia University. The McMillan Company, New York, 1916. Price \$1.75.)

Public health nursing is at present passing through a stage of such rapid development that it is difficult to keep abreast of the times in it. But as it is based on such a firm ground of permanent and recognized social necessity, closely identified with sanitary and medical advance, its future is assured. Nurses are now an integral part of the whole public health movement and the further development of this particular branch of nursing is a matter of vital public interest.

Miss Gardner from a thorough knowledge of her subject discusses the public health nursing movement, giving its history and fundamental principles. At length she states its problems and deals with it from the nurses' viewpoint. She takes up Visiting Nursing in Part II and describes the method of organizing a Visiting Nurses' Association. She outlines the duties of the board of managers, the superintendent of nurses, the head nurse and each one under her, as well as the methods of organization and administration. In Part III she deals with the special branches of public health nursing, such as tuberculosis, child welfare, school, industrial, etc. A chapter on records and statistics is given.

This book is not a text book, as the author frankly states in her preface, but it is hoped it will prove helpful to the nurse preparing herself for this branch of nursing. It is written from an intimate understanding of the subject and in a style pleasing and discussive, but not at all pedantic. It is a most attractive volume to one interested in public health work.

CHARLES E. SMITH, JR.

### POSITION WANTED IN PHYSICIAN'S OFFICE

Experienced young lady desires position in physician's office. Have been in employ of a Minnesota physician for five and one-half years, who is now in military service. Able to do any and all work required in a physician's and surgeon's office; book work, correspondence, and assist in minor operations. Know how to operate X-Ray machine and develop plates. Address D 2, care Minnesota Medicine, St. Paul, Minn.

# CONSTITUTION AND BY-LAWS

## OF THE

### MINNESOTA STATE MEDICAL ASSOCIATION

ADOPTED IN 1903 AND AS AMENDED TO DATE.

#### CONSTITUTION

##### ARTICLE I—NAME OF THE ASSOCIATION

The name and title of this organization shall be the Minnesota State Medical Association.

##### ARTICLE II—PURPOSES OF THE ASSOCIATION

The purposes of this Association shall be to federate and bring into one compact organization the entire medical profession of the State of Minnesota and to unite with similar societies of other states to form the American Medical Association; to extend medical knowledge and advance medical science; to elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the material interests of its members and to protect them against imposition; and to enlighten and direct public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease and in prolonging and adding comfort to life.

##### ARTICLE III—COMPONENT SOCIETIES

Component societies shall consist of those county medical societies which hold charters from this Association.

##### ARTICLE IV—COMPOSITION OF THE ASSOCIATION

Section 1. This Association shall consist of Members, Delegates and Guests.

Sec. 2. Members. The Members of this Association shall be the members of the component county medical societies.

Sec. 3. Delegates. Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component societies in the House of Delegates of this Association.

Sec. 4. Guests. Any distinguished physician not a resident of this state who is a member of his own State Association may become a guest during any Annual Session on invitation of the officers of this Association, and shall be accorded the privilege of participating in all of the scientific work for that Session.

##### ARTICLE V—HOUSE OF DELEGATES

The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) Delegates elected by the component county societies, (2) the Councilors, and (3), ex-officio, the President and Secretary of this Association.

##### ARTICLE VI—COUNCIL

The Council shall consist of the Councilors, the President, Secretary and Treasurer, ex-officio. Besides its duties mentioned in the By-Laws, it shall constitute the Finance Committee of the House of Delegates. A majority of Councilors shall constitute a quorum.

##### ARTICLE VII—SECTIONS AND DISTRICT SOCIETIES

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections, and for the organization of such Councilor District Societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component county societies.

##### ARTICLE VIII—SESSIONS AND MEETINGS

Section 1. The Association shall hold an Annual Session, during which there shall be held daily General Meetings, which shall be open to all registered members and guests.

Sec. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.

##### ARTICLE IX—OFFICERS

Section 1. The officers of this Association shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and eight Councilors.

Sec. 2. The officers, except the Councilors, shall be elected annually. The President shall appoint the first Councilors, to serve for one year, or until their successors are elected. The terms of the elected Councilors shall be for three years, those first elected serving one, two and three years, as may be arranged. All of these officers shall serve until their successors are elected and installed.

Sec. 3. The officers of this Association shall be elected by the House of Delegates on the morning of the last day of the Annual Session, but no Delegate shall be eligible to any office named in the preceding section, except that of Councilor, and no person shall be elected to any such office who is not in attendance upon that Annual Session, and who has not been a member of the Association for the past two years.

##### ARTICLE X—RECIPROCITY OF MEMBERSHIP WITH OTHER STATE SOCIETIES

In order to broaden professional fellowship this Association is ready to arrange with other State Medical Associations for an interchange of certificates of membership, so that members moving from one state to another may avoid the formality of re-election.

##### ARTICLE XI—FUNDS AND EXPENSES

Funds shall be raised by an equal per capita assessment on each component society. The amount of the assessment shall be fixed by the House of Delegates, but shall not exceed the sum of \$2.00 per capita per annum, except on a four-fifths vote of the Delegates present. Funds may also be raised by voluntary contributions, from the Association's publications, and in other manner approved by the House of Delegates. Funds may be appropriated by the House of Delegates to defray the expenses of the Association, for publications, and for such other purposes as will promote the welfare of the profession. All resolutions appropriating funds must be referred to the Finance Committee before action is taken thereon.

##### ARTICLE XII—REFERENDUM

Section 1. A General Meeting of the Association may, by a two-thirds vote of the members present, order a general referendum on any question pending before the House of Delegates, and when so ordered the House of Delegates shall submit such question to the members of the Association, who may vote by mail or in person, and, if the members voting shall comprise a majority of all the members of the Association, a majority of such a vote shall determine the question and be binding on the House of Delegates.

Sec. 2. The House of Delegates may, by a two-thirds vote of its own members, submit any question before it to a general referendum, as provided in the preceding section, and the result shall be binding on the House of Delegates.

#### ARTICLE XIII—THE SEAL

The Association shall have a common Seal, with power to break, change or renew the same at pleasure.

#### ARTICLE XIV—AMENDMENTS

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the Delegates present at any Annual Session, provided that such amendment shall have been presented in open meeting at the previous annual session, and that it shall have been published twice during the year in the bulletin or journal of this Association, or sent officially to each component society at least two months before the meeting at which final action is to be taken.

#### BY-LAWS.

##### CHAPTER I—MEMBERSHIP

Section 1. The name of a physician on the properly certified roster of members of a component society, which has paid its annual assessment, shall be prima facie evidence of membership in this Association.

Sec. 2. Any person who is under sentence of suspension or expulsion from a component society, or whose name has been dropped from its roll of members, shall not be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take part in any of its proceedings until he has been relieved of such disability.

Sec. 3. Each member in attendance at the Annual Session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified by reference to the roster of his society, he shall receive a badge, which shall be evidence of his right to all the privileges of membership at that Session. No member shall take part in any of the proceedings of an Annual Session until he has complied with the provisions of this section.

##### CHAPTER II—ANNUAL AND SPECIAL SESSIONS OF THE ASSOCIATION

Section 1. The Association shall hold an Annual Session at such time and place as has been fixed at the preceding Annual Session by the House of Delegates.

Sec. 2. Special meetings of either the Association or of the House of Delegates shall be called by the President on petition of twenty delegates of fifty members.

##### CHAPTER III—GENERAL MEETINGS

Section 1. All registered members may attend and participate in the proceedings and discussions of the General Meetings and of the Sections. The General Meetings shall be presided over by the President or by one of the Vice-Presidents, and before them shall be delivered the address of the President and the orations.

Sec. 2. The General Meeting may recommend to the House of Delegates the appointment of committees or commissions for scientific investigation of special interest and importance to the profession and the public.

##### CHAPTER IV—HOUSE OF DELEGATES

Section 1. The House of Delegates shall meet at 2 p. m. on the day before that fixed as the first day of the Annual Session. It may adjourn from time to time as may be necessary to complete its business; provided, that its hours shall conflict as little as possible with the General Meetings. The order of business shall be arranged as a separate section of the program.

Sec. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every fifty members, and one for each fraction thereof, but each component society which has made its annual report and paid its assessment as provided in this Constitution and By-Laws, shall be entitled to one delegate.

Sec. 3. Twenty delegates shall constitute a quorum.

Sec. 4. It shall, through its officers, Council and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each Annual Session a stepping-stone to future ones of higher interest.

Sec. 5. It shall consider and advise as to the material interest of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.

Sec. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse among physicians of the same locality, and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

Sec. 7. It shall encourage post-graduate and research work, as well as home study, and shall endeavor to have the results utilized and intelligently discussed in the county societies.

Sec. 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body.

Sec. 9. It shall, upon application, provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-Laws.

Sec. 10. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies to be designated by hyphenating the names of two or more counties so as to distinguish them from district and other classes of societies, and these societies, when organized and chartered, shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

Sec. 11. It shall divide the State into Councilor Districts, specifying what counties each district shall include, and, when the best interest of the Association and profession will be promoted thereby, organize in each a district medical society, and all members of component county societies, and no others, shall be members in such district societies. When so organized, from the presidents of such district societies shall be chosen the vice-presidents of this Association, and the presidents of the county societies of the district shall be the vice-presidents of such district societies.

Sec. 12. It shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates. Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

Sec. 13. It shall approve all memorials and resolutions issued in the name of the Association before the same shall become effective.

#### CHAPTER V—ELECTION OF OFFICERS

Section 1. All elections shall be by ballot, and a majority of the votes cast shall be necessary to elect.

Sec. 2. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the General Session.

Sec. 3. Any person known to have solicited votes for or sought any office within the gift of this Association shall be ineligible for any office for two years.

#### CHAPTER VI—DUTIES OF OFFICERS

Section 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the Councilors in building up the county societies, and in making their work more practical and useful.

Sec. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of the President's death, resignation or removal, the Council shall select one of the vice-presidents to succeed him.

Sec. 3. The Treasurer shall give bond in such sum as the Council may require. The Council shall execute said bond with some indemnity company at the expense of the Association. He shall demand and receive all funds due the Association together with the bequests and donations. He shall pay money out of the treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examinations as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands. The amount of his salary shall be fixed by the Council.

Sec. 4. The Secretary shall attend the General Meetings of the Association and the meetings of the House of Delegates, and shall keep minutes of their respective proceedings in separate record books. He shall be ex-officio Secretary of the Council. He shall be custodian of all record books and papers belonging to the Association, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer, all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates at the Annual Sessions. He shall, with the co-operation of the secretaries of the component societies, keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society, and, on request, shall transmit a copy of this list to the American Medical Association. He shall aid the Councilors in the organization and improvement of the county societies and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall employ

such assistants as may be ordered by the House of Delegates, and shall make an annual report to the House of Delegates. He shall supply each component society with the necessary blanks for making their annual reports; shall keep an account with the component societies, charging against each society its assessment, collect the same, and at once turn it over to the Treasurer. Acting with the Committee on Scientific Work, he shall prepare and issue all programs. The amount of his salary shall be fixed by the Council. The Secretary shall present to the Association on the last day of the General Session, a summary of the proceedings of the Council and the House of Delegates.

#### CHAPTER VII—COUNCIL

Section 1. The Council shall meet on the day preceding the first General Meeting of the Annual Session and daily during the Session and at such other times as necessity may require, subject to the call of the chairman, or on petition of three Councilors. It shall meet on the last day of the Annual Session of the Association to organize and outline work for the ensuing year. It shall elect a chairman and a clerk, who, in the absence of the Secretary of the Association, shall keep a record of its proceedings. It shall, through its chairman, make an annual report to the House of Delegates.

Sec. 2. Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit the counties in his district when necessary for the purpose of organizing component societies where none exist; for inquiring into the conditions of the profession, and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his work and of the condition of the profession of each county in his district at the Annual Session of the House of Delegates. The necessary traveling expenses incurred by such Councilor or in the line of the duties herein imposed may be allowed by the House of Delegates on a proper itemized statement, and each Councilor shall receive as compensation a per diem of \$10.00 while engaged in making his official visits to the counties in his district, but this shall not be construed to include his expense in attending the Annual Session of the Association.

Sec. 3. The Council shall be the board of censors of the Association. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component societies, or this Association. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or component societies on which an appeal is taken from the decision of an individual Councilor, and its decision in all such matters shall be final.

Sec. 4. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies, to be suitably designated so as to distinguish them from district societies, and these societies, when organized and chartered, shall be entitled to all rights and privileges provided for component societies until such counties shall be organized separately.

Sec. 5. The Council shall provide for and superintend the publication and distribution of all proceedings, transactions and memoirs of the Association, and shall have authority to appoint an editor and such assistants as it deems necessary. All money received by the Council and its agents, resulting from the discharge of the duties assigned to them, must be paid to the Treasurer of the Associa-

tion. As the Finance Committee it shall annually audit the accounts of the Treasurer and Secretary and other agents of this Association and present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of the Association during the year, and the amount of all other property belonging to the Association under its control, with such suggestions as it may deem necessary. In the event of a vacancy in the office of the Secretary or the Treasurer, the Council shall fill the vacancy until the next annual election.

Sec. 6. The Council shall investigate all suits for malpractice instituted against its active members. Each Councilor shall investigate the suits occurring in his district and report to the Council as a whole.

#### CHAPTER VIII—COMMITTEES

Section 1. The standing committees shall be as follows:

A Committee on Scientific Work, consisting of two sections.

A Committee on Public Policy and Legislation.

A Committee on Necrology.

A Committee on Arrangements, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

Sec. 2. For medical advancement and scientific work the Association shall be divided into two sections to be designated, 1st, Section on Medicine, 2nd, Section on Surgery, under which shall be grouped the appropriate subdivisions represented by the special branches of Medicine and Surgery respectively. The House of Delegates shall elect at each annual meeting a chairman and secretary for each section. It shall be the duty of the chairman to preside over the meetings of his respective section, and, in cooperation with the secretary of his section, to arrange the program for the next meeting of the Association.

Sec. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates, it shall represent the Association in securing and enforcing legislation in the interest of public health and of scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall strive to organize professional influence so as to promote the general good of the community in local, state and national affairs and elections.

Sec. 4. The Committee on Arrangements shall be appointed by the component society of the county in which the Annual Session is to be held. It shall provide suitable accommodations for the meeting-places of the Association and of the House of Delegates, and of their respective committees, and shall have general charge of all the arrangements. Its chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

#### CHAPTER IX—COUNTY SOCIETIES

Section 1. All county societies now in affiliation with this Association or those which may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, on application, receive a charter from and become a component part of this Association.

Sec. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State

in which no component society exists, and charters shall be issued thereto.

Sec. 3. Charters shall be issued only upon approval of the Council or House of Delegates and shall be signed by the President and Secretary of this Association. The Council or the House of Delegates shall have the authority to revoke the charter of any component society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

Sec. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made, with the aid of the Councilor for the District, if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Sec. 5. Each county society shall judge of the qualifications of its own members, but, as such societies are the only portals of this Association and to the American Medical Association, every reputable and legally registered physician who does not practice or claim to practice, nor lend his support to any exclusive system of medicine, shall be entitled to membership; provided, however, that certain physicians who occupy teaching or research positions in recognized medical schools and who do not wish to be licensed to practice medicine, may acquire honorary membership in the State and component societies. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

Sec. 6. Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right to appeal to the Council, and its decision shall be final.

Sec. 7. In hearing appeals the Council may admit oral or written evidence, as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a Board and as individual Councilors, in district and county work, efforts at conciliation and compromise shall precede all such hearings.

Sec. 8. When a member in good standing in a component society moves to another county in this State, his name, on request, shall be transferred without cost, to the roster of the county society into whose jurisdiction he moves.

Sec. 9. A physician living on or near a county line may hold his membership in that county society most convenient for him to attend, on permission of the society under whose jurisdiction he resides.

Sec. 10. Each component society shall have general direction of the affairs of the profession in its county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Sec. 11. At some meeting in advance of the Annual Session of this Association, each county society shall elect a delegate or delegates and an alternate or alternates to represent it in the House of Delegates of this Association, in the proportion of one delegate to each fifty members or fraction thereof, and the Secretary of the society shall send a list of such delegates to the Secretary of the Association before December 31st.

Sec. 12. The Secretary of each component society shall keep a roster of its members and of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college

and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

Sec. 13. The Secretary of each component society shall forward its assessment, together with its roster of officers and members, list of delegates, and list of non-affiliated physicians of the county to the Secretary of this Association each year before December 31st.

Sec. 14. Each county society which fails to pay its assessment or make the report required, on or before December 31st, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the Association or of the House of Delegates until such requirements have been met.

Sec. 15. The per capita dues of the members of the component societies shall be four dollars per annum, which shall be paid and forwarded as hereinbefore provided.

#### CHAPTER X—MISCELLANEOUS

Section 1. No address or paper before the Association, except those of the President and orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject, except by unanimous consent.

Sec. 2. All papers read before the Association or any of the Societies shall become its property. Each paper shall be deposited with the Secretary when read.

Sec. 3. The deliberations of this Association shall be governed by parliamentary usage as contained in Robert's Rules of Order, when not in conflict with this Constitution and By-Laws.

Sec. 4. The Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

#### CHAPTER XI—MEDICAL DEFENSE

Section 1. Active members of the Minnesota State Medical Association who have paid all dues, assessments, and other charges assessed or levied by the Minnesota State Medical Association, shall be entitled, on conditions hereinafter specified, to receive, without personal expense therefor, legal advice and court service of an attorney or attorneys-at-law in the employ of the Association, witness fees for the purpose of conducting their defense in any court in this state, when they are accused of malpractice, or of illegal transactions in connection with the commitment of persons to institutions for the insane.

Sec. 2. It shall be the duty of the Council, severally or collectively, to investigate all claims of malpractice against members, to adjust such claims in accordance with equity where possible, and, if in their judgment an adjustment is impossible, or the claim is unjust, or the damage sought is excessive, to tender such help, aid, and counsel as they may see fit. They shall be empowered to contract with a member of the bar of Minnesota as legal counsel of this Association.

Sec. 3. The Council shall make an annual report to the House of Delegates at the annual meeting for the year previous ending December 31st. This report shall contain an enumeration of all suits or threatened suits for malpractice against members of the Minnesota State Medical Association which have been properly presented to them for action.

Sec. 4. The legal services herein provided for shall be granted only on the following conditions:

First: Any active member desiring to apply for malpractice defense hereby provided, shall immediately upon receipt thereof send to the secretary of the Minnesota State Medical Association, any letter, process of court, or other evidence of threatened litigation in connection with such malpractice case.

Second: It shall be the duty of the Secretary to forthwith examine the financial records of the Minnesota State Medical Association, and if such member so applying is found to have paid all arrearages, dues, or other charges due the Minnesota State Medical Association for the year, he shall certify those facts to the Council of the Minnesota State Medical Association, and forthwith send to such Council the papers received from such applicant for defense, and such Secretary shall forthwith return to the applicant, if he shall find that the applicant has paid all arrearages due the Minnesota State Medical Association, a formal application for defense containing authority for the said Association through its attorney to defend the action and granting to the Association and its attorney sole power to conduct the defense thereof, and agreeing not to compromise or settle said claim for damages for said alleged malpractice without the consent of the Minnesota State Medical Association or its attorney. The said applicant shall furnish and return to the Secretary with his application duly executed, a full, accurate, and complete history of his treatment of the case out of which the alleged malpractice arose, giving dates, names of witnesses, nurses, and other attendants, all of which information shall, upon its receipt by him, be forwarded by the Secretary of the Minnesota State Medical Association to the Council of the Association.

Third: If, on the other hand, the Secretary finds that any member so applying has not paid all arrearages as herein specified, then and in that case, he shall return at once to the applicant all papers or memoranda received by him from said applicant, together with a statement that he is not entitled to defense and the reason therefor.

Fourth: It is further understood between each and every member of the Minnesota State Medical Association that under no condition or contingency will the Minnesota State Medical Association pay any sums awarded in settlements, compromise, or by any verdict against any member sued for alleged malpractice, and each member applying for the services of the attorney of the Association in any malpractice case, shall agree not to obligate in any manner the Minnesota State Medical Association or any persons connected therewith to the payment of any sums whatsoever for any purpose.

Fifth: The Minnesota State Medical Association will assume the defense in a suit for malpractice against a member only while he is such and when the alleged malpractice occurred subsequent to March 31st, 1910, and to the date on which the member joined the Association.

Sixth: The Association may decline to defend an action, where the claim of malpractice is entered as a defense to a suit for a bill, unless the attempt to collect the bill by suit is made within one year after the services were rendered.

Seventh: This chapter shall be in force on and after April 1st, 1910, and the year shall end on the last day of December of each year.

#### CHAPTER XII—AMENDMENTS

These By-Laws may be amended at any annual Session by a majority vote of all the delegates present at that session, after the amendment has lain on the table for one day.

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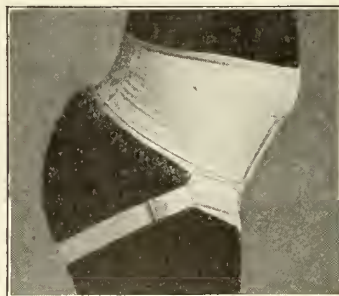
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# Minnesota Medicine

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## ORIGINAL ARTICLES

### CONGENITAL IDIOPATHIC DILATATION OF THE COLON.\*

A. E. SOHMER, M. D.,  
*Mankato, Minn.*

This form of chronic intestinal stasis, due to a congenital deformity, and characterized by an enlargement, both lengthwise and in diameter, of the whole or the distal portion of the colon, is found clinically in various degrees of development.

The typical case, found in children and adolescents, shows an enormous distension of a thin-walled abdomen, in striking contrast to the gaunt appearance of face, chest and extremities; a horizontal wide-spread costal arch; and is associated with very obstinate and prolonged constipation.

Another type, usually found in adults, with less manifest signs, presents itself clinically with very obstinate constipation, evidence of toxic absorption, neurasthenia, and intermittent "phantom tumor," due to recurrent distension of a dilated colon. This type can be recognized by the barium meal and clysmas, a method of diagnosis which shows up the true extent of the disease.

This latter less marked type is of especial clinical interest, because of its greater frequency.

Both types are amenable to surgical treatment. If left alone, these cases are attended by a train of symptoms due to malnutrition, toxic absorption and distress, which makes the

condition of the patient a deplorable one, leading to neurasthenia and chronic invalidism.

Yet if the true organic condition is recognized, and differentiated from chronic functional constipation, organic obstruction of the terminal ileum or cecum, and from neurasthenia due to other causes, brilliant results can be obtained by surgical means.

Patients who seek aid for the cure of a chronic obstinate constipation, and who do not respond to proper dietetic, mechanical and tonic treatment of suspected functional or reflex atony of the bowel, at operation will present two distinct types of organic deformity. Either the trouble is in the terminal ileum or cecum, due to bands or veils which cause kinking or other mechanical interference with normal bowel movement; or there is a normal ileocecum, but an enlarged, distended, atonic colon.

The teachings of Lane, Jackson, Eastman, and others have resulted in putting the ileocecum and ascending colon into the limelight, and the operative results in selected cases have been quite satisfactory; especially after the release of kinking bands and adhesions. In the more advanced cases of atony of the ascending colon, at first ileo-sigmoidostomy, or resection of the colon had been advocated, but in that type of case the best results seem to follow a resection of the ascending colon and ileo-colostomy just beyond the hepatic flexure.

In this paper emphasis is laid on a type of case in which the terminal ileum and ascending colon is normal, but where there is an abrupt dilatation and hypertrophy of the distal colon, sometimes involving the transverse and the descending colon, but always the sigmoid colon

\*Read at the annual meeting of the Minnesota State Medical Association at St. Paul, October 11 and 12, 1917.



Fig. 1.

Case J. S.—2393—Age 7 years.



Fig. 2.

Fig. 1.—Lateral view before operation, showing immense protrusion.

Fig. 2.—Lateral view after operation, showing normal abdomen.

and its mesentery. The rectum is usually not involved. This condition is congenital and of unexplained origin.

Dr. J. M. T. Finney of Baltimore, in 1908 presented a valuable and exhaustive review and bibliography of congenital idiopathic dilatation of the colon, usually called Hirschsprung's Disease. (Congenital Idiopathic Dilatation of Colon; Finney, J. M. T., Baltimore; Surgery, Gynecology and Obstetrics, Vol. 6, pages 624-643.)

The theories of its etiology are well discussed in that paper, and are, in short, as follows:

1. An abnormally long mesentery, causing a torsion of the sigmoid, chronic congestion of the vascular and lymphatic elements, with consequent hypertrophy of the respective bowel wall.

2. A disease "sui generis," both the dilatation and hypertrophy being congenital, or one being secondary to the other.

3. A chronic colitis with gas distension.

4. An abnormal congenital length of colon, causing exaggeration and multiplication of loops of colon.

5. Mechanical obstruction, causing compensatory hypertrophy above the site of obstruction.

6. A congenital aplasia of the muscular tunics of the large intestine immediately above the rectum, the attempt to overcome the stagnation resulting in dilatation and hypertrophy of the proximal colon.

7. A spastic contraction of the sphincter ani.

8. A neuro-muscular defect of a portion of the lower colon.

9. Abnormal valve formation in the intestine.

10. Lymphangiectasis, causing enlargement of mesocolon and corresponding colon—a hypernutrition—a species of giantism.

There are other less plausible causative factors mentioned in the literature.

One of our cases, the history of which will be given, corresponds very much with that of Finney's, in that there was a hypertrophy of the mesocolon, a thickening and lengthening, with dilatation of the enclosed vascular structures, corresponding to the section of enormously dilated colon. The dilatation began and ended

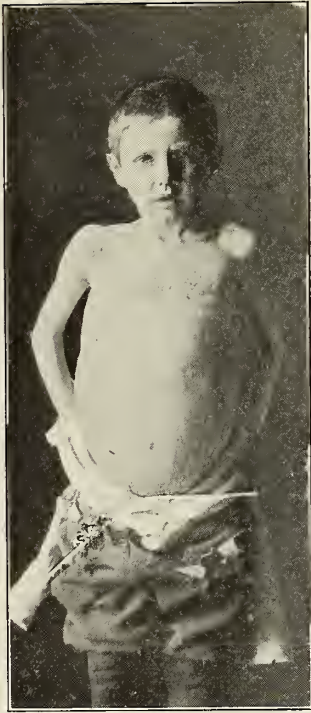


Fig. 3.

Fig. 3.—Anterior view before operation, showing lateral protrusion of abdomen, and high, wide costal arch.

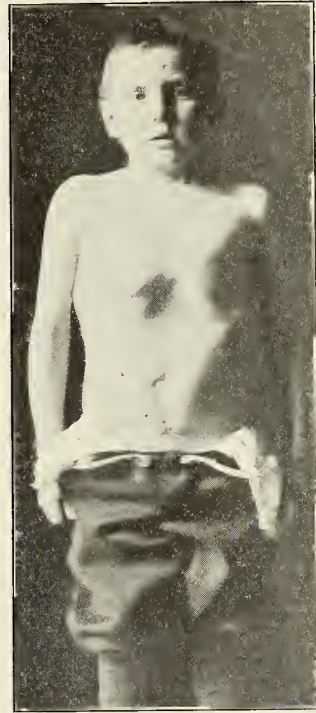


Fig. 4.

Fig. 4.—Anterior view after operation, showing normal size of abdomen, and comparative protrusion of costal arch.

abruptly, with apparently normal bowel above and below. The years of atony and obstruction which preceded the surgical intervention, caused a partial atony proximally, as shown by subsequent barium plates; however, the sacculation due to normal longitudinal bands above the diseased area, was in marked contrast to the dilated hypertrophied colon which was removed.

The most prominent symptom of the disease is the very obstinate constipation, there being no bowel movement for days, weeks, and even months, the bowels never moving without mechanical assistance. The most evident sign of the disease is an enlarged abdomen, either a constant enormous dilatation, as in one of our cases, or an intermittent enlargement as in the other of our cases—the patient thinking there was a tumor, which however disappeared at intervals. The outline of the distended colon can usually be seen, and is of changeable form, especially during the use of enemata or irrigations. Malnutrition causes a dull, sallow, gaunt appearance of face and body, in marked con-

trast to the distended abdomen. There are secondary symptoms due to toxic absorption. The fecal discharges are dry masses, often without odor, sometimes peculiarly offensive. These patients usually do not vomit, have no gastric symptoms and no pain, unless irritated by violent cathartics, which may develop a reverse peristalsis in the proximal canal. The condition, however, being congenital and of slow progression, allows the body to adapt itself, and gives rise to comparatively few constitutional symptoms, excepting psychic and neurasthenic disturbances, these being even more marked than those secondary to malnutrition. Besides observation of these signs and symptoms, the diagnosis is made definite by barium meal and clysmas with X-ray.

The prognosis is uncertain; the disease is rarely rapidly fatal, but secondary conditions may develop in time and lead to chronic invalidism and death. If the patient is in condition for surgical intervention, and this can be applied properly, the prognosis is good.

Treatment consists in resection of the dilated segment of colon, with anastomosis of the proximal normal colon to the upper rectum. It is safe only to do this in several stages. At first a cecostomy is made, for two reasons: it will act as a safety valve after subsequent resection, and it is used to establish through and through irrigation of the colon and rectum for several weeks before the radical operation. One can get rid of much fecal accumulation in this way, and it gives opportunity to improve the general nutrition and resistance of the patient. At the second operation the affected colon is removed, and proper anastomosis made between the normal proximal and distal colon. A rectal tube introduced through the anus and extending beyond the site of anastomosis above and attached properly, is a factor of safety. The temporary colostomy is continued for a couple of weeks longer, and then closed by suture and plastic repair of the abdominal wall. Tonic and hygienic treatment of the patient, and a re-education of the bowel to normal function, require careful consideration and application afterwards.

During the past year we have observed three cases of congenital colon dilatation, one very typical in a boy, and two which involved the sigmoid only in young adults. The typical case and one of the adults were treated successfully by operative method; the other adult case is under observation, and has not yet been operated.

J. S. 2393, male, age 7 years. Has had largely distended abdomen since birth. Very obstinate constipation, bowels never having moved spontaneously since birth, not responding to drugs or diet, but requiring flushings with soap water combined with abdominal massage. Longest time without bowel movement was two weeks, then moved only after flushing. Often required soaking of bowel contents to soften feces.

Has a poorly nourished, pasty appearance. Nutrition only fair. Vomits occasionally. Very good appetite. No discomfort, except psychic; is depressed by his appearance. Has never been sick otherwise. Lower margin of ribs widely distended, by rounded protruding abdomen. Abdominal wall very thin. Contour of distended intestinal coils plainly visible, chang-

ing after enemata with massage. Areas of tympany alternating with dullness, on percussion of abdomen. Heart and lungs normal; urine negative. Pulse, temperature and respiration negative. Somewhat anemic. Von Pirquet test negative. Roentgenologic examination gave the following findings:

Two and one-half hours after barium meal, additional barium water being given immediately before examination, shows on fluoroscopic screen, an abdomen much distended with gas in upper portion. Lower portion shows considerable dense material, extending from pubes up to one inch above the umbilicus. Diaphragm and lower border of heart crowded up to third interspace. Stomach outline indistinct; stomach displaced to right of abdomen. Because of general density of intestines, due to suspected impacted fecal masses, the barium in intestine is indistinct. Upper level of density is not changed materially by change of position of patient.

Viewed laterally—the stomach can be seen pressed backward toward the spine, with a large area of gas anterior to it. A partition-like shadow extends from about the costo-sternal angle downward and backward to upper border of stomach; then from lower border of stomach it curves downward and forward to symphysis pubes. Another area of gas distension is seen posterior to this partition and above the stomach, extending up to the diaphragm. The small intestines, partially filled with barium, are to be seen below the stomach and posterior to the lower partition.

Fluoroscopic examination after barium clyisma, given seven hours after barium meal, shows the cecum and ascending colon in normal position, though portions of transverse colon can be indistinctly seen. The rectal ampulla can be distinctly outlined, but the outlines of sigmoid have disappeared, and no descending colon can be distinguished from the general diffuse opaque mass. The plate findings of the stomach and intestines entirely corroborate with the screen findings, both in antero-posterior and lateral views. The plate taken after the barium clyisma shows the cecum in normal position and of about normal size, and the hepatic colon in normal outline; as the colon extends to the left, it can be seen to become wider until

it has reached a diameter of 14 c. m. Another distinct view of the distended colon can be seen in the lower and left portion of the abdomen: this portion has a diameter of 18 c. m. at its widest portion. The rectal ampulla is well outlined for 10 c. m. as it approaches the anus. Clinical diagnosis: Megacolon (Hirschsprung's Disease).

In preparation for operation the patient was given ricinus oil, which he vomited, and which made him feel badly. The bowel was washed out by rectal irrigation as thoroughly as possible—the inadequacy of which was revealed during subsequent operation.

On February 26, 1917, the first operation was done, for exploration and preliminary colectomy, under nitrous oxide and oxygen anesthesia. A chronic inflamed appendix with surrounding adhesions was found; the cecum, ascending and hepatic colon were normal. Dilatation began in transverse colon, and continued to rectum. The descending and sigmoid colon was enormously hypertrophied, and dilated, and contained a large fecal mass. The appendix was removed and surrounding adhesions relieved, and the cecum was attached to the abdominal wall in the right inguinal region; the inguinal wound packed without opening the cecum. The right rectus abdominal incision was closed.

On February 28th, two days later, under nitrous oxide and oxygen anesthesia, the cecum was opened and a medium sized rubber tube sutured into the fistula for drainage of the ileum and irrigation of the colon. From this day until March 19th, for nineteen days, daily irrigation of the colon, through and through, from cecal opening to anus and reversely, was made with soapsuds and salt solution, aided by massage, to empty the colon of the large accumulated fecal masses; mineral oil was also injected, to aid in their solution and dislodgment. While large fecal masses were in this way removed, yet it was found later, that in spite of this apparent thoroughness, only a tunnel was cut through the mass. However, the abdomen became considerably smaller.

On March 19th, under nitrous oxide and oxygen and ether anesthesia, the whole distended bowel was removed through a median incision. The mass consisted of descending

colon and sigmoid, about 36 c. m. long and 18 c. m. in diameter, containing several pounds of impacted feces in one mass. End to end anastomosis was made between the splenic flexure and rectum, a large rectal tube being attached to the upper segment, and carried through the anastomosis, the rectum and anus. The site of the anastomosis was drained with a split tube containing gauze, through a stab wound in the left inguinal region. The median abdominal wound was closed. The rectum, in spite of subsequent irrigations, continued to hold thickened fecal masses, so that on March 27th, eight days later, it was necessary to remove this mass manually through the anus. The peculiar inspissation of feces in all parts of the affected bowel resisted solution by water, soap, salt and oil, so that a tunnel would form between the mass and the bowel wall, through which the irrigating fluids would pass.

On April 4th, sixteen days after the colectomy, the cecal colostomy was closed by suture.

Convalescence continued, and on April 20, a month after the colectomy, the patient left the hospital, much improved in health and nutrition. For a few weeks more, it was necessary to use a daily enema, which was followed about an hour later by spontaneous movements—the first he had since birth. The boy gained in weight rapidly—his flesh became firm, and he was very happy. The psychic improvement was especially noted.

A roentgenogram taken May 31, ten weeks after operation, shows a normal colon as far as the splenic flexure. From that point down to the site of anastomosis with the rectum, there is a moderate dilatation of the colon, which is about  $8\frac{3}{4}$  c. m. at its widest diameter, and about 21 c. m. long. At the site of the anastomosis, the lumen is somewhat constricted, being 2 c. m. in diameter. Below this point the ampulla is of fairly good dimension. The colon is in good position. The distension above the anastomosis is due, no doubt, to the weakened functional condition of the colon wall because of its congenital inactivity; but with increased general nutrition and developmental growth, and regular bowel movements, this will probably assume good functional condition. The contrast between the radiograms before and after the

operation is as marked as the improved appearance and health of the boy.

On September 22d, six months after operation, enemata are no longer necessary; but he is given a bowel tonic occasionally. He has practically normal bowel function. The abdomen is of normal size, and the abdominal muscles are developing well. The lateral prominence of the lower chest wall is still manifest, but disappearing, and the muscular control of chest and abdominal muscles is about normal. The general health is excellent.

M. A. 9951, female, age 27, single; occupation, teacher. Complains of sacral backache for a number of years; worse on left side in region of sacro-iliac joint, and aggravated during menstrual periods. Anorexia; sometimes distress in stomach after taking food. Abdominal vague pains and distress. Obstinate constipation. Abdomen at times very prominent, as if tumor were present; alternate distension and flatness.

Physical examination shows abdomen distended, but no tumor palpable. Pelvic examination negative. Moderate tenderness in region of left sacro-iliac joint. Moderate lateral curvature of lumbar spine. Pulse and temperature normal. Negative tuberculin test. Heart, lungs and urine negative.

A stereo-roentgenogram of pelvis and spine shows apparently normal sacro-iliac joints. Vertebrae normal contour; lateral curvature, with convexity to right, in upper lumbar region. Supporting corset gives no relief.

On February 14, 1917, laparotomy showed a chronic inflamed appendix and a Lane's kink of the ileum. A very small subperitoneal fibroid of the uterus. Sacro-iliac joints negative. The ascending and transverse colon negative, but the sigmoid is much elongated, dilated, hypertrophied, and thrown into large folds, which occupy the whole lower abdomen. At this time appendectomy and the release of Lane's kink was done, and the small fibroid excised.

After this operation backache was relieved, but the very obstinate constipation persisted, so that two months later it was decided to remove the enlarged portion of colon. At this time (on March 26, 1917), the X-ray findings were as follows: A normal ascending and transverse colon. Beginning about the middle

of the descending colon, a dilatation begins, which extends down to the rectal ampulla; it involves the sigmoid, mainly. A loop of the sigmoid extends from a short distance above the crest of the left ileum, and extends downward towards the right to a point 7 c. m. to the right of the median line. The upper border of the loop is 18 c. m. above the symphysis pubes. Diagnosis: Megacolon, involving the sigmoid colon.

On March 28, 1917, a preliminary colostomy was made, a rubber tube being sutured into the cecum. For a week, through and through irrigation of the colon, from the cecostomy to the anus, was made, to clear the colon.

On April 4, 1917, seven days later, the dilated sigmoid was removed, through a left rectus incision. The specimen was 30 c. m. long and 8 c. m. in diameter; the mesentery was thick and short, causing an excessive twisting of the sigmoid. The proximal colon was attached to a rectal tube, and telescoped into the distal end, the tube passing through the rectum and anus, according to Ochsner. Two cigarette drains were inserted, one through a stab wound to the site of the anastomosis, and one through the lower end of the abdominal wound.

The patient made an uneventful recovery. The temporary colostomy was closed by purse string of bowel and plastic suture of abdominal wall.

On June 19th, two and one-half months after operation, the patient had gained five pounds, and the bowels were regular, without medicine or enemata. At this time a radiogram taken after a barium clysm, to determine the condition of the colon, showed it to be in good position and of normal lumen above the anastomosis. There is no evidence of constriction of the lumen at the site of anastomosis, and the general appearance of the colon is nearly that of a normal individual.

#### Summary.

It is this latter type of case that is of especial clinical importance, because of the relative obscurity of the symptoms, the true condition being best determined by the Roentgen ray.

The true type of Hirschsprung's Disease, of which the first case reported here is typical, is amenable to surgical cure, if the patient is in fair condition.

The operation should be done in separate stages; first a colostomy; then a resection; and then closure of the colostomy, with sufficient intervals between the three steps.

Careful preparation before operation, and observation afterwards, improves the safety of the treatment and the degree of final results.

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### CLINICAL PHARMACOLOGY OF DIGITALIS; HISTORICAL SKETCH.\*

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R. EDWIN MORRIS, M. D.,

*Teaching Fellow,*

*University of Minnesota.*

*M. O. T. C., Fort Riley, Kansas.*

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"In 1914, in the United States, one out of every nine deaths was attributable to some affection of the heart. This disorder now has the distinction of taking more lives than any other disease. It causes more deaths than all diseases of the lungs combined. In the year 1914 the death rate was 150.8 per 100,000, as compared with 125.1 in 1900." This statement comes from one of the largest fraternal insurance orders and from statistics carefully compiled by them from all sources. It shows decisively the relative importance of this malady.

With this thought in mind, we may, with renewed interest, attack the study of cardiac conditions not alone from the pathological, but also from the clinical and pharmacological standpoints. On the clinical side, through the use of improved methods of diagnosis, and with the help of mechanical devices such as the cardiograph and polygraph, wonderful results have been obtained by a more careful inspection and observation of the heart's action together with careful study of the various functional activities of the body. All of which assist in a careful diagnosis and permit of a rational treatment.

Thus we are able to accomplish results of a remarkable nature. Studies also from a pharmacological standpoint have been one of the stronger factors of ease betterment. Referring to any authority on cardiac medication, it will be seen that the first drug discussed is digitalis. Hirschfelder, in his work on Diseases of the Heart and Aorta, in the beginning of the chap-

ter on the effect of drugs in cardiac disease, says: "Foremost among the drugs used in the treatment of circulatory diseases are the preparations of digitalis." Croftan voices the general sentiment also: "It is the chief representative of the group of heart tonics or stimulants."

From the time of Withering down to the present, our chief bulwark in the treatment of cardiac conditions has been digitalis. The rationale of the old German adage is as manifest today as when it was written, that "the experienced physician can be distinguished from the inexperienced one by the way in which he uses digitalis."

Many other drugs have been advanced, but none has given the results or shown the marked improvement noted in most cardiac cases following the administration of digitalis. Many times, though, the older practitioner in a serious case of decompensation has administered the drug with disappointment in the result, the patient showing little or no improvement. Then his faith in digitalis has weakened and for a time he gives up its use, resorting, with poor success, to the other drugs, later to return to digitalis. Then a similar case comes to hand, he administers foxglove as in the preceding case, the results are marvelous, and he wonders as to digitalis therapy. Such has been the experience of most busy practitioners from the time of Withering down to the present.

Intense has been the interest and voluminous have been the writings on the subject. Much careful work has been done from a research standpoint, and within the past few years we are arriving at definite results, so that now we are able to regulate our cardiac cases, administering our drug with practically mechanical preciseness and securing constant results.

Digitalis was introduced to the medical profession by Withering of Birmingham in 1784, who observed the results accomplished by an old woman who was said to have restored to health many cases of cardiac dropsy with a mixture whose principal ingredient was foxglove. Witherington's directions have since been followed as to the time of gathering and drying, that is, "at the supposed time of greatest activity of the plant, just before or at the time of flowering." This means the use of sec-

ond year leaves, as the plant is a biennial; and though there have been a few references to the use of first year leaves, the statements of Withering as to its selection have been followed. Christison of Edinburgh in '48 says in reference to the leaf "their bitterness which probably measures their activity is very intense both in February and September, and their extract is highly energetic as a poison in April before any appearance of the flowering stem."

Pereira, in 1850, makes the first authoritative statement as to the actual use of the first year leaves. From that time down to the present there are occasional references as to the relative toxicity of the first and second year leaves, though up to the present time the second year leaf has been considered the standard.

Digitalis is officially described as "the dried leaves of *digitalis purpurea* Linne, containing not more than 2 per cent stems, flowers and other foreign matter, with a slight characteristic odor and bitter taste. The tincture digitalis contains 100 grams of pulverized leaf to 1000 c. c. The infusion contains 15 grams to 1000 c. c."

A great deal is yet to be determined as to the exact chemistry of digitalis, as to the nature of the changes which may occur from time of gathering and the changes that may occur in the various preparations after they have been compounded. The therapeutics of digitalis, on the other hand, has been developed to a remarkable degree and brilliant results achieved.

Cohn in a recent article brings out the summation of ideas of effective digitalis dosage, "a dose which borders on toxicity." Eggleston sums up the therapeutic effects to be desired and describes them, using the phrase "clinical improvement." These effects are: "a decrease of pulse and respiratory rates; a more or less rapid subsidence of dyspnea, orthopnea and persistent cough; clearing of the lung bases; in fibrillation, a decrease in the pulse deficit, or the difference in rate as felt at the radial and apex; the clearing of a congested liver and splanchnic region with the loss of pulsation and tenderness and diminution in size; the clearing of cyanosis and cold extremities; disappearance of oedema; and increase in urinary output."

These are the ideal results that have always been sought in digitalis therapy, but many times this complex of clinical improvement has been accomplished only in part, then the physician has resorted to other drugs as strophanthus, etc., and the outcome has not been the one fully desired. A prescription for digitalis is written by the physician and dispensed by a good pharmacist as either the tincture, the infusion, or some other form, and it does not give constant results—either the action has been faint with little or no clinical improvement, or the toxicity has been intense. Of late years other forms of digitalis have been put on the market and the results from their use have been more constant, but their high cost have made them prohibitive in many cases. Among the newer forms are the fat-tree tincture, the glucosides as digitoxin, digitalin, digitalein, digituratum, and numerous others. On the whole these have given more constant results than the older forms.

This variation in results has been the subject of most careful study for a great many years, and careful observation has shown that there was a great difference in the strength of the various preparations. Hence, the need of a digitalis of uniform strength, in order that an effective dosage may be determined, is apparent to all.

This idea is fully embodied in an article by Symes in the *British Medical Journal*. "The preparations of digitalis have been shown to possess a wide variation of activity in their therapeutic action. This wide variation has been found to be due to a certain extent to the leaf rather than to the process of manufacture of the various extractives. Climate, soil weather, etc., all have to do with the metabolism of the plant. Another factor is the proper care and preservation of the gathered leaves." In this connection Hirschfelder says "the strength of digitalis preparations may be estimated either chemically or by their action on animals." The chemical assay is based on the rather uncertain quantitative determination of the digitoxin. The action of the drug on animals may be tested in several ways—on frogs, guinea pigs, cats, etc.

The term "physiologic standardization" has an important place in present day pharma-



eology and means the estimation of the strength of a preparation by comparing its effects on animals with those of a standard product.

Among the various methods brought forward to test the toxicity of digitalis, the more important are: the 1-hour "frog method" of Faumlener and Lyons; the 12-hour "frog method" of Houghton; the guinea pig method" of Reed and Venderkleed; and the "cat method" of Hatcher. The results obtained from the first three methods vary greatly and many extraneous factors govern the results. For example, in the driving off of the alcoholic content by heat, there may be some alcohol left, or overheating may cause chemical changes which produce a marked variation in the value of results. The sudden change in temperature caused by removing frogs from one room to another, may cause variation. Other factors also are evidenced. Then, too, the results of standardization cannot be transferred to man. The same is true with the guinea-pig method. The "cat method" of Hatcher, according to the deductions of Eggleston, is by far the best method, the most important factor being that the results can be transferred to man. The "cat unit," the term devised by Hatcher in relation to digitalis dosage, may be defined as that amount of drug calculated per kg. of cat which is just sufficient to kill them slowly when continuously injected into the vein, this being expressed in mg. of the drug, whether it be pure principle or the leaf.

The method employed by Hatcher and modified to our use in establishing this unit follows. The cat is weighed, and anesthetized with ether just sufficiently to keep it quiet. It is then placed on the table, a canula is inserted into the femoral vein and attached to a burette containing the preparation to be assayed. The infusion is used full strength (15 gm. of drug to 1000 c. c.); the tincture (10 gm. to 1000 c. c.) is diluted to 1/10 strength with normal salt solution. The heart beat, respiration, and time are carefully recorded; then 10 c. c. of the solution is run into the femoral vein in 5 minutes (rate 2 c. c. per minute); then 1 c. c. every 2 minutes until the heart stops. Careful records of time, pulse rate, respiration, and note as to

various conditions of rhythm, respiration, etc., are made. The heart stops before respiration. The total amount of solution used is noted, also time and rate of injection. The c. c. per kg. is estimated. This averages, in the better grades of leaf, from 7 to 8 c. c. per kg.. The weight of the digitalis represented in the solution is calculated and is expressed in terms mg. per kg. of animal weight. Variation is small and extraneous factors few.

The results of our assays have been constant and only a few factors seem to influence the results. Lactation and pregnancy produce the greatest variation, next come obesity and maturity; otherwise there is practically no variation in results.

All calculations are based on normal totals, aberrant amounts indicating undue tolerance. The tincture and infusion show the greatest stability, and there seems little difference in them, if properly made up from assayed stock, except in concentration.

The problem of digitalis dosage has always been one of keen interest. Though little attention was formerly paid to absorption and excretion (although, for example, in extreme decompensation with resulting splanchnic congestion and vomiting this is a very important factor), recent investigation shows that the tincture is absorbed more rapidly from the gastrointestinal tract than other forms, due to the alcohol present, the greater delay permitting a longer action of the digestive juices, with more or less destruction of the all-important glucosids.

The preparations used in the wards at the University Hospital are principally the infusion and the tincture. Though other preparations are used it has been found that these two, when used in a proper manner, accomplish all and more than the more expensive forms—digitoxin, digitalein, digipoten, digitalin, digipuratum, digalen, etc. Our findings as to digitalin tablets compare well with those of Edmunds and Roth, that immense doses must be given to secure digitalis effect. The fat-free tincture has no advantage over the ordinary tincture, while the cost is to be considered.

The powdered leaves have been used in a number of cases, but our findings are that the

action is slower than either the tincture or the infusion and the tendency to nausea is greater.

The greatest advance in digitalis therapy, and one that produces amazing results, is the method brought out by Eggleston. Formerly, when a patient was bordering on "in extremis" 'tis well said "he would either die or get well before digitalis could get a hold." It has been our experience in the words of the University Hospital that, with Eggleston's system of dosage, the patient's improvement is surprisingly rapid and is without nausea and other toxic symptoms. To my mind it is the method to be used whenever possible. Following the Eggleston dose, it may be advisable to give tonic doses for long periods of time, up to the point of "minor toxicity," then to be discontinued for a time. This condition of minor toxicity is evidenced by extrasystoles, nausea, vomiting, partial heart block, sinus arrhythmia. On the discontinuance of the drug these "apparently intense" symptoms rapidly subside and the patient is bettered to a wonderful degree.

Through the use of the electrocardiograph and the polygraph we have a means of complete control of digitalis dosage. From the patient's normal cardiogram there is a marked change following digitalis administration; within 24 hours the T-wave tends toward inversion first to an isoelectric position, then a negative phase which increases with the amount of the drug exhibited. The p-r interval is lengthened and a complete block may develop. If arrhythmia or fibrillation is present the pulse rate slows markedly and the patient evidences relief.

The polygram in the same manner notes the slowing of the rhythm; the intensely pulsating veins are less distended as the patient improves; and extrasystoles, which may be barely felt at the wrist, are evident.

On withdrawal of the drug, the cardiogram gradually returns to normal, though digitalis effects have been noted for periods of more than forty days after its discontinuance.

Recently we have used in man the intravenous injection of the dilute tincture and the infusion, obtaining immediately marked action with no harmful secondary results. The intravenous dose employed is one-half the Eggleston dose.

The method of Eggleston dosage, and modified to our use, is as follows: First the patient is cardiographed and note is made whether any digitalis effect is evident. If negative, the full dose is given. Even though there may be a digitalis history recorded by the cardiogram, the full dose is given if the condition is urgent, for should intense "minor toxic symptoms" develop, the drug can be stopped any time within the twenty-four hours. If a digitalis history is developed by the cardiogram under ordinary conditions, then a cut of fifteen per cent. is made in the Eggleston dose. If a full dose is indicated, a standardized preparation is selected, the patient's weight being obtained. When administered orally, the average dose of the tincture is about 0.146 cat units, or .146 c. e. per pound of patient's body weight. If the patient weighs 130 pounds, then  $0.146 \times 130 = 18.9$  c. e., or about  $\frac{2}{3}$  ounce. This is to be given in twenty-four hours. If the infusion is to be given (the factor 0.146 representing the tincture strength), then the same amount of drug in one per cent. (using the preceding figures for tincture) equal  $18.9 \times 10$ , or 189 c. e., but the infusion is 1.5 per cent, then  $189 \times 1.5 = 283.5$  c. e., or about 9 ounces of infusion in twenty-four hours. The dose is given in 4 portions in 24 hours, with 6 hours between each, first giving half the amount, then one-quarter, then one-eighth, and again one-eighth.

If one desires to use this method of Eggleston dosage and has not a standardized digitalis, he may proceed as above, remembering the evidence of minor toxic symptoms and using the drug as compounded by a careful pharmacist from the best quality of leaves. Taking as the "cat unit" 100 mg., proceed as above, the average tincture being about 0.145 c. e., for the tincture times weight, and give in broken doses as above, 6 hours apart.

The Department of Pharmacy of the University of Minnesota has, through the meritorious work of Dr. Newcomb, done remarkable work in growing and preparing the digitalis plant, and any pharmacist may secure through his wholesale druggist this home-grown first-year plant, as a second-year plant will not develop here. Our assays show that this digitalis ranks with the highest grades from any source. A standardized product may be secured by any

physician from them. One of the many varieties of the digitalis family grown by the Department of Pharmacy is of the narrow leaf form, "digitalis lutea." I find it ranks in toxicity with the best grades, with the added important factor that little or no nausea is produced and the tendency to quieting effect is more marked. We are using this drug, both in the form of the tincture and the infusion, with the best results, and we hope before a great while to present important data on this subject.

In closing let me briefly sum up a few of the more important points of digitalis therapy.

1. The great and increasing number of cardiac cases.

2. The former digitalis unreliability, the cause being the lack of standardized drug.

3. The improved methods of diagnosis and the newer digitalis standardization.

4. Securing results—two forms of dosage, the tonic and the Eggleston, with the necessity of attaining a minor toxic action to secure results.

5. Minnesota grows digitalis equal to the best.

6. The new form, digitalis lutea, and its promises.

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#### STRONGER PUBLIC HEALTH DEPARTMENTS.\*

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Inasmuch as I was not notified that I was to appear on this program until a half hour ago, I am in no position to offer an extensive or definite program. The important thing in our relationship with public health departments during the next five years or the next twenty-five years, can be summarized in the phrase "thorough and unselfish co-operation between governmental and extra-governmental agencies." Time was when state and municipal health officials sincerely believed that they could not consistently delegate to extra-governmental organizations any of their authority, and this idea was frequently carried to such an extreme that the public officials refused or failed to avail themselves of the special facilities controlled by private organizations.

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Within the past few years public health has become everybody's business, and public health officials have been in the embarrassing position at times of having to recognize that the most important public health work in many special lines has been carried out by purely voluntary organizations. This has been particularly true in the prevention and suppression of tuberculosis.

There was a day when residents of Illinois had occasion to be apologetic in the discussion of any public questions. With the enactment of the Civil Administrative Code under the guidance of Governor Lowden, and development of the State Department of Public Health under Doctor C. St. Clair Drake, there have been tremendous changes in Illinois, in which public spirited citizens have come to take very genuine pride.

Since taking office of secretary of the Illinois State Board of Health about five years ago, Doctor Drake has recognized that the official health agencies were not as efficiently equipped to carry out special lines of public health work as some of the private agencies, that the state department covering the whole field of public health could not command the specialized technical skill to be found active in some of the volunteer societies and associations, and so during the past five years the policy of the Health Department of the State of Illinois has been to encourage the co-operation of these extra-governmental agencies.

In dealing with the prevention of blindness, the State Health Department has followed the guidance of the State Association for the Prevention of Blindness and has placed the responsibility for successful preventive work upon the specialists connected with the State Association. The same broad-minded policy of co-operation has existed between the State Department of Public Health and the Illinois Tuberculosis Association, every step forward made by the two organizations being absolutely and harmoniously co-ordinated. At the present time in the

very extensive work, the State Council of Defense, the State Department of Public Health and the Illinois Tuberculosis Association, speak with one voice with the force which comes of united effort and with absolute absence of lost motion.

My experience in connection with official public health work—both municipal and state—has been longer in duration than my connection with volunteer health agencies, and my experience in both has caused me to conclude that wherever a governmental agency is unable to co-operate harmoniously with an extra-governmental agency which is sound and fair, or wherever an extra-governmental agency is unable to co-operate harmoniously with a governmental agency which is sound and fair, that there is at the bottom of their failure to co-operate something that is piffling and trifling, something that is no bigger than petty personal jealousy; and I have no hesitation in saying, although these remarks are made without extensive deliberation, that the most important thing during the next five years in the promotion of tuberculosis work and the development of all public health work, either in the Mississippi valley or elsewhere throughout the nation, lies in impressing public health officials with the fact that there is nothing inconsistent or improper in their co-operation with the people in the protection of the lives and health of the people, and that the lives and health of the people are so tremendously important that it is intolerable that purely personal differences should interfere with their most efficient conservation. Wherever cause for friction between governmental and extra-governmental agencies is found to exist—I care not where—it should be fearlessly and ruthlessly weeded out.

These remarks are not prejudiced and are not biased. I speak both as an officer of a governmental health organization and an officer of a volunteer public health association.

## BURSAE.\*

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Aside from some well known types, the diagnosis of diseased bursae is somewhat neglected. The orthopedists recognize these conditions at once, and it is another one of the many things to their credit. A knowledge of the exact location of bursae is of great importance. While some bursae have received names and are accurately described, others are but seldom mentioned, and authors differ as to their nomenclature. A further complication is that many are merely accidental. One hundred and seventy-five different names are listed, and in many cases there are multiple bursae under one name.

Anatomically, a bursa is not a distinct organ. A colloid substance develops in a limited space surrounded by a membrane, wholly or in part. Histologically, there is a wall of connective tissue with elastic fibres, the inner surface of which is covered with pavement-epithelium. Where the epithelium is lacking, the tissue is hard and rich in round cells and cells similar to cartilage cells. Functionally, they protect the tissue from pressure and are found anywhere in the body where such protection is necessary.

The bursae may be deep seated or subcutaneous. The former are for the most part placed between a muscle or its tendon and a bone, or the exterior of a joint—less commonly between two muscles or tendons—although, we recently saw one the size of a large potato between the muscles of the thigh. The subcutaneous are interposed between the skin and some firm prominence beneath it. Ely says: "My investigations incline me to the belief that the bursae found in the region of the joints, and where the tendons and muscles play over a bony prominence or upon each other, are true synovial cavities, bursae synoviales, while those found subcutaneously over bony prominences, bursae mucosae, have a different structure."

Synovial bursae often communicate with the cavity of a joint, and may be involved in dis-

ease of that structure. Both are vulnerable to the same influences, and the etiology, pathology, and treatment of bursitis is, therefore, much the same as that of arthritis. Infections elsewhere in the body play an important role, and many forms of bursitis resist treatment until the toxic source is removed. Montgomery, in reporting a case of subdeltoid bursitis, says: "There was no history of trauma in this case. The only probable etiologic factor was repeated attacks of tonsillitis about the time the pain developed in the shoulder." Oschner, in the yearly surgical summary considers this view worthy of mention. Schwarz thinks the etiology of these inflammations is not trauma as is generally assumed, but infection. Stiffness of the joints often follows an attack of angina or tonsillitis and he thinks this extension of the infective organism applies also to bursae. In fact, in so-called articular rheumatism, has not the tendency been to think only of the articular surfaces, forgetting the numerous bursae surrounding each joint, infection of which could cause the local symptoms of inflammatory rheumatism? Gonorrhoea, syphilis, tuberculosis and metabolic diseases such as gout and arteriosclerosis are further considerations. Bursitis has been observed following pyaemia, typhus, scarlet fever and variola.

While in the early studies trauma was considered the sole causation, the theory of infections has steadily gained. Some are so extreme as to insist that it must be traumatic solely or infection only. While, of course, it may be so, yet often, perhaps, given infections present in the body, trauma so prepares the field that culture is encouraged. Personally, we feel that a most thorough search for infection should be made, as of the teeth, tonsils, antrums, infections of the digestive tract, faulty metabolism, the genito-urinary organs, and especially, syphilis and tuberculosis. Such causations should be removed to prevent further encroachments on the body, just as for instance, with a diseased gall bladder, it not only should be removed if indicated, but one should seek the causes in order to restore the patient to the best possible health.

The mucous bursae present somewhat different considerations. "Housemaid's Knee," "Miner's Elbow," "Weaver's Bottom," the fa-

\*Read at the Annual Meeting of the Minnesota State Medical Association, St. Paul, October 11 and 12, 1917.

miliar "bunion," are all types of mucous bursae. These bursae are wont to enlarge and fill with fluid as the result of oft-repeated trauma, and often are formed in unusual situations as the result of such trauma. According to Lange-mak, the enlargement is to be regarded as simply an exaggeration of the process which originated the bursa. The pathological process is not an inflammation, but a collagenous degeneration—a hygroma. The hygroma may later become secondarily infected in some acute form or suffer some more chronic change as syphilitic or tuberculous. Because of their less protected location, no doubt, the factor of trauma—the occupational phase being oft-repeated trauma—is more important than in the better protected synovial bursae. But, one must consider the general resistance, knowing that syphilis, tuberculosis, and toxæmias make the vessels more prone to hemorrhage and the tissues more likely to pathological change.

Gunther in discussing affections of the bursae says: "Traumatic bursitis is, of course, local and unilateral, but symmetrical affections may be produced by constitutional or infectious diseases." Syphilis is especially marked by multiplicity and indolence. This leads to further considerations of diagnosis, the necessity of which Codman indicates when he says: "Subacromial bursitis is generally diagnosed as brachial neuritis, periarthrits, muscular rheumatism, circumflex paralysis, contusion of the shoulder joint, fibrous gout, rheumatism, etc." Since watching for this condition more thoroughly, I have been able to help patients whom I know I would have otherwise missed. They usually come with their arm at rest and a diagnosis of neuritis. Codman further says, "that this bursa causes more shoulder joint disability than all other disorders combined, including fractures and tuberculosis." Codman's statement might seem extreme. The other side was pointed out by Dr. D. D. Turna-cliff, Rapid Transit company, in conversing of his work. He said that the journals devoted to their special problems during the past few years have had so many articles on this subject, that the danger was to consider too many things in the region of the shoulder joint bursitis.

Any diagnostic help then is welcome, and X-ray examination should be the routine. Cal-

cium deposits are frequently shown in these bursae. To the inexperienced, they look like broken fragments of bone. While most men claim such depositions are within the bursa, Brickner says they are beneath it. For diagnostic purposes, the disputed point is of no great consequence. Caldwell, in describing a case proven at operation says: "Stereo-roentgenographic examination showed a peculiar irregular shadow, apparently due to some calcium deposit in the neighborhood of the upper and outer surfaces of the great trochanter, suggesting a bursitis." The chief value of the radiogram is, however, in differential diagnosis, in the exclusion of bony changes.

With regard to treatment, the general considerations have been already mentioned. The mucous or superficial type lends itself easily to aspiration or excision. One very important point is, that if tuberculous, whether deep or superficial, the excision must be thorough or a discharging wound will result. With the deeper or synovial type, there is considerable difference of opinion. For instance, Codman, who in 1906 first described the subacromial bursitis, then advocated excision but later inclined to conservative treatment, because the dissection is so difficult. Conservative steps are rest, massage, passive movement, and aspiration. After aspiration, some inject iodine. The chiropractors, at times, effect cures, where medical men are too conservative. For instance, in the chronic subacromial bursitis they often make a quick tremendous movement which either loosens up adhesions or has the same effect as the striking of a ganglion on the hand with a book. Bursae, of course, that are acutely infected with pyogenic organisms, must be incised to prevent extension to joints or the general circulation, and such chiropractic treatment, as just mentioned, might cause death. There are numerous instances where, no matter what causative factors other than trauma might be present, the obvious thing is immediate surgical correction of the bursa.

I will not discuss technique of various operations or report ordinary bursal conditions, but briefly will present two X-ray plates where the bony complications give rise to interesting problems.

Case A. J., age 55; male, farmer. Had not been able to sleep on right hip for 18 years. Gradually getting worse until now limbs and cannot lift the leg. There was tenderness over the external aspect of the trochanter, pain on motion, and atrophy of the right buttock. Physical examination and laboratory tests otherwise negative. At operation, removed large dissecting bursa filled with rice bodies, the bursal walls being greatly thickened and microscopically showing inflammatory changes. Also curetted the bone. The problem is, which was first diseased, the bursa or the bone, and did one affect the other or (what is perhaps most likely) were both simultaneously affected by the same causation? According to Murphy, the classical picture of such trochanteric bursitis is always a slow advance, very rarely appearing as an acute metastatic infection following trauma. Swelling increases in size, until it extends half way down the hip. The only effective treatment is excision of the bursa.

Case F. G., age 51, janitor. Pain and tenderness of right heel, particularly over the tendo Achilles, just above its insertion into the os calcis. Has had a chronic general "rheumatism" over a period of twenty-five years, most likely due to an obstipation which he ignorantly does not watch. Had tonsillectomy two years ago, with partial relief as to the general rheumatism. Local condition in heel was of gradual onset, but had increased so that for two weeks patient had been unable to work. No special trauma known. Physical examination and laboratory tests otherwise negative. X-ray shows spicule of bone on os calcis near insertion of tendon Achilles. At operation the retrocalcaneal bursa was removed with no treatment of the spicule. In three weeks patient was back at work, X-ray still showing the spicule. In some cases where spicules of bone on the under surface of the os calcis have been removed, the symptoms have continued, indicating other causation—usually the bursa located between the plantar fascia and the bone. Such spurs have been found present in a considerable percentage of apparently normal feet. Blencke by X-ray found it in 2.8 per cent in an investigation of six hundred normal cases. The opinion is general that it is the bursitis which usually causes the pain and not the spur itself. I recently happened

in the operating room where an orthopedic surgeon was working on an elbow. The patient was a banker and had done considerable writing. He had removed a diseased portion of bone, doubtless tuberculous, but there was also a diseased olecranon bursa and he volunteered the information that the bursa had, undoubtedly, caused most of the symptoms.

#### Conclusions.

1. Chronic ailments, especially of the extremities, may be due to inflamed bursae.
2. While trauma was at first thought all important, increasing recognition has been given to the role of infections and other factors, as metabolic disturbances.
3. The synovial bursae especially are subject to the same diseases as joint membranes.
4. The X-ray at times shows calcium deposits suggesting bursitis but its chief value is in differential diagnosis.
5. Treatment depends at times, on response to removal of causations. Conservative surgical treatment is often sufficient, but, of course, pyogenic infection demands incision.
6. Where there are both diseased bursae and bone changes, the importance of the bursae are becoming more apparent.

#### DISCUSSION.

DR. EARLE R. HARE, Minneapolis: The subject of bursitis is of very great interest because oftentimes a diagnosis is not made and patients are allowed to suffer indefinitely when a cure might well be given them under proper treatment. The bursae in my experience that are involved most frequently are the subacromial, in the shoulder; the olecranon, in the elbow; the prepatellar, in the knee; and the bursa which lies just underneath the tendo-Achilles, above the heel. Other bursae are those concerned with the metatarso-phalangeal joint in the great toe.

The etiology is exceedingly interesting and is a bone of contention at the present time. As stated in the paper, there are those who believe that the etiology lies in trauma. For instance, a fall upon the point of the shoulder is not infrequently followed by a bursitis which develops almost immediately. The wall of the bursa will be thickened and inflamed. There will be limitation of the amount of fluid in the bursa, and then there will be agglutination or complete closure of the bursa by the inflammation of its walls. I can remember very distinctly in 1906 listening to Dr. Codman on bursitis of the shoulder, describing his method of treatment, which consisted in breaking up adhesions under anesthesia and placing

the extremity in such a position that the inflamed surfaces in that bursa would be removed one from the other. He abducted the arm at a right angle, flexed the elbow, abducted it further, and placed the hand behind the head on a triangle for an indefinite time, with very good success in many of these cases. But treatment has changed since that time.

There are those who maintain that the etiology lies in infection. I think, with our advancing knowledge of infection, it is very likely that the etiology lies more toward the side of infection than it does toward the side of traumatism, although by traumatism, we have a *locus minoris resistentiae* established, and infection supervening upon the trauma. The fact that one case in which the shoulder joint was involved has been examined by Brickner, of New York, who maintains that the etiology lies in trauma, and yet no organisms were found by him, does not prove the bursitis is not infective in its origin. Many of these cases are suppurative, and we know there is infection in the bursa. For instance, the prepatellar bursa is not infrequently involved in the suppurative process, as I have seen twenty-five cases of suppuration of the prepatellar bursa. I have seen an equal number, may be more, of suppuration of the olecranon bursa, and these bursae must ordinarily be either incised and completely opened and allowed to fill by granulation, or completely removed. If completely removed, ordinarily there is no further trouble.

Some years ago I removed a pair of prepatellar bursae that measured an inch and a half in diameter, and one inch in thickness, due to an old chronic infection in the bursa, with perfect result, even though there was active suppuration going on in one bursa at the time of its removal.

In making the diagnosis of this condition it is stated by Brickner, who has observed more than 100 cases of subacromial bursitis, that the thickened capsule itself will not show in the X-ray picture. I would be inclined to doubt that as a positive statement, for I think in some instances the thickened capsule will show as a shadow in the X-ray picture. If we have deposits of lime salts, there is no question about its showing, and the position of the bursa will be outlined by the X-ray.

This subject is receiving more and more attention, and like every other condition it demands careful and proper study, and proper treatment can only be applied when an accurate diagnosis has been made. If a proper diagnosis is made, many cases of neuritis and neuralgia, as described in the past, will disappear when proper treatment is instituted and the bursae are removed.

DR. ARNOLD SCHWYZER, St. Paul: I do not know that I have much to say on this subject except that when we have to operate on these cases, whether we have simply lime deposits to deal with, or whether they are infected, we want to remove the bursa as a whole. Simple incision of any suppurating bursa is exceedingly unsatisfactory.

The etiology of the condition requires attention. I remember very distinctly one case that came to me in which there was a fistulous condition of the prepatellar bursa. One could see from the star-shaped appearance of the surroundings that there was probably some specific infection. The Wassermann reaction was positive, and under antiluitic treatment the wound in this case healed promptly.

I recall another case in which a doctor made a diagnosis of tuberculosis of the shoulder joint. He operated, went away, and left the case in charge of his successor. This happened many years ago. The fistula remained and kept on discharging for months and months, and the successor, who had little information as to the operation, was kind enough to turn the case over to me. This case was not a case of tuberculosis of the shoulder joint. We incised the parts freely as we wanted to see where the fistula ran; we went underneath the deltoid, there encountered a sponge, and found that the joint had never been touched. The doctor had made a diagnosis of tuberculosis of the shoulder joint when it was only a subdeltoid bursitis. He must have encountered an exudate, which made him recognize the extra-articular condition.

DR. JOSEPH R. KUTH, Duluth: In the past six months I have seen six or seven of these cases, three of them involving the shoulder joint, one of them the hip joint. The impression received from these cases was that the trouble is undoubtedly the result of trauma. Whether trauma was the primary or sole cause I am unable to say. All of these cases were characterized by chronicity. The shoulder cases all showed lime deposits about the shoulder joint; two of them I took to be subacromial bursitis, and one of them subdeltoid bursitis. The impression conveyed here from what has been said, is that the lime deposits in these cases are generally found in the bursae. Brickner, of New York, demonstrated that the lime deposit is underneath the bursa. It is quite probable that a great many cases which we consider bursitides, are tendon injuries, with subsequent lime deposit infiltration. The bursa about the hip joint is located in the neighborhood of the great trochanter between the insertions of the glutei muscles, so that a hip with marked disability due to bursitis may be taken for the time being for tuberculosis, as in one case I recall.

An important point in the diagnosis of these cases of chronic bursitis, is limitation of motion in a certain group of muscles. I do not know whether that point has been brought out here today or not, but it is important. The pain is caused by certain motions.

The last two cases I saw occurred in young men who were enthusiastic automobilists and, it seems to me, that possibly the shifting of gears in these cases may have been a causal factor, as an oft-repeated, or continuous traumatism of the bursae about the shoulder joint.

Mr. Jones, of Liverpool, has treated many of these cases in the manner stated by the essayist with sat-



isfactory results. Mr. Jones has been doing this for a long time. He sometimes cures these cases by sudden stretching of the arm and breaking up of probable adhesions.

DR. H. B. SWEETSER, Minneapolis: Speaking about the diagnosis of bursitis, I have had an interesting experience. A woman had several sinuses discharging pus around the hip joint. She had had these for quite a long time, and a diagnosis had been made of tuberculosis of the hip by one practitioner, and I thought it was tuberculosis of the spine. X-ray examination showed nothing wrong with the hip. There was no interference with motion of the vertebrae, and the X-ray showed nothing there. We injected these sinuses with bismuth paste without any result, and then I operated upon her, and we found a focus of infection in the nature of a bursitis under the gluteus maximus muscle. This woman was sick for a long time prior to our diagnosis, but promptly recovered after the bursa was widely opened and the secreting membrane destroyed.

DR. M. S. HENDERSON, Rochester: Dr. Earl has touched on a point in his paper with reference to the irregular distribution of bursae. This is emphasized by the fact that our anatomical textbooks by no means mention all the bursae.

In his paper he mentions also a point that has not been emphasized in this discussion, but on which stress should be laid. In taking out a bursa, the bursa should not be incised and drained but the entire sac should be removed. The orthopedist sees a great many chronic cases of bursitis, and unfortunately in a large number of cases the patients come with a draining sinus the result of the bursal sac having been drained, infection certainly resulting, if not present before.

Quite recently I had my attention called to a bursa in an unusual situation. A large sac was found lying between the tibia and fibula in the upper third; it seemed to have a direct contact with the tibia and fibula. It contained a large amount of gelatinous fluid, approximately two teaspoonfuls. The sac was distinct except towards the muscle, there it thinned off to a membrane so delicate that it could not be traced. There is no reference to any such bursa in our textbooks.

In every prepatellar bursa removed in quite a number of years, we have sent the material to the bacteriologic laboratory for examination and culture. Only in clearly infected cases were we able to show any organisms. We are inclined to think, therefore, that many of these bursae, particularly prepatellar bursae, have as their etiologic factor purely a mechanical irritation.

## TRAUMATIC ANOMALIES OF THE OCULAR LENS.\*

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Traumatic anomalies of the lens may be divided into four classes:

1. Where the lens is rotated on its axis.
2. Where the lens is subluxated.
3. Where the lens is luxated.

(Each class may be accompanied by opacity of the lens).

4. Opacity of the lens, in situ, or with rotation, subluxation or luxation.

### Anatomy.

At birth the lens lies in the anterior part of the eye, resting in the patellar fossa of the vitreous and in close contact with the hyaloid membrane. Its anterior capsule is laved by the aqueous humor. The inner marginal circular fibres of the iris support the lens in this position. The equatorial support comes from the delicate fibres of the zonule. The fibres run into the anterior and posterior capsule. In addition to its lens attachment, the zonule gives off a layer which runs between the ciliary processes to the posterior surface of the iris, to the ciliary bodies, and to the anterior portion of the retina. Held in such elastic surroundings the normal lens changes its curvature with variations of tension of its capsule and suspensory ligament, when the action of the ciliary muscle dictates.

In infancy the lens is more nearly round and is transparent; as the eye develops the epithelium of the anterior capsule sends out tiny fibres which run to the posterior pole. After attaching to the posterior pole, these fibres contract and their central portion is thus drawn near to the center of the lens. It is easy to see how, then, the action of many such fibres acting from both surfaces tends to compress the center of the lens into a nucleus.

This process goes on, and at the end of adolescence, instead of the transparent "drop of water" appearance, the lens shows a denser center and gives a straw yellow color. As life

\*Read before the American Railway Surgeons' Association, Chicago, Ill. Oct. 18, 1917.

advances deeper layers of cortical fibres are formed, each adherent to the deep mass. The center of this mass becomes sclerosed (dehydrated) and a central transparent nucleus is formed.

The change in the index of refraction possible in the lens by accommodation is dependent on the change of the lens' structure above described. So beautifully concise is nature in her immutable law of age that the span of life already passed may be very correctly revealed by converting the possible accommodative diopeters into years.

When age, disease, or trauma interferes with these changes going on in the lens, it loses its transparency and cataract results.

#### **Etiology—Morbid Anatomy.**

When the capsule of the lens is ruptured or punctured, the adjacent liquid is absorbed and consequent swelling results which separates the fibre layers and causes swelling and opacity. When the anterior capsule is torn the absorption is rapid; fibres of the lens may be seen in the anterior chamber if the opening is large. Indeed these particles of lens substance often clog the filtration angle and produce the dangerous condition of hypertension. The vitreous absorbs more slowly when the solution of continuity occurs in the posterior capsule. The process of evacuation of the lens substance from the capsule and absorption by the aqueous may go on until the entire lens is removed, the capsule remaining transparent, and an aphakic eye left. This, of course, is only possible when the patient is young (the lens being then more fluid in character), and the opening in the capsule so large that the edges retract. When the opening in the capsule is small, the epithelium of the capsule immediately sets about to repair it. When the rupture occurs under the iris near the pupillary edge, the iris instantly closes the wound and very little absorption of aqueous occurs. In this locality where a minimum of absorption takes place, the best recoveries are observed from traumatic cataract. When trauma produces a solution of continuity in the capsule and opacity of part of the lens occurs, it may remain stationary, may go on to complete cataract, or may resorb. The second termination is by far the most usual one, yet resorp-

tion of opacities does occur; an opacity of the lens is more likely to remain stationary the more solid the lens substance. Resorption is more liable to occur after adolescence up to the age of forty. The capsule forms no bar to vision after the lens is gone unless strenuous attempts at regeneration of the capsule have been made by the epithelial layer.

A rare form of traumatic cataract results from contusions of the eye, when there occurs a lenticular opacity resembling a miniature sun-dog, commensurate with the size and shape of the pupil. The opacities lie just beneath the anterior capsule and are probably caused by the aqueous slapping the pupillary edge of the iris against the capsule. Such cases clear up.

Opacities of the lens from chemical disturbance are not rare. When the composition of the aqueous is altered by poisonous substances, osmosis through the capsule results in injury to the capsular epithelium or the lens fibres; in either event cloudiness of the lens results. The change in the aqueous may come from within the body. The phenomena of life going on in the cells are chemical changes which are affected by alteration of the chemical composition of the liquids and tissues around them. Bacteria would be tolerated as any harmless particle but for the toxic substances they produce. These act as local irritants on the adjacent parts, and, through lymph and blood channels, on remote parts.

Opacities resulting from solution of continuity in the capsule start at the point of entrance of the foreign body and run in radiating lines or masses from this spot. Some resorption often occurs if the capsule heals readily, leaving only a round or nearly round opacity showing on the posterior pole; when in the posterior cortical region, the opacity appears irregular or star-shaped, lying just anterior to the posterior pole. The harmony of transparency between the posterior capsule and the lens is more easily disturbed than that which exists between the anterior capsule and the lens, because the epithelial layer exists only on the anterior capsule.

Posterior polar location of the cataract after trauma is more common in penetrating wounds because of the lever pressure of the lens posteriorly when foreign bodies enter the lens, and

especially is this true when they enter the center of the lens anteriorly. Around most opacities fog-like areas appear. Opacities resulting from penetration generally increase until the whole lens is cataractous. Often in advanced life the liquid portion of the lens is absorbed and the nucleus dries up remaining in the capsule a shrivelled mass. Large star-shaped cataracts result when the cortex is disturbed directly,—opacities radiating from the nucleus.

Concussion and contusion cataracts occur when no rupture of the capsule is present. They are due to the effect of the vibration on the epithelial layer of the capsule. Slight tapping on the closed lid has caused cataract. Concussion cataracts generally occur soon after the trauma; they may develop long after the injury and as a result of the violence.

Any interference with the excretion of the fluids of the lens that causes a dropsy, by pushing the fibres apart, causes cataract.

Chemical changes from the ultraviolet rays give an interesting study. The lens absorbs, or at least transforms much ultraviolet light; it is not difficult to see why the lens should be injured by rays of this sort. As we rise in altitude the air becomes richer in ultraviolet rays, hence one sun-burns much more readily in high altitudes. Injuries from the ultraviolet rays of intense lights give rise to cataracts known as "occupational cataracts" from light, or heat and light trauma. Typical of this class is the glass-blowers' cataract. Thirty per cent of individuals following this occupation have cataract in the left eye before the age of forty (this being the eye nearer the light of a right-handed worker). The candle light is weakest in ultraviolet rays, next the oil lamp, then the gas light, and strongest of all the electric light; the more efficiency the electric light has, compared to the strength of the current used, the greater the strength of the ultraviolet ray and consequent danger.

### Subjective Symptoms.

The disturbances of vision depend on the character as well as the location of the opacity. A small amount of opacity, evenly spread, gives poorer vision than a much more opaque substance arranged in lines or bars. Breathe on a cold glass and you may obscure your vision

of the outer world, while you see perfectly through heavily barred windows.

Central opacities falling directly in the line of vision, though small, may greatly interfere with it; the same opacities behind the iris would not influence vision in the least unless they produced some lenticular refractive anomaly. *Muscae volitantes* arising from cataract, change their position with, and only with, the movements of the eye-ball—a valuable diagnostic point. *Polyopia monocularis* is nearly always a result of lenticular astigmatism produced by a distortion of contour of the lens. This distortion is, in severe cases, sufficient to give several images. When opacities are situated in the center of the lens, the patient sees poorly or not at all in bright illumination. This is due to the effect of the light on the pupil, making it very small. These people see relatively much better in subdued illumination, because the pupil dilates so that it is larger than the central opacity. Such people are said to have "night sight" (*hemeralopia*). It is in these cases that the charlatan, with atropine, temporarily produces so much of a cure by the "no knife" method that he is able to extort large sums of money;—exit mydriatic, exit cure. When the opacities are peripheral the reverse of the foregoing is often true. The sight is better under strong illumination where the pupil is small and the peripheral rays are cut off by the iris. This is called "day sight" (*nyctalopia*). A myotic gives temporary benefit in these cases. As the power to distinguish objects fails, so-called qualitative vision is lost, but light perception—quantitative vision—is always maintained over the entire fundus if the fundus be normal.

### Objective Symptoms.

To detect opacities of the lens, lateral illumination and the ophthalmoscope are often required; if opacities be peripheral a mydriatic must be added. With focal illumination by use of reflected light the opacities of the lens show as whitish spots or striations. They appear sharper of outline and whiter the more anteriorly they are situated; the outline becomes less defined and the color more grayish the farther back they are placed. The opacities in any situation appear black against the dark red back-

ground when viewed with the ophthalmoscope. In traumatic cataract it is often possible to see the point of opening in the capsule and some lenticular particles in the anterior chamber. Sometimes, indeed, the anterior chamber is filled with lens substance.

### Differential Diagnosis.

The differential diagnosis of traumatic cataract from that resulting from disease and age (senile cataract) becomes at once a study of greatest interest to the corporation surgeon in order that he may fend off that fraudulent combination of men, ever ready by any line of deception to defraud any corporation.

First and foremost, in differential diagnosis of traumatic cataract we look for the point of penetration or rupture of the capsule of the lens. Failing in this, it becomes our duty to look most carefully for those conditions present in the individual which might naturally result in a cataractous lens without injury. In differentiating traumatic cataract we must not forget that disease plays an important role in the production of cataract. Under this head diabetes mellitus comes easily first. Diabetic cataracts are always bilateral. Senile cataract itself is not a physiological process as is gray hair, but comes from some faulty metabolism consequent on age. The plethoric and gouty often escape, after incipient cataract starts, by alkaline cures with diet and exercise. Prolonged exposure to bright light acts to change the lens, especially where the aqueous is rich in mineral salts of calcium and magnesium. The glare of the desert sands is a cause of cataract.

Diseases which suddenly abstract the liquids from the system are followed by lenticular opacities; for example, cholera. Lamellar cataracts occur in the young after convulsions and rickets.

Congenital cataracts occur from intra-uterine disturbances of development, or from inflammation. These are generally bilateral and heredity plays an important role, as indeed it does in senile cataract.

Among eye diseases complicated with cataract are glaucoma, excessive myopia, ulcus serpens and the violent inflammations of the anterior part of the eye, retinitis pigmentosa,

choroiditis, especially irido-choroiditis chronica, and irido-cyclitis. In the last named disease, changes may have gone on in the eye for some time, the cataractous eye being of lighter color.

If the two eyes of an individual are of different color (heterochromia iridis) and a cataract develops in one of them, it will always be found in the lighter eye. This must always be connected with the lack of pigment in the lighter eye, and some disturbance of nutrition will always be found as the etiological factor of both conditions. In the lighter colored eye one may nearly always find minute deposits from a chronic cyclitis. Nearly all children are born with a deep blue iris. Little pigment is then found in the very thin stroma and the posterior blue pigment layer shows through. The stroma thickens with age, and if the pigmentation does not increase the eye simply shows as blue or gray. When corresponding increase of pigment occurs as the stroma thickens, the iris takes on a darker color. The dark pigmentation sometimes occurs in patches giving the blue-brown mottled iris. The pigmentation of the healthy iris invariably is in proportion to the general pigmentation. The dark races have dark irides. The pigment in the branched cells of the stroma does not always develop equally with the stroma and sometimes not at all, but the epithelial pigment is present. It is found in the retinal layer of the iris. In albinos pigment is absent from the retinal layer as from the stroma. Numerous vessels abound in the translucent greyish-red iris.

Certain characteristics of cataracts point to their cause. Thus in choroiditis and retinitis pigmentosa, anterior and posterior cortical cataracts are found; they are generally stellate in shape, and, if the cataract be total, the capsule appears very thick and the lens may be either liquefied or calcified. They are often greenish or greenish-yellow in color, and often in these cases the iridodonesis points to a lesion in the zonule. If there is no visible evidence that the cataract is a complicated one, it still may be produced by other diseases and we must not overlook the test for light perception in every case, as such test will often show the perception of light to be deficient or altogether wanting. Cataracts occurring in the lighter eye of

an individual, as we have already seen, come under the head of *cataract complicata*. The difference in the color of the two eyes may be very little and yet the lighter eye may show pronounced degenerative changes, extending over many years before the difference in the irides is detected.

Altered composition of the nutrient fluids causes cataract, as diseases of the thyroid and parathyroid glands. Ergotism and raphania may cause cataract; cataract often accompanies uncinariasis from malnutrition. Naphthol used too long and freely from skin diseases often causes cataract. Lightning and electricity produce cataract by bringing about chemical changes in the fluids of the eye and not by burning, as are the lesions produced on the external surface by these agencies.

Occupations requiring the handling of poisons are justly suspicious. In the hands of a tyro, some normal conditions have been mistaken for starting traumatic cataract, as, for instance, the normal stella observed with oblique illumination and the use of a magnifying glass. The sectors look gray and the intersectorial divisions appear as dark lines.

### Ectopia Lentis.

In the normal eye the pupil is seldom exactly central. It is usually a little below and to the inner side of the center of the eye-ball. When congenital dislocation of the lens occurs the pupil is generally considerably dislocated (*ectopia pupillae*), and the dislocation is generally upward or outward. When the dislocation is congenital the retinal pigment epithelium forming the posterior layer of the iris is often pulled and turned over the edge of the iris forming a dark ring at the edge of the pupil; sometimes this layer laps over the anterior surface of the iris sufficiently to form a dark, patched appearance, running in the direction of the luxation. A wavy appearance of the iris may be found in the quadrant where the luxation occurred, if the iris is carefully inspected with a strong magnifying glass. These points often enable the surgeon to state that luxations occurred before birth and are not the result of trauma during life.

Congenital luxations are always bilateral. They are frequently apparent in several mem-

bers of the same family, and often occur in conjunction with other congenital anomalies, as extreme refractive error, deficiencies of development, microphthalmus and the like. Such eyes are more subject than normal eyes to various diseases, as chronic inflammations of the uveal tract, and glaucoma.

### Treatment.

The aqueous that is secreted by the iris can find exit by way of the ligamentum pectinatum. Not so the aqueous secreted by the ciliary body. It must first pass through the pupil, and when there is seclusion of the pupil from any cause the aqueous of ciliary secretion is dammed back; this pushes the iris forward and, if extreme, against the periphery of the cornea. The ligamentum pectinatum is now pressed on and escape of the aqueous is rendered impossible. Lens substance in the anterior chamber sometimes blocks evacuation by way of the ligamentum pectinatum, hence it follows that increased tension is often a serious condition arising in traumatic cataract. It may be fatal to sight unless procedure against it is instituted. These operations are three and they are effective, namely, removal of the lens, iridectomy, and paracentesis of the cornea.

Each method is equally effective when applied to suitable cases. Paracentesis is beneficial in two ways. It evacuates part of the contents of the eye-ball that is suffering from a high tension. The anterior chamber refills to normal in amount in five to sixty minutes, but the new aqueous is a different aqueous. It contains more albumin and fibrin and protective bodies which are always present in the body in increased numbers in disease or injury, and which are not imparted to the aqueous of natural secretion. This explains why paracentesis acts so favorably in many diseased conditions. The eye-ball has no lymph vessels and excretion must go on through lymph spaces and passages in the ligamentum pectinatum and the perichoroidal spaces in which lie the lax lamellae and the lamina suprachoroidea. These communicate with Tenon's space, whence we follow through the supravaginal space to the outer side of the dural space and on by the intervaginal space between the sheaths of the optic nerve. Again, a space which corresponds

to the hyaloid or central canal of the vitreous, running directly back to the optic nerve, is present. The posterior spaces carry only a small amount of fluid to the eye and when compressed do not contribute much to increased tension, causing rather irritation of the papilla.

When seen early the first procedure in the treatment of traumatic cataract is to combat inflammation. Ice compresses act well to subdue this and also prevent great swelling of the lens. When the swelling of the latter is great—so great as in itself to be the cause of great reaction—removal may be done at once. It is better where possible to wait, as often a large part of the lens is later absorbed and the simpler operation of decision can be performed. Medicinal treatment depends on the age of the patient and the extent of the injury to the lens and other tissues of the eye. Atropine in 1 per cent solution is useful for installation when indicated. Dionine probably hastens the absorption of the lens substance from the anterior chamber and may save one from doing an iridectomy in some cases. Irrigation with normal saline or 1/10,000 formaline solution is beneficial, as also is the use of germicidal ointments.

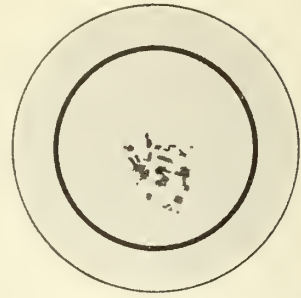
Atropine is especially indicated in those cases where it is reasonable to expect iritis, or the formation of synechia between the iris and the lens, and fear of tension from its use should not prevent its application in such cases. Tension is relieved, surgically, very easily and safely.

The operation of iridectomy becomes useful where the filtration from the anterior chamber is interfered with and remains very useful for later extraction; it is also indicated where synechia, anterior or posterior, would result without it. Operation on the lens for cosmetic reasons should always be delayed until all inflammatory symptoms have subsided.

Paracentesis becomes of great value when the tension is high and there is no danger of iridial synechia, and where it is especially dangerous to extract the lens on account of infection already present.

Those cases caused by the injury to the epithelial layer where small opacities occur often clear up under eserine, cold and rest. Below is annexed cut of a lens from the eye of a patient, a division superintendent, showing opaci-

ties present six days after trauma; six days after injury,  $V = \frac{20}{70}$ ; thirty days after injury  $V = \frac{20}{20}$ , lens perfectly clear.



**Lens Perfectly Clear.**

With subluxation of the lens, its edge appears black by transmitted light with the ophthalmoscope, because the light reflected from the fundus is so strongly deflected by the lens that it fails to reach the eye of the observer, if he is directly in front of the patient's eye. If the observer move his eye to the opposite side of the lens to where the rays pass that are transmitted through this edge, the latter appear a shining red and the rest of the lens glows, if it be transparent. When sufficient violence is encountered to loosen or rupture the suspensory ligament, each excursion of the eye causes an oscillating movement of the iris (iridodonesis). When concurrent with this the lens becomes decentered, subluxated, or luxated, or so rotates on its axis as to produce displaced, distorted, or doubled images, the patient consults the surgeon; otherwise the objective symptom of oscillation of the iris may be the only one. Rupture of the zonule may occur congenitally.

Luxation may occur into the anterior chamber; but is far more common into the vitreous. Luxated lenses always become cataractous in time. While the luxated lens remains transparent it is faintly grey by reflected light and shows luminous edges; by transmitted light with the ophthalmoscope its edge appears black. When the lens luxates into the anterior chamber the irritation generally produces spasm of the sphincter iridis and reduction is impossible. Cases occur where the lens is caught in the pupil after rupture of its attachments by the spasm of the sphincter. Generally, when the lens luxates into the aqueous it

sets up enough inflammation to form exudative attachments and becomes fixed. Rare cases occur where a small luxated lens passes in and out through the pupil, the lens passing in and behind the iris when the patient lies down, and coming out in the anterior chamber in front of the iris when the patient bends the head forward. These cases give easy extraction. After manipulation to get the lens into the anterior chamber, a myotic (eserine) is used to close the pupillary exit door and extraction is easily accomplished. When posterior luxation occurs the lens generally becomes fixed in some position. However, occasionally it is seen floating around in the vitreous. Subluxations pull on the zonule, causing atrophy and become luxations. The latter always become serious, generally by way of secondary glaucoma or iridocyclitis. Anterior luxations are by far more dangerous to the integrity of the eye-ball. Luxation occurs from disease as well as from trauma, as excessive myopia, choroiditis, detachment of the retina, or any diseased condition that produces atrophy of the zonule. After zonular atrophy a cough or a sneeze may produce the luxation, or even the act of bending over after a full meal. Tumors, exudates in the vitreous that subsequently contract, staphyloma of the cornea or sclera may produce luxation.

When glaucoma or iridocyclitis threatens, extraction is indicated in traumatic cataracts, luxated or in situ, provided that the contraindication of acute infection is not present.

When there is luxation and the zonula is already ruptured, prolapse of the vitreous causes unusual difficulty in extraction. Removal of the lens from the vitreous may be made, first using atropine and a wide iridectomy. A condensing light is placed above and to one side of the eye so that the lens is clearly seen in the vitreous. A spoon is used if the lens is low, or a hook if high. When the vitreous is not fluid, gentle pressure on the lower lid made toward the center of the eye often delivers the lens.

For secondary chronic inflammations following cataract, iridectomy may be resorted to; it is not always beneficial. If the eye be already blind, or tender or painful, an enucleation should be done for comfort and safety.

Operative and post-operative technic is so

generally discussed in every text book, and every surgeon so strongly opinionated on the subject, that it is not considered necessary to dwell thereon.

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## SARCOMA OF THE LUNG.

REPORT OF A CASE.

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AND

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M. L., female, aged 11 years, was first seen by the authors in consultation, October 23, 1917.

Family history negative regarding tuberculosis or cancer.

Personal History: Child had had measles, chickenpox, whooping cough and mumps. None of these attacks had been at all severe and they were all followed by rapid and satisfactory convalescence. She had never suffered with repeated or prolonged attacks of bronchitis. She had attended school until the middle of September, 1917, although she was not quite up to the mark in August.

At the first consultation Dr. Caine supplied the following notes: "She has been in poor health for four weeks following an operation for tonsils. The right chest was as it is at present. Temperature was 102° but soon subsided and she has had but an occasional rise since, and none lately. There has been but little cough. Once in a while she has had a hard paroxysmal cough, such as might come from pressure. No emaciation; no sputum. On examination the first thought was pleurisy with effusion or empyema. Aspiration with different sized needles yielded nothing."

Notes of first examination: Fairly well nourished child; no expectoration; no night sweats; voice natural; appetite fair, but complains of abdominal discomfort after eating; bowels regular, sleep good; temperature normal; heart action very rapid; urine, specific gravity 1030, urates in excess. Inspection:

Right side of chest more prominent than left, superficial veins dilated and extending from lower edge of ribs to clavide; inter-costal spaces tense and bulging. Absolute flatness on percussion from second rib to pelvis on right side, and across front of chest to left border of sternum. Splenic dullness greatly enlarged. Heart displaced to the left; apex beat in left axillary region. Respiratory murmur normal over left lung, absent over greater part of right lung except at apex and along border of sternum, where there is a loud bronchial rhonchus. Heart action very rapid with loud bruit with the second sound.

Fluoroscopic examination showed clear lung tissue to second rib with everything obscured as low as the pelvis. Heart large and displaced to the left to an extreme degree. Left lung, medium border displaced to the left, otherwise normal. In a letter to Dr. Caine, October 26, a tentative diagnosis of a rapidly growing sarcoma in the right chest was made. Within 10 days the circumference of the chest had increased one inch in measurement. The patient failed rapidly. Morphine had to be used to allay pain and sleeplessness. She died November 27th.

Post-mortem Examination: Abdominal organs normal; right side of diaphragm was pushed down into the abdominal cavity as far as the umbilicus. The liver was dislocated to the left side. The mediastinum and its contents were found entirely to the left of the sternum. The heart was well over in the axillary region. The right side of the heart was tremendously dilated and extended beyond the left side forming the apex. The walls of the right ventricle were very thin. The tricuspid valve was insufficient. The left lung was normal except where it had been collapsed from pressure along its median edge. The distended right pleura contained a broken down shapeless mass of the consistency of mush. The hand carefully introduced to bring out the right lung simply passed through it without resistance. The substance had no resemblance to normal lung tissue.

Report of the Pathological Examination: On November 28th, Dr. H. L. Taylor brought a tissue mass to this laboratory for histological examination. The tissue submitted weighed about five hundred grammes. Upon microscopic examination it was found to be very soft and friable. There was no capsule present and the mass submitted had the appearance of being only a portion of the entire growth. Upon cut section the mass was found to be exceedingly soft and in areas it showed a red and gray mottled appearance. The growth was hardened in 20% formalin to facilitate examination. After this treatment for seventy-two hours, it was again examined. This time the mottled appearance was more pronounced but no definite connective tissue structure could be determined microscopically.

From stained section of this material, however, we have demonstrated a sarcoma, probably of the round cell type. The tumor is composed of many small round cells held in a most delicate vascular stroma. There are also present many larger cells which are probably foreign body cells. In this neoplasm, as in many other forms of sarcoma, there appears to be a local necrosis of tumor cells from lack of sufficient blood supply. This leads to a peculiar condition in which only those cells close to the blood vessels are alive and the rest fade into a pale staining debris. Many mitotic figures are present in this specimen in all stages of development and we are therefore led to believe that the tumor is one of a very rapidly growing type.

Beebe Laboratories,

By H. H. Warner.

Pathologist.

A case similar in many respects was reported by Rolleston and Trevor, *British Medical Journal*, Feb. 14, 1903, in a child 13 years old. They describe the tumor as follows: "Whole right lung except apex converted into soft gruel like growth with hemorrhagic areas. Microscopic diagnosis: Spindle celled sarcoma.



## TONSILLECTOMY IN ARTHRITIS.

EDMUND L. WARREN, M. D.

*St. Paul, Minn.*

Infectious arthritis in any of its varied forms constitutes one of the most definite indications for tonsillectomy. We cannot, however, by inspection alone, accuse a pair of tonsils of being the seat of the infection. The previous history is important as to the number and severity of attacks of tonsillitis or quinsy, and whether or not there has been "rheumatism" in either its acute articular or any of the numerous phases of the so-called "rheumatic diathesis." The size of a tonsil is no criterion of its pathologic condition. As a general rule, however, the large tonsils, with wide-open crypts having their oral surface free from contact with the plica and pillars, seem to be "self-evacuating," due to the compression and massage they receive during the act of swallowing. The experience of the writer has been that inspection of tonsils in situ in persons with previous or existing "rheumatism," shows them to be either the small buried type or the large flat tonsil which some years previously has been subjected to an operation which did no more than amputate the visible portion. These tonsils should have been left as they were, in lieu of the performance of a complete enucleation.

Given a case showing chronic or sub-acute "rheumatism" we are at once confronted with the question, "shall we operate, and if so, how soon?" There seems to be no question that an operation is indicated, provided, of course, that other sources of infection have been eliminated. The urgency of operation in these cases, it seems to the writer is just as great as is the need for removal of a tooth with an apical abscess draining into the system. If we feel certain that the tonsils are constantly adding to the blood stream toxins which cause and keep up the symptoms, the sooner these storehouses are removed the better for the individual. In a patient having had just previously, or at the time of operation, one or two joints which are stiff, somewhat reddened, or even showing slight swelling, there almost invariably occurs during the first week or ten days following the operation an aggravation of the joint symptoms. This undoubtedly is due to some absorp-

tion from the raw surfaces of the tonsillar fossae. With the pathogenic bacteria which are present in the mouth it is natural to suppose that the fossae would not remain clean. The fossae are the seat of a superficial coagulation necrosis in which are bacteria and their toxins, leucocytes, fibrin, epithelial debris and food particles on a raw surface, through which there is bound to be some absorption. These areas are not evidence of an infectious invasion of the living tissue but merely a superficial necrosis of the leucocytic and fibrinous exudation. Tissue infection is probably prevented by the wide-open nature of the wound and the fact that the surface is being constantly washed by the saliva.

Quite frequently, however, a mild degree of infection of the tonsillar wound follows the operative attack on this region, but it is significant to note that comparatively few severe infections occur. A certain number of operated cases show a moderate degree of temperature elevation for two or three days following the operation and accompanied by increased sore throat, general malaise and other indications of a mild degree of sepsis. The appearance of the wound in these cases seldom differs from those running a normal temperature, except that the surrounding tissues are somewhat more reddened and there is generally some edema of the uvula.

About the time this necrotic membrane disappears, due to replacement by epithelium growing in from the edges of the wound and scar tissue replacing the granulations in the center, the rheumatic symptoms begin to subside. In the great majority of cases the wound is free from this membrane in from twelve to fourteen days. It is from this time on that we look for the beneficial results of the operation, and those who look for them before this time will be disappointed.

Aside from very favorable effects upon the joint symptoms, a pre-existing endocarditis is frequently seen to be decidedly improved. In a case obviously having septic vegetations on the heart valves and a definite history of tonsil trouble, we are occasionally called upon to operate with the idea of doing all that offers any prospect of relief and at the same time take the added risk of spreading the infection. In

a recent case of this sort operation seemed advisable to all who saw her. Following the operation the throat healed completely in less than the average time. At the end of the two weeks the joint symptoms had cleared up but the temperature was running from  $99^{\circ}$  to  $102^{\circ}$  or  $103^{\circ}$ . Twenty days after the operation the leucocytes were 16,000, streptococci were in the bloodstream, her neck was stiff, and the whole left side was paralyzed due to embolism of the right

internal capsule of the brain. At the end of another week the temperature indicated a most profound sepsis and twice each day went to  $105^{\circ}$  or  $106^{\circ}$  and then dropped to  $96^{\circ}$  or  $97^{\circ}$ . Death occurred on the thirty-eighth day after removal of her tonsils. Grossly, the tonsils showed numerous closed crypts each containing caseous material. These tonsils had been "clipped" some years previously and on inspection appeared flat and rather small.



# Minnesota Medicine

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Vol. I April, 1918 No. 4

## EDITORIAL

### MINNEAPOLIS CLINICAL WEEK.

The attention of our readers is called to the tentative program for the "Minneapolis Clinical Week" which is published in this issue. The completed program will be issued on the first day of the meeting which is Monday, April 8th, and will be supplemented each day with more detailed and definite information. Every effort is being made to see that visiting physicians will be properly placed in the work which they most desire to see.

There are ample clinical facilities for a large number of men. There are 2,200 beds in the Minneapolis hospitals and in addition there are large dispensaries at the University and Minneapolis City Hospital.

The clinics will be given under the auspices of the Clinical Section of the Hennepin County Medical Society. It is in no sense a "Surgical Congress," for clinics of all kinds in all the different specialities will be given.

The work will be so arranged that no more men will be allowed in a clinic than can be accommodated. There will be some special features.

On Monday night the Hennepin County Medical Society will hold its annual banquet to which all visiting men are invited.

On Wednesday evening the Minnesota Academy of Ophthalmology and Oto-Laryngology will have its annual meeting at which Dr. Louis Fisher, of Philadelphia, will give an address.

There will be a scientific meeting Wednesday which will be addressed by some celebrity to be announced later.

Dr. Major E. Seelig, M. R. C., of St. Louis, will be at the meeting and will talk on some of the surgical war problems.

Dr. William G. Sharpe, of New York, will give some report of the work he has been doing in brain and cord surgery.

The Registration Bureau will be in the lobby of the Hotel Radisson and all necessary information may be secured there.

It is very important that those who expect to attend should secure hotel accommodations early as there is to be a State Republican Convention held in Minneapolis on Monday, April 8th.

Do not forget that the Minneapolis Clinical Week begins Monday morning, April 8th, and ends Friday evening, April 12th.

Remember everything possible will be done to make visitors comfortable and happy and give them something worth while in clinical work.

### JOIN THE MEDICAL RESERVE CORPS.

At the annual meeting of the Minnesota State Medical Association held in St. Paul, October 11 and 12, Major J. F. Corbett, recently of Minneapolis, now in active service, brought out some very salient facts regarding the needs of the Medical Reserve Corps of the U. S. Army. We take great pleasure in having Major Corbett present the important features of the situation:

“Some six years ago the Medical Reserve Corps was organized. This never had a very large membership, because the need for an organization was not very apparent. A year ago last June the Medical Reserve Corps was reorganized, to become a branch of the Officers’ Reserve. Then our threatened war became apparent, and interest was at once stimulated in the medical branch of the Officers’ Reserve Corps. It became very apparent that a great deal of work had to be done if the enormous army that this country was to raise should be supplied with medical men.

“With this purpose in view, various examining boards were appointed throughout the country to obtain officers for the Medical Reserve. Various agencies, the National Council of Defense, various state agencies, and various individuals, stimulated the interest in them, and as a result, all over the country nearly enough men have come forward to supply immediate needs.

“But that does not mean that anyone should hesitate to offer his services. If we have men enough for today—barely enough to supply the needed men in the reserves for today—it means we are going to need a great many more men than this a year from now; and it is very much better to take time in the selection of these men, and in getting them classified and properly placed, than to rush the work the way we have had to do during the last three or four months.

“Therefore I do not want the impression to go out that the army has enough reserve men. It is true that they have enough for the immediate present, but let us build this thing up on the big scale upon which it ought to be built. Let every available man offer his service to the country, so that when the crisis becomes acute it will be known where the right man is for the right job, and round pegs will not be fitted in square holes.

“For two million men we need actually twenty thousand medical men. That, figured on the number of physicians in the United States, means one man out of every seven, or of actually practicing men of military age, one man out of every four. Minnesota has 2,447 practitioners. Only 1,498 of these are sufficiently active in their profession to belong to the State Medical Society. Minnesota to hold up its head

will have to furnish 350 medical reserve officers. That is for the present army. To make this thing an ultimate success we will have to furnish more than that.

“Now, what has been done? The Board of which I am a member has so far recommended for commissions 348 men. I have tried to follow these by questionnaires, and I have only evidence of 227 that have actually accepted their commissions; so that we can only at the present time actually count on 227, although there are about 100 men that have been recommended so recently that they have not had time to accept their commissions.

“These men are from a number of states. From Minnesota alone, our Board has recommended for commissions 259 men, and 177 of these have accepted their commissions. Nine have refused their commissions. We have rejected in Minnesota 33 men.

“That means that this work, to my mind, should go on. We must keep on. We are really only about half through with what should be done to make the Medical Reserve Corps such a success that it will fill any possible emergency that may arise. And I am going to again ask the co-operation of every member of this Society, not only in offering himself, but his co-operation in enlisting the interest of other men. It is particularly the young man that the army needs for certain kinds of service, but every type of man is needed, because every type of medical service is represented in some way in the army.”

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### IMPORTANT.

Owing to the great demand for the January and February issues of *Minnesota Medicine*, readers of the Journal who are not keeping these two numbers for binding are asked to kindly send them in to the Editorial offices.

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### MINNEAPOLIS CLINICAL WEEK.

#### PRELIMINARY PROGRAM.

April 8, 9, 10, 11, and 12.

A more complete program, which is now being compiled, will be issued later. A daily bulletin, issued every afternoon, will give in detail the program for the following day.

## SURGERY.

*City Hospital*

## SURGICAL CLINICS—Daily

Dr. Arthur T. Mann, Dr. Henry C. Stuhr, Dr. F. H. Poppe, Dr. F. L. Adair, Dr. J. H. Simons, Dr. F. R. Wright, Dr. A. H. Parks and Staff, Dr. H. B. Sweetser and Staff, Dr. A. E. Booth, Dr. Edward Moren.

*University Hospital*

## DIAGNOSTIC, EMERGENCY, AND SURGICAL CLINICS—

Dr. Franklin Wright, Dr. J. E. Moore, Dr. Arthur Strachauer, Dr. James A. Johnson.

*St. Barnabas Hospital*

## SURGICAL CLINICS—

Dr. F. A. Dunsmore, Daily, Dr. E. R. Hare, Dr. R. E. Farr, Daily, Dr. H. J. Franzen, Dr. A. A. Laurent, Dr. A. E. Booth, Dr. R. J. Phelan, Dr. S. C. Schmitt, Dr. A. E. Benjamin, Dr. W. H. Aurand.

*Northwestern Hospital*

## SURGICAL CLINICS—

Dr. Gustav Schwyzer, Dr. A. E. Benjamin, Dr. A. T. Mann, Dr. C. Nootnagel, Dr. Oscar Owre, Dr. Herman Bouman, Dr. O. W. Yoerg, Dr. H. W. Jones.

*Swedish Hospital*

## SURGICAL CLINICS—Daily

Dr. C. J. Ringell, Dr. Oscar Owre, Dr. C. M. Kistler, Dr. A. E. Johnson, Dr. Edward Moren, Dr. Theodore Tennyson, Dr. John Rishmiller.

*Hillcrest Hospital*

## SURGICAL CLINICS—Daily

Dr. J. W. Little, Dr. C. G. Weston, Dr. E. K. Greene, Dr. A. S. Fleming.

*Fairview Hospital*

## SURGICAL CLINICS—

Dr. Ivar Sivertson, Daily, Dr. H. N. Sheldrup, Daily, Dr. Iden, U. S. N., Some Phases of Naval Surgery.

*Asbury Hospital*

## SURGICAL CLINICS—

Dr. Archa E. Wilcox, Daily, Dr. A. H. Parks, Dr. E. Z. Wanous.

*Eitel Hospital*

## SURGICAL CLINICS—Daily

Dr. G. G. Eitel, Dr. E. C. Robitshek.

*Abbott Hospital*

## SURGICAL CLINICS—

Dr. A. W. Abbott, Daily, Dr. A. C. Strachauer, Dr. Stephen Baxter.

*Norwegian Hospital*

## SURGICAL CLINICS—

Dr. E. L. Paulson, Dr. A. G. Wethall, Dr. C. M. Roan, Dr. Nimrod Johnson.

*St. Mary's Hospital*

## SURGICAL CLINICS—

Dr. H. B. Sweetser, Daily, Dr. W. J. Burns, Daily, Dr. C. E. Henry, Dr. M. J. Lynch, Dr. Nimrod Johnson, Dr. E. O. Voyer, Daily.

*St. Andrew's Hospital*

## SURGICAL CLINICS—Daily

Dr. C. Nootnagel, Dr. H. A. Bouman, Dr. Hugo Hartig, Dr. F. L. Adair.

## OBSTETRICS AND GYNECOLOGY.

*City Hospital*

## OBSTETRICAL CLINICS—

Dr. F. L. Adair and Staff, Dr. J. H. Simons, Dr. H. B. Sweetser and Staff.

## GYNECOLOGICAL CLINICS—

Dr. H. B. Sweetser, Dr. J. H. Simons, Dr. C. O. Maland, Dr. F. J. Souba.

*University Hospital*

## OPERATIVE GYNECOLOGY—

Dr. W. H. Condit, Dr. J. C. Litzenberg, Dr. J. L. Rothrock.

## MANIKIN DEMONSTRATION, USE OF FORCEPS—

Dr. J. C. Litzenberg.

## GYNECOLOGICAL DIAGNOSIS—

Dr. L. W. Barry, Dr. J. W. Bell, Dr. W. H. Condit.

## BEDSIDE CLINICS—

Dr. J. C. Litzenberg, Dr. W. H. Condit.

## EYE, EAR, NOSE, AND THROAT.

*City Hospital*

## DIAGNOSTIC CLINICS—

Dr. J. D. Lewis, Dr. S. E. Kerrick, Dr. J. T. Litchfield.

## SURGICAL CLINICS—

Dr. J. D. Lewis, Dr. J. S. Reynolds, Dr. S. E. Kerrick, Dr. J. T. Litchfield.

*University Hospital*

## DIAGNOSTIC CLINICS—

Dr. J. S. Macnie, Dr. G. E. Strout, Dr. Horace Newhart, Drs. F. J. and J. A. Pratt, Dr. W. E. Patterson.

## SURGICAL CLINICS—

Dr. W. R. Murray, Dr. H. S. Clark.

## REFRACTION CLINIC—

Dr. E. A. Loomis.

Examination of aviation recruits will probably be given during the week at Millard Hall.

*Northwestern Hospital*

## SURGICAL CLINICS—

Dr. E. S. Strout, Dr. Douglas Wood, Dr. Horace Newhart.

*St. Barnabas Hospital*

## SURGICAL CLINICS—

Dr. H. McL. Morton, Dr. W. R. Murray, Dr. J. S. Reynolds, Dr. G. L. Doxey.

*Asbury Hospital*

## SURGICAL CLINICS—

Dr. J. A. Watson, Dr. M. R. Wilcox, Dr. H. H. Leavitt.

*Eitel Hospital*

## SURGICAL CLINICS—

Dr. C. N. Spratt, Dr. Justus Matthews, Dr. G. A. Kohler.

*Swedish Hospital*

## SURGICAL CLINICS—

Dr. E. H. Parker, Dr. Douglas Wood, Dr. J. G. Ericson.

*Hillcrest Hospital*

## SURGICAL CLINICS—

Dr. F. C. Todd, Dr. W. E. Patterson.

*Abbott Hospital*

## SURGICAL CLINICS—

Dr. R. A. Campbell.

*St. Mary's Hospital*

## SURGICAL CLINICS—

Dr. C. D'a Wright, Dr. G. E. Benson.

## INTERNAL MEDICINE.

*City Hospital*

## BEDSIDE CLINICS—

Dr. H. L. Ulrich, Dr. E. L. Gardner, Dr. J. G. Cross,  
Dr. H. L. Staples, Dr. John Hynes, Dr. T. A. Peppard,  
Dr. C. N. Brooks.

## CLINIC ROOM—

Dr. H. L. Ulrich, Dr. J. G. Cross.

*University Hospital*

## BEDSIDE CLINICS—

## CARDIAC DISEASES, DIABETES, AND RENAL DISEASES.

Dr. L. G. Rowntree, Dr. H. L. Ulrich, Dr. R. I. Rizer,  
Dr. C. B. Wright.

## GENERAL MEDICINE—

Dr. Chas. Drake, Dr. J. P. Schneider, Dr. Frederick  
H. K. Schaaf.

## HEART—

Dr. Olga Hansen.

## LUNGS—

Dr. F. W. Wittich.

*Hillcrest Hospital*

## HEART AND LUNGS—

Dr. L. A. Nippert

*Hopewell Hospital*

## TUBERCULOSIS CLINICS—

Dr. F. H. Hacking.

*Glen Lake Sanatorium*

## TUBERCULOSIS CLINICS—

Dr. E. Marriette, Dr. F. W. Wittich.

*Thomas Hospital*

## TUBERCULOSIS CLINIC—

Dr. F. H. Hacking.

*Swedish Hospital*

## MEDICAL CLINICS—

Dr. J. P. Schneider, Dr. S. P. Rees.

*Northwestern Hospital*

## MEDICAL CLINICS—

Dr. J. G. Cross, Dr. J. M. Lajoie, Dr. J. W. Bell, Dr.  
C. M. Carlaw.

*Fairview Hospital*

## MEDICAL CLINIC: PERNICIOUS ANEMIA—

Dr. H. Peterson.

*St. Barnabas Hospital*

## MEDICAL CLINICS—

Dr. H. B. Annis, Dr. C. P. Aling.

## PEDIATRICS.

*University Hospital*

## GENERAL PEDIATRIC CLINIC—

Dr. F. W. Schlutz.

## TUBERCULOSIS IN CHILDREN—

Dr. Max Seham.

## NEW-BORN CLINIC: BREAST-FEEDING—

Dr. J. P. Sedgwick.

## CONGENITAL DEFECTS—

Dr. F. W. Schlutz.

## SPASMOPHILIA—

Dr. J. P. Sedgwick.

## FUNCTIONAL NERVOUS DISEASES OF CHILDHOOD AND INFANCY—

Dr. E. J. Huenekens

## CASE-HISTORIES IN DISEASES OF CHILDREN—

Dr. Max Seham.

## DEMONSTRATION OF INTUBATION—

Dr. E. J. Huenekens.

*Lymanhurst*

## INFANT-FEEDING—

Dr. F. W. Schlutz, Dr. F. C. Rodda.

*City Hospital—*

## INSPECTION OF THE MINNEAPOLIS CONTAGIOUS HOSPITAL, AND DEMONSTRATION OF ASEPTIC MEDICAL NURSING—

Dr. F. C. Rodda.

## EPIDEMIC MENINGITIS: DIAGNOSIS AND TREATMENT—

Dr. Max Seham.

*Abbott Hospital*

## GENERAL PEDIATRIC CLINIC—

Dr. J. P. Sedgwick.

## X-RAY WORK IN CHILDREN—

Dr. F. C. Rodda.

*Pillsbury Settlement House*

## AMBULATORY INFANT-FEEDING—

Dr. E. J. Huenekens.

*Swedish Hospital*

## GENERAL PEDIATRICS—

Dr. F. C. Rodda.

## NEUROLOGY.

*City Hospital*

## TECHNIC OF NEUROLOGICAL EXAMINATION WITH ILLUSTRATIVE CASES—

Dr. L. M. Crafts.

## CHRONIC CORD DISEASES—

Dr. W. A. Jones.

## BRAIN SURGERY—

Dr. H. W. Jones.

## SENSORY CHANGES IN PERNICIOUS ANEMIA—

Dr. A. S. Hamilton.

## DIAGNOSIS OF LOCOMOTOR ATAXIA.

Dr. Julius Johnson.

## DERMATOLOGY.

*University Hospital*

## CLINICS—

Dr. S. E. Sweitzer, Dr. H. E. Michelson, Dr. John Schroeder, Dr. Oscar Owre.

*City Hospital.*

## OPERATIVE CLINIC IN UROLOGY—

Dr. F. R. Wright, Dr. Oscar Owre.

## BEDSIDE CLINIC IN UROLOGY—

Dr. F. R. Wright.

*University Dispensary*

## CLINIC IN UROLOGY—

Dr. A. G. Wethall.

## CLINIC IN SYPHILIS—

Dr. H. E. Michelson.

## CLINIC IN DERMATOLOGY—

Dr. S. E. Sweitzer.

*Wells Memorial*

## CLINIC IN DERMATOLOGY—

Dr. C. A. Boreen.

*Asbury Hospital*

## CLINIC IN DERMATOLOGY—

Dr. G. P. Crume.

## ROENTGENOLOGY.

*University Hospital*

DEMONSTRATIONS IN GASTRO-INTESTINAL FLUOROSCOPY;  
PLATE READING IN LUNG AND HEART DISEASES;  
AND STUDIES OF VARIOUS TYPES OF BONE- LESIONS.  
Dr. F. S. Bissell.

*City Hospital*

DEMONSTRATIONS IN GASTRO-INTESTINAL FLUOROSCOPY  
Dr. C. A. Donaldson.

*Asbury Hospital*

ROENTGEN DEMONSTRATIONS IN CONJUNCTION WITH  
MEDICAL AND SURGICAL CLINICS—  
Dr. C. D. Harrington.

*Northwestern Hospital*

ROENTGEN DEMONSTRATIONS IN CONJUNCTION WITH  
MEDICAL AND SURGICAL CLINICS—  
Dr. C. D. Harrington.

*St. Barnabas Hospital*

ROENTGEN DEMONSTRATIONS IN CONJUNCTION WITH  
MEDICAL AND SURGICAL CLINICS—  
Dr. Kano Ikeda.

## LABORATORY.

*University Hospital*

DEMONSTRATIONS IN PHYSIOLOGY—  
Dean E. P. Lyon and Staff.

## DEMONSTRATIONS IN ANATOMY—

Dr. C. M. Jackson and Staff.

## DEMONSTRATIONS IN PHARMACOLOGY—

Dr. A. D. Hirschfelder and Staff.

## LABORATORY DEMONSTRATIONS—

Dr. Frederick H. K. Schaaf.

BLOOD-CULTURES, SPINAL FLUIDS, AND COLLOIDAL GOLD-  
TEST—

Dr. Margaret Warwick.

## NEW METHOD OF PREPARING VACCINES—

Dr. W. P. Larson.

*Swedish Hospital*

## WASSERMANN TESTS, ETC.—

Dr. C. R. Drake.

*Radisson Hotel*

## BONE SARCOMA—

Dr. E. T. Bell.

ROUTINE PATHOLOGICAL LABORATORY WORK IN ALL  
HOSPITALS IN ASSOCIATION WITH SURGICAL AND-  
MEDICAL CLINICS—

Northwestern

Abbott

St. Barnabas

Hillcrest

University

St. Mary's

Swedish

Deaconess

City

Asbury

Eitel

Fairview

St. Andrews

## PROBABLY DEMONSTRATIONS BY

The Minnesota State Board of Health Laboratories.

## MISCELLANEOUS ANNOUNCEMENTS.

Banquet of the Hennepin County Medical Society and  
Clinical Section of the Hennepin County Medical So-  
ciety, Radisson Hotel Roof Garden, Monday, April 8,  
7 p. m.

Speakers will be announced later. All visiting physi-  
cians are invited to attend.

Scientific Meeting, Gold Room, Radisson Hotel,  
Wednesday, April 10, 8 p. m. Dr. Lewis Fisher, Phila-  
delphia, and other speakers to be announced later, will  
address the meeting.

Banquet of the Minnesota Academy of Ophthalmology  
and Oto-Laryngology, Radisson Hotel, Wednesday, April  
10, 7 p. m. Address by Dr. Lewis Fisher, Philadelphia.  
Visiting ophthalmologists and oto-laryngologists are in-  
vited to attend.

Gold Room, Radisson Hotel, Daily, 4:30 to 6 p. m.,  
motion-picture demonstrations of various surgical oper-  
ations, plate exhibits, and demonstrations in roentgeno-  
logy, lantern-slides, exhibits, etc. Demonstration of  
medical inspection in the public schools.

HOTEL RESERVATIONS SHOULD BE MADE EARLY.

## OF GENERAL INTEREST

The following County and District Sanatoria are operating at the present time under the supervision of the Advisory Commission with the following superintendents and medical officers:

Nopeming Sanatorium, Nopeming, St. Louis county, Dr. John M. Conroy, Acting Supt. and Medical Director.

Ottertail County Sanatorium, Battle Lake, Ottertail county, Dr. A. G. Kessler, Supt. and Medical Director.

Ramsey County Tuberculosis Pavilion, St. Paul, Dr. A. B. Ancker, Supt.; Dr. H. L. Taylor, Medical Director.

Mineral Springs Sanatorium, Cannon Falls, Goodhue county, Mrs. Mae Geraldson; Dr. L. F. Sutton, Medical Director.

Glen Lake Sanatorium, Hopkins, Hennepin county, Dr. E. S. Mariette, Supt. and Medical Director.

Sunnyrest Sanatorium, Crookston, Polk and Norman counties, Miss Hulda Hultquist; Dr. J. N. Elliot, Medical Director.

Lake Julia Sanatorium, Puposky, Beltrami, Koochiehing and Hubbard counties, Dr. W. L. Mattick, Supt. and Medical Director.

Sand Beach Sanatorium, Lake Park, Clay and Becker counties, Miss Mary C. Beall; Dr. H. E. Le Cates, Medical Director.

Buena Vista Sanatorium, Wabasha, Wabasha county, Miss M. E. Ruddiek; Dr. L. F. Sutton, Medical Director.

Riverside Sanatorium, Granite Falls; Chippewa, Lac Qui Parle, Yellow Medicine and Renville counties, Mrs. S. W. Dunton; Dr. L. G. Guyer, Medical Director.

Southwestern Minnesota Sanatorium, Worthington; Lincoln, Lyon, Pipestone, Murray, Cottonwood, Rock, Nobles and Jackson counties, Dr. E. J. Murray, Supt. and Medical Director. Institution has been temporarily closed because of the failure of the water supply.

Oakland Park Sanatorium, Thief River Falls; Marshall, Roseau and Pennington counties, Miss L. E. Fletcher; Dr. J. N. Elliot, Medical Director.

Fair Oaks Lodge Sanatorium, Wadena; Todd and Wadena counties. To open April 15, 1918; Dr. H. E. Le Cates, Medical Director.

Deerwood Sanatorium, Deerwood; Crow Wing and Aitken counties. To open May 15, 1918.

Naval Station Hospital, Unit No. 10, has been formed in Minneapolis with the following personnel:

Clifford E. Henry, grade of surgeon, rank of Lieutenant Commander.

Clinton C. Tyrrell, grade of surgeon, rank of Lieutenant Commander.

John T. Litchfield, grade of past assistant surgeon, rank of Lieutenant.

J. Arthur Riegel, grade of assistant surgeon, rank of Lieutenant (j. g.).

William P. Robertson, grade of assistant surgeon, rank of Lieutenant (j. g.).

The Advisory Commission of the State Sanatorium for Consumptives organized at its first quarterly meeting in 1918 by electing Dr. Pearl M. Hall, of Minneapolis, President; Dr. Edward T. Sanderson, of Minnesota, Vice President; Dr. Patrick A. Smith, of Faribault, Secretary; Dr. Robinson Bosworth, of St. Paul, Executive Secretary.

The other members of the Commission are: Dr. Charles F. McComb, of Duluth, and Dr. Charles W. More, of Eveleth.

The office of the Commission is in suite No. 814, Lowry Building, St. Paul.

Dr. L. G. Guyer has been transferred to Riverside Sanatorium, Granite Falls, Minn., where he devotes his full time to the medical care of patients of that institution and to establishing and maintaining rural dispensaries of four counties, Renville, Yellow Medicine, Lac qui Parle, and Chippewa. Dr. Guyer formerly had charge of the medical services at Sunnyrest Sanatorium, Crookston, Minn., and Sand Beach Sanatorium, Lake Park, Minn.

Dr. J. N. Elliot has taken charge of the medical services at Sunnyrest Sanatorium at Crookston and at Oakland Park Sanatorium, Thief River Falls. Dr. Elliot was formerly connected with the Sea View Hospital, Staten Island, N. Y.



The following members of the St. Louis County Medical Society have been appointed as the Committee on Arrangements for the next meeting of the Minnesota State Medical Association to be held in Duluth, August 28th, 29th, and 30th:

Dr. C. F. McComb, Chairman.  
 Dr. W. H. Magie.  
 Dr. W. R. Bagley.  
 Dr. A. H. Schwartz.  
 Dr. C. L. Haney.

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At the annual meeting of the Nicollet-Le Sueur Counties Medical Society, the following officers were elected:

President, Dr. L. F. Woodworth, Le Sueur Center, Minn.  
 Vice President, Dr. O. T. Baskett, St. Peter, Minn.  
 Secretary, Dr. J. E. Le Clerc, Le Sueur, Minn.  
 Treasurer, Dr. D. W. McDougald, Le Sueur, Minn.  
 Censor, Dr. G. F. Merritt, St. Peter, Minn.  
 Delegate, Dr. G. W. McIntyre, St. Peter, Minn.  
 Alternate, Dr. H. B. Aitkens, Le Sueur Center, Minn.

Dr. T. B. Hartzell of the University of Minnesota gave a lecture on "Focal Infections" illustrating the same with lantern slides. The dentists of Le Sueur attended the meeting as guests.

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Dr. J. M. Conroy, late of the City and County Hospital of St. Paul, has been appointed medical superintendent of Nopeming Sanatorium, near Duluth, Minn., to serve during the absence in France of Dr. A. T. Laird.

Dr. W. L. Mattick has received the appointment as Superintendent of the Lake Julia Sanatorium, Puposky, Minn., Dr. Mattick formerly was connected with the Raybrook Sanatorium, N. Y., and the United States Dept. of the Interior.

Miss Lydia E. Fletcher, R. N., was appointed Superintendent of the Oakland Park Sanatorium, Thief River Falls, which opened its doors for patients January 1st.

Dr. E. J. Murray, Superintendent of the Southwestern Sanatorium, Worthington, Minn., has resigned to take effect April 1st.

The regular quarterly meeting of the Advisory Commission will be held in the office in the Lowry Building, April 5th, 1918.

That excavations are being made for the new Deaconess hospital at Billings, Montana, has been announced by the Deaconess hospital association. The cost will be about \$140,000. The board of trustees for the association are: B. G. Brockway, Jacob Werner, C. J. Eddy, Roy I Covert, O. B. Farnham, and George Mecklenberg.

Dr. H. E. LeCates, formerly Superintendent of the Blue Grass Sanatorium, Lexington, Ky., arrived March 1st to take charge of the medical services of Sand Beach Sanatorium, Lake Park, Minn. He will also have charge medically of the Fair Oaks Lodge Sanatorium, Wadena, Minn., when that institution opens about April 15th.

The Todd-Wadena County Sanitarium at Long Prairie, Minn., will soon be ready to receive patients.

Dr. O. L. Peterson, who has practiced medicine at Lafayette, Minn., for the past three years will move to Cokato, Minn.

## NEW AND NON-OFFICIAL REMEDIES

During February the following articles were accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

### The Abbott Laboratories:

Chlorcosane  
Barbital-Abbott  
Procaine-Abbott

### Dermatological Research Laboratories, Philadelphia Polyclinic:

Arsenobenzol (Dermatological Research Laboratories), 1 Gm. Ampules.

### Eli Lilly and Company:

Typhoid Vaccine, Prophylactic  
Typhoid Vaccine, Therapeutic  
Typhoid Mixed Vaccine, Lilly

### Merck and Company:

Mercury Benzoate-Merck

### Monsanto Chemical Works:

Halazone-Monsanto

### H. K. Mulford Company:

Bulgarian Bacillus, Friable Tablets.

### NEW AND NON-OFFICIAL REMEDIES.

**Barbital.**—Diethyl-Barbituric Acid, first introduced under the name veronal. In small doses barbital is a relatively safe hypnotic, but fatalities have followed its indiscriminate use. It is claimed to be useful in simple insomnia, as well as in that accompanying hysteria, neurasthenia and mental disturbances. From 0.3 to 1 Gm. (5 to 15 grains) in hot water, tea or milk, or, if in wafers or capsules, followed by a cupful of some warm liquid.

**Barbital-Abbott.**—A brand of barbital complying with the New and Non-official Remedies standards. The Abbott Laboratories, Chicago.

**Mercury Benzoate-Merck.**—A brand of mercuric benzoate complying with the New and Non-official Remedies standards. Mercuric benzoate has the properties of mercuric chloride. It has been said to be useful for hypodermic use and in gonorrhoea. Merck and Company, New York.

**Chlorcosane.**—A liquid obtained by chlorinating solid paraffin. It contains about 50 per cent of chlorin in stable combination. Chlorcosane is used as a solvent for dichloramine-T; with it, solution containing as much as 8 per cent may be prepared. When used in a hand atomizer, chlorcosane solutions of dichloramine-T may be made less viscous by the addition of 10 per cent of carbon tetrachloride. The Abbott Laboratories, Chicago.

**Betanaphthyl Salicylate-Calco.**—A brand of betanaphthyl salicylate complying with the New and Non-official Remedies standards. Betanaphthyl salicylate is believed to act as an intestinal antiseptic and, being excreted in the urine, to act in a similar way in the bladder. It is said to be useful in intes-

tinal fermentations, catarrh of the bladder, particularly gonorrhoeal cystitis, rheumatism, etc. The Calco Chemical Co., Bound Brook, N. J.

**Acetylsalicylic Acid-Merck.**—A brand of acetylsalicylic acid complying with the New and Non-official Remedies standards. Acetylsalicylic acid is employed in rheumatic conditions, and especially as an analgesic and antipyretic in colds, neuralgias, etc.

**Chlorazene Surgical Powder.**—An impalpable powder composed of chlorazene, 1 per cent; zinc stearate, 10 per cent, and sodium stearate, 89 per cent. Chlorazene Surgical Powder is absorbent, slightly astringent, and forms a closely adherent film when applied to the skin. It may be dusted freely over denuded or abraded areas, cuts, wounds, and skin eruptions. The Abbott Laboratories, Chicago. (Jour. A. M. A., Feb. 16, 1918, p. 459).

### PROPAGANDA FOR REFORM.

**Phenalgin and Ammonol.**—At the time that synthetic chemical drugs were coming into fame and when every manufacturer who launched a new headache mixture claimed to have achieved another triumph in synthetic chemistry, Ammonol and Phenalgin were born and duly christened with chemical formulas. However, one of the first reports of the Council on Pharmacy and Chemistry showed them to be mixtures composed of acetanilid, sodium bicarbonate and ammonium carbonate. Since then the unwarranted claims made for these preparations have been exposed repeatedly, and the danger of the indiscriminate use of headache mixtures pointed out. Despite the exposure of the methods used in exploiting Ammonol and Phenalgin, one finds just as glaringly false statements made in the advertisements of Phenalgin today as were made in its unsavory past. This would seem to indicate either that physicians have short memories or that they are strangely indifferent to the welfare of their patients, to their own reputation, and to the good name of medicine. (Jour. A. M. A., Feb. 2, 1918, p. 337).

**Absorption and Excretion of Mercury.**—It may be regarded as clearly established that, in addition to the kidneys, the stomach may participate in this eliminatory function quite as well as the other portions of the alimentary tract. The occurrence of severe intoxications from the use of mercuric chloride in vaginal douches is likewise recognized. The absorption of mercury through the sound skin has been in dispute. To account for the efficacy of mercurial inunction, the contention has been made that the mercury thus applied is volatilized and absorbed through the lungs in greater part if not entirely. Experiments in the dermatologic laboratories of the Philadelphia Polyclinic leaves little doubt that the skin is an important, perhaps the most important path of absorption of mercury applied by inunction. (Jour. A. M. A., Feb. 9, 1918, p. 392).

**Basyl Bread.**—This is an asserted obesity cure put out by the Doctors' Essential Food Company,

Orange, N. J. The advertising claims are extravagant and typical of other obesity treatment literature. Analyses indicated that in composition Basy Bread was similar to graham bread. Basy Bread sells for \$1 a loaf. Dr. Wiley well sums up the case thus: "There is one way in which Basy Bread will reduce, that is, don't eat any of it nor much of it nor much of any other kind." (Jour. A. M. A., Feb. 9, 1918, p. 407).

**Campho-Phenique.**—The Secretary of the Harvard University Medical School received, from the Campho-Phenique Company of St. Louis, a letter stating that the concern wishes to supply the senior students of all Medical Colleges with samples of Campho-Phenique and Campho-Phenique powder and ointment, and asking the number of students and the name of every student in the graduating class. The Campho-Phenique concern believes in following the old advice, "Catching them young." In 1907, the Council on Pharmacy and Chemistry reported that Campho-Phenique (liquid) was exploited under a false "formula," that it was a solution of camphor and phenol in liquid petrolatum, and that for all practical purposes Campho-Phenique Powder was essentially a camphorated talcum powder containing apparently sufficient phenol and camphor to give the powder an odor. The report of the Council further brought out that the Campho-Phenique Company was in effect one of the numerous trade names adopted by one James F. Ballard. Mr. Ballard seems to market a number of "patent medicines," for some of which Mr. Ballard has pleaded guilty in the federal courts to making false and fraudulent claims. (Jour. A. M. A., Feb. 9, 1918, p. 408).

**Sodium Bicarbonate.**—Few patients will object to the taste of sodium bicarbonate if the required dose is administered dissolved in a convenient quantity of cold water. The taste may be disguised by dissolving the sodium bicarbonate in carbonated water or else by adding a little sugar and lemon juice to ordinary water. Sodium bicarbonate may also be prescribed in the form of tablets. Though it is better that these be allowed to dissolve in the mouth, in most cases they are swallowed without discomfort. (Jour. A. M. A., Feb. 9, 1918, p. 410).

**Acetylsalicylic Acid and Phenyl Salicylate Incompatible with Alkalies.**—In the presence of moisture, acetylsalicylic acid is decomposed by magnesium oxide (calcined magnesia), as is also phenyl salicylate (salol). Hence these drugs should not be combined with magnesium oxide in a prescription. (Jour. A. M. A., Feb. 9, 1918, p. 410).

**Fellows' Syrup, and other Preparations of the Hypophosphites.**—An advertisement for Fellows' Syrup reads: "Fellows' Syrup differs from other preparations of the hypophosphites. Leading clinicians in all parts of the world have long recognized this important fact. Have you? To insure results, prescribe the genuine Syr. Hypophos. Comp. Fellows'. Reject cheap and inefficient substitutes.

Reject preparations 'just as good.'" In truth, Fellows' Syrup is not like the better preparations of this type, since after standing it contains a muddy looking deposit that any pharmaceutical tyro would be ashamed of. Examination of the literature used in the exploitation of Fellows' Syrup fails to disclose any evidence to show that it has therapeutic value. Not only is there an entire absence of any evidence of its therapeutic value, but there is an abundance of evidence that the hypophosphites are devoid of any such therapeutic effects as they were formerly reputed to have, and that they are, so far as any effect based on their phosphorus content is concerned, singularly inert. As the result of its investigation of the therapeutic effects of the hypophosphites, the Council on Pharmacy and Chemistry concluded: There is no reliable evidence that they exert a physiologic effect; it has not been demonstrated that they influence any pathologic process; they are not "foods." If they are of any use, that use has never been discovered. (Jour. A. M. A., Feb. 16, 1918, p. 478).

**Calcium Iodide in Tuberculosis.**—There appears to be no work to indicate that the intravenous administration of calcium iodide in tuberculosis is of value. It has not been demonstrated that tuberculosis is associated with a deficiency of calcium. On the other hand, experiments demonstrate that the administration of calcium does not change the calcium content of the blood. Furthermore, there is no evidence to warrant the intravenous administration of iodides. (Jour. A. M. A., Feb. 16, 1918, p. 481).

**Bell-Ans (Papayans, Bell).**— "Are you going to sit there and let the other folks eat up all the good things just because you are afraid to pitch in, when 2 or 3 Bell-Ans taken before and after the meal would enable you to enjoy your share of all that's coming without a bit of discomfort or distress? Bell-Ans has restored the pleasures of the table to thousands who say: 'I can now eat anything and plenty of it, too.'" The New York Tribune comments that such an advertisement as this is not limited to the evil effects to the misguided individual who eats lobster and ice cream at midnight and trusts to Bell-Ans to atone for his indiscretion. The most serious effect of such reckless advice is the example which the advertising sets to other advertisers. (Jour. A. M. A., Feb. 23, 1918, p. 557).

**Antiphlogistine.**—A. G. Gould, M. D., Plant Physician to the Goodyear Tire and Rubber Company, writes that after corresponding with the physicians in charge, he finds incorrect the claims of the Denver Chemical Mfg. Company, regarding the use of Antiphlogistine by certain establishments. He asks: Is there not some way that such exploitation of our large companies can be prevented? (Jour. A. M. A., Feb. 23, 1918, p. 557).

**Syphilodol.**—According to the French Medicinal Company, Inc., which markets the product, Syphilodol "is a synthetic chemical product of silver, arsenic

and antimony . . ." Nowhere in the advertising matter is there a more comprehensive statement regarding the composition of this "new synthetic" than that just quoted. The product is being examined in the A. M. A. Chemical Laboratory: the examination having advanced sufficiently to show that Syphilodol contains considerable quantities of mercury. Although the advertising leaflet claims that the preparation is "the formula of the late Dr. Alfred Fournier of Paris" and has been exhaustively tested by Metchnikoff, a careful search of French medical journals fails to show any report on Syphilodol. (Jour. A. M. A., Feb. 23, 1918, p. 559).

**Trousseau's Wine.**—This obsolete combination of drugs acting on the heart and kidneys is made by maceration of digitalis, squill and juniper berries in wine and alcohol, and adding potassium acetate to the expressed liquid. (Jour. A. M. A., Feb. 23, 1918, p. 559).

**Pyxol.**—This is a proprietary preparation somewhat similar to the compound solution of cresol of the U. S. Pharmacopia. In 1915 Pyxol was declared misbranded under the Insecticide Act. (Jour. A. M. A., Feb. 23, 1918, p. 559).

**Luminal.**—Chemically, luminal is phenyl-ethyl-barbituric acid, and differs from veronal only in that one ethyl group is replaced by a phenyl group. Luminal is claimed to be a useful hypnotic in nervous insomnia and conditions of excitement of the nervous system. (Jour. A. M. A., Feb. 23, 1918, p. 559).

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## REPORTS AND ANNOUNCEMENTS OF SOCIETIES

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### MINNESOTA ACADEMY OF MEDICINE.

The regular meeting for the month of February was held at the Town and Country Club on Wednesday evening, the 13th, President Cross in the chair. Dinner preceded the meeting.

Following the reading of the minutes, case reports were made by Drs. Colvin, Owre, Mann, Benjamin, Nippert, Hammes, Sweetser, and Cross.

Three formal papers were presented later, one by Dr. Judd on "Esophageal Diverticula," one by Dr. Huenekens (his inaugural thesis) on the "Prophylactic use of Pertussis Vaccine," and one by Dr. Farr, describing the technic for removal of calculi from the lower ureter and bladder. All three papers were freely discussed, the meeting continuing till a late hour.

Thirty-four members and five visitors were in attendance.

### REPORTS OF CASES.

Dr. Cross reported a case of carcinoma of the gall-bladder in a woman fifty-six years of age. Nothing unusual was noticed in her condition until last November, when she had an attack of diarrhea. This continued for two or three weeks, and was accompanied by nausea and vomiting. She began to lose in weight, so much so that by New Year's day it had been reduced as much as forty pounds. At no time was there pain or jaundice. The vomiting gradually assumed stomach-retention type. She was brought to the hospital early in January. At this time the urine was scanty—185 c. c. for the first twenty-four hours—and contained a large amount of albumin, some red blood cells, and was loaded with hyaline and granular casts. Blood pressure was 102 and 164; no headache; eye grounds normal; urea nitrogen in the blood (15 grams per 100 c. c.); creatinin, 1.26, also within normal limits. Urea in urine was increased in amount. The renal condition improved rapidly, but the vomiting continued. No blood or pus was contained in the stools. The vomitus showed free HCL in amounts from 0.7 to 17, with a total acidity of 50 to 60. It contained no blood. Upon palpation an indefinite mass in the right hypochondrium had been reported by her physician before she came to the hospital; but of this we were not able to say with certainty that there was anything more than a sense of resistance on inspiration. X-ray examination showed a large and low stomach. The gastric capacity was 55 ounces. The pylorus was evidently constricted. A shadow of barium suggested a hernia into the lesser peritoneal cavity. Vomiting continued, the stomach rejecting its contents more and more frequently. The patient died February 11th from circulatory failure. At autopsy there was found: healed tuberculosis (calcified) of one apex; heart normal; general nephrosis,—no glomerular nephritis; stomach large, but otherwise normal, except at the pyloric end. The gall-bladder was nearly obliterated by a carcinoma containing gall-stones, the mass extending into the liver and invading the duodenum. The pylorus would hardly admit a probe the size of a goose-quill. The common duct was free. No metastasis was found.

Primary carcinoma of the gall-bladder is of comparatively infrequent occurrence, about 300 cases having been reported. Seventy per cent to 90 per cent are said to be due to gall-stones. It is usually of the cylindrical-cell type, but may be of the round or of the squamous-cell variety. Dissemination is rare, but extension to the duodenum, stomach, pancreas, and gall ducts is common. Icterus occurs in about one-half of the cases. Diagnosis is especially difficult and can only be made out with certainty by exploration. It seems to be characteristic of a cancer in this location that its progress is rapid, for death usually follows in a few months.

Dr. Owre showed a number of X-ray plates. One showed a stone in the pelvis of the right kidney; an-

other showed the radiographic catheter in the pelvis, touching the stone. Attention was called to the fact that this was a better method of locating the stone than filling the pelvis of the kidney with thorium. The patient was a woman seventy-six years of age and the stone was removed by a pyelotomy under gas anesthesia. Another case was illustrated with four X-ray plates. The patient was a woman about thirty years of age who had a stone about the size of a bean in the interstitial portion of the left ureter. The first plate showed the stone. The second plate showed the stone in contact with the radiographic catheter. The third plate was taken after warm glycerine had been injected, and showed the axis of the stone to have been changed. And the fourth plate showed the pelvis free from the stone, its removal having been accomplished by dilating the lower ureter with successive increasing sizes of dilators.

FRED ELMER LEAVITT,  
Secretary.

## CORRESPONDENCE

### MINNEAPOLIS CLINIC WEEK.

To the Editor:

The clinics to be held in Minneapolis from April 8th until April 12th, inclusive, under the auspices of the Clinical Section of the Hennepin County Medical Society, will embrace the various departments of surgery and medicine, including all the specialties. Every hospital in Minneapolis will extend the courtesies of the clinics to visiting doctors. If there are several hospitals giving clinics at the same time, it will give them an opportunity to select whatever they choose in the way of clinical material. The Minneapolis City Hospital and its dispensaries and the University Hospital and its large dispensary will offer the same facilities that are offered by other hospitals for clinical demonstrations of various kinds, and we expect to show some unusual cases, as well as cases that are commonly seen in general practice.

The aim of the Clinical Week is to present material which is more or less familiar, and not to make clinics of exceptional cases. We propose, therefore, to show cases of tuberculosis in its various stages, and diseases of children of the simple types. We want our visitors to thoroughly understand that this is not to be a clinic under the auspices of surgeons entirely, but that medical men will have just as many cases to present, as well as men who are in special lines of work.

The Committee on Arrangements will be glad to take care of hotel reservations if desired; and if requests are sent to the secretary, 1114 Donaldson Building, headquarters of the clinic, they will be promptly cared for.

Yours truly,  
E. J. HUENEKENS, M. D.,  
Secretary.

## PROGRESS IN MEDICINE AND SURGERY

**THE REPAIR AND RECONSTRUCTION OF THE HEPATIC AND COMMON BILE DUCTS:** Ellsworth Eliot, Jr. (Surg., Gyn. and Obst., Jan., 1918) discusses only the benign strictures of the ducts, which in most instances are secondary to previous operative procedures. He itemizes the anatomical and pathological predisposing causes for stricture, the most important of these being: abnormal course of the cystic duct; pathology leading to a great dilatation of the cystic duct which may be mistaken for the gallbladder; technical errors, resulting in damage to the common or hepatic ducts; obliteration of anatomical landmarks by inflammatory processes.

The author reviews the technic for cholecystectomy, recommending that the junction between the hepatic and cystic ducts should be recognized before the cystic duct is divided. Following division of the duct, the pedicle should be carefully examined and if the hepatic duct has been partially or completely severed, an immediate repair must be done.

The suggestions regarding the technic of cholecystectomy are merely meant for the prevention of stricture formation. The extent and location of the stricture is of great importance in determining the selection of a procedure to be used for its correction.

I. Stricture in either or both hepatic and common ducts in which the duct above and below is relatively normal and surgically accessible.

(a) Linear incision which is analogous to the external urethrotomy for strictural urethra. This method was used in the author's first case.

(b) End to end anastomosis.

(c) In cases where there is a long gap between the divided ends of the duct or in cases where extensive scar tissue formation requires considerable bridging of the gap a rubber tube is used. The posterior edges of the ducts are anchored to the gastrohepatic omentum. The catheter is inserted with the duct above and below (if possible through the papilla) and into the duodenum. Over the exposed tube a visceral pedunculated flap is sutured. The flap may be a portion of stomach, duodenum, gallbladder, etc.

II. Strictures situated in the lower end of the common duct including the orifice at the papilla.

(a) Direct anastomosis between the dilated duct above the point of stricture with either stomach, duodenum or small intestine.

(b) Formation of a new channel with the aid of a rubber tube.

The author states the dangers of the above cited methods: Leakage of intestinal contents into the peritoneal cavity, regurgitation of intestinal contents into the newly-formed duct channel, ascending infection with the formation of hepatic abscess.

III. Stricture of the hepatic duct inaccessible to the surgeon. In these cases hepatostomy is advised.

i. e., the production of a biliary fistula by puncture of the liver parenchyma with the actual cautery.

The paper is followed by a careful report of the author's cases, cases reported from the literature, and personal communications.

GEORGE A. GEIST.

**APPLICATION OF THE FACTORS CONTROLLING CARRIERS OF COMMUNICABLE DISEASE:** D. M. Lewis (Interstate Med. Jour., Vol. XXV, No. 1) believes it is possible to control these communicable diseases in which we have an accurate knowledge concerning the carriers. One factor in making a carrier is nasopharyngeal obstruction of any degree and injury. Race is a factor. (He says negroes are particular to keep their noses clean and that Jews or Italians fear so to do.) Climatic conditions are a factor. So is carelessness. Measures built up around the carrier may control the disease. If this is carried a step further and measures are built up around the factors causing carriers, then responsibility for sporadic incidence may be shown to lie with health departments.

C. E. SMITH, JR.

**A CLINICAL CONTRIBUTION TO THE STUDY OF P. U. O.:** Pasteur and Hudson (Lancet, Vol. 1, No. 3, 1918) report a case of P. U. O. in which unusual changes of lobar distribution in the right base occurred. The onset was acute, terminated by crisis, no catarrhal symptoms, no consolidation and subsequent resolution. The only signs present were those of diminished air entry in the affected part.

They believe the featureless aspect of many cases of diagnosed P. U. O. is because they are the clinical expressions of smouldering bacterial infections which have failed to become fully active. The case reported might have been an abortive one of pneumonia. Because of this abortive characteristic it was practically featureless and could only be labelled P. U. O.

C. E. SMITH, JR.

**THE PRIMARY LESION OF TUBERCULOSIS:** W. W. Howell (Boston Med. and Surg. Jour., Vol. CLXXVIII, No. 5) regards the primary focus of tuberculosis as anywhere the bacilli happen to locate, but says this is most often the lungs or intestine. If infection occurs through the lung the primary lesion is in the bronchial glands (if intestinal, then the lesion is in the mesenteric glands). The primary lesion is most important as it may give only symptoms of anemia, fever, indigestion, or the like. The lesion occurs almost always in children. The chest examination gives signs of enlarged bronchial glands. The treatment is rest and food.

When signs of pulmonary tuberculosis develop (cough, expectoration, rales, etc.) the primary stage is past. Neglected primary lesions go on to these signs.

The old idea that a baby may be infected but not have the disease must be discarded. If in such instances one waits for signs, the primary stage is past. Early recognition and treatment are half the battle when combating pulmonary tuberculosis.

C. E. SMITH, JR.

**MASSIVE SPONTANEOUS HEMORRHAGES INTO THE VITREOUS:** L. F. Appleman (Am. Jour. of Ophth., Vol. 1, No. 1, January, 1918) records three cases of massive spontaneous hemorrhage into the vitreous and follows the case reports by a discussion of the etiology and treatment of such a condition.

Etiology: Noll states that recurrent intraocular hemorrhage may arise from: (1) Alterations in the blood (leukemia, pernicious anemia); (2) circulatory changes met with in puberty; (3) local vascular disease due to malaria, septic absorption, degenerative changes in the vessels, and hemophilia.

Among other causes is tuberculosis, considered by Axenfeld as the underlying factor in the production of intraocular hemorrhage in young persons often attended with a retinal periphlebitis. Syphilitic infection, renal disease and trauma are capable of giving rise to intraocular hemorrhage.

Treatment: Local treatment is administered for the purpose of hastening absorption of vitreous hemorrhages and according to Ormond is accomplished in the following manner: (1) the fluid is carried away by lymphatics and blood vessels; (2) the solid constituents are removed by the leucocytes; the red corpuscles are destroyed and assimilated, the blood pigment being found subsequently in the surrounding tissue and lymph glands; and, lastly, the fibrous coagulation remaining is invaded by fibroblasts which gradually convert the residue into fibrous tissue which contracts and decreases the volume of the exuded mass.

Local therapy may consist of one or more of the following agents: (1) Massage, (2) Ionization, (3) Subconjunctival injections, (4) Removal of some of the fluid and its substitution by normal saline, (5) Fibrolysin, (6) Potassium iodide, (7) Dionin, (8) Radium.

Reviewer's Note.—Too much space is devoted to local therapy. That so many methods are advocated for the purpose of hastening the removal of intraocular hemorrhage points clearly to the fact that no one method is overwhelmingly superior to the others. Too much credit is often given to the method employed and too little to unaided nature.

The crux of the question is: What is the underlying cause of such hemorrhages? In most instances we are dealing with a local symptom the result of a constitutional malady. Tuberculosis and syphilis should first be excluded and the urinary findings and blood picture considered.

Constitutional treatment is the all important measure in therapy, local agents holding a subsiding position. Hemorrhage into vitreous may resolve with or

without local treatment only to recur at a later period. Therefore, endeavor to determine the causus and institute therapeutic measures for its betterment.

PAUL D. BERRISFORD.

**THE ROLE OF THE DUCTLESS GLANDS IN OPHTHALMOLOGY:** Frank R. Spencer (*Am. Jour. of Ophth.*, Vol. I, No. 2, February, 1918) discusses the role of the ductless glands in ophthalmology with three illustrative cases. That the eye may be influenced by the secretion of the ductless glands is well known. Just what these changes are and the manner of production has yet to be elucidated.

**Thyroid:** The following are the commonly recognized signs and symptoms of exophthalmic goitre:

1. Knies' sign is manifested by dilated and often unequal pupils. However, there is retained reflex activity. This is due to stimulation of the sympathetic and is often present in the early stage of goitre. According to Lamb there may be associated with this a low grade chorioretinitis of the macula, and ciliary congestion. He believes this is worse in the eye with the more widely dilated pupil.

2. Von Graefe's sign, which consists in lagging of the upper lid in looking down.

3. Gifford's sign evidenced by difficulty in everting the upper lid. This is due to retraction and rigidity and often occurs early in the disease.

4. Dalrymple's retraction of the upper lid with widening of the palpebral aperture.

5. Mueller's sign, which is the same as Dalrymple's except that he includes the lower lid.

6. Next comes Höman's or Rosenbach's sign of tremor of the upper lid.

7. Stelwag's diminished frequency of winking often followed by a rapid succession of winks or a long interval without winking.

8. Retraction of the upper lid while an object is being fixed is Kocher's sign.

9. Joffroy's is present upon failure of the forehead to wrinkle, when the head is lowered and the patient looks up.

10. Aschner found that the pulse can be made slower by pressure upon the eyeball.

11. Löewe believes that adrenalin dilates the pupil in such cases.

12. Berger has called attention to lacrimation as an early symptom of Graves' disease. He believes this is due to stimulation of the sympathetic. Schmidt-Rimpler, on the other hand, believes this is due to irritation of the conjunctiva, as a result of the exophthalmos.

13. Jellinek and Rosin have noted the early pigmentation of the lids which later disappears.

14. Sattler and Gifford have each mentioned a solid-looking thickening immediately beneath the eyebrow and the latter author states this is found early and without marked exophthalmos.

15. Möbius noted a deficiency in, or even a complete loss of convergence power.

16. Sattler has attributed the occasional falling of the eyelashes and eyebrows to trophic disturbance.

17. Becker found spontaneous arterial pulsation of the retinal arteries in six cases out of seven of this disease.

18. As a new ocular symptom of exophthalmic goitre Suker has described a "deficient complementary fixation in lateral eye rotation" as follows: "After extreme lateral rotation of the eyes to either side with the head fixed and with fixation of an object at this point maintained for a second or two, on attempting to follow this fixation point as it is rapidly swung into the median line, one of the eyes—it may be either—fails to follow the other in a complementary manner into proper convergence and from this point when it is brought into the median plans. Either the right or left eye makes a sudden rotation into the fixation with its fellow, but before it does so, an apparent divergent strabismus is manifested. According to Suker, it is no doubt due to a dissociation in the functions of the sympathetic and the extraocular motor nerves of the eye, and perhaps also to exhaustion on extreme lateral rotation of the eyes."

19. Ocular bruit has often been mentioned as a symptom and has been discussed at great length many times.

20. A very infrequent symptom is ocular nystagmus.

**Parathyroids:** Insufficiencies of the parathyroids may be responsible for zonular cataract, due to eclampsia, convulsions of childhood, tetany, or epilepsy.

**Pineal Gland:** The secretion, if there be any, does not have any effect upon the eye, whatever ocular symptoms resulting from hyperplasia being due to pressure.

**Thymus:** In contrast with stimulation of the sympathetic by thyroid hypersecretion is stimulation of the vagotonic or autonomic system by hypersecretion from the thymus. Under such circumstances we find contracted pupils, narrow palpebral apertures, esophoria, spasm of accommodation, deep ciliary congestion and chorioretinal and scleral disturbances of circulation.

**Adrenals:** In regard to the role played by the adrenals the author states: "It is now, I believe, a well recognized fact that hypersecretion from the adrenals stimulates all the other ductless glands as well as the sympathetic system."

**Pituitary:** Bitemporal hemianopsia is present as a late symptom in 40 per cent of cases. The fields, according to Cushing, may early show a slight contraction from pressure of the pituitary upon the chiasm, and a homonymous hemianopsia is by no means uncommon. Neuroretinitis and optic atrophy are almost always late symptoms of the disease although the former may occur very early. Paralysis of the third nerve occurs in 15 per cent of cases according to Uhthoff. G. E. de Schweinitz has called attention to "antecedent amblyopia" as a very early and probably not a constant symptom of disease of

the pituitary. Other authors have reported superior temporal slant of the peripheral field, scotomas and hemechromatopsia.

PAUL D. BERRISFORD.

**THE DIFFERENTIATION OF SYPHILITIC AND TUBERCULOUS PULMONARY LESIONS:** W. C. Klotz (California State Journal of Medicine, Vol. XVI, No. 2) finds that in thirty-one cases reported as pulmonary lues there were present symptoms and physical signs generally accepted as characteristic of pulmonary tuberculosis, and that in the majority of these cases a diagnosis of pulmonary tuberculosis had been made and that many of the patients had been treated as such. A subsequent diagnosis of pulmonary lues had been made only after the usual and accepted methods of diagnosis had been employed and additional facts obtained by careful histories and more thorough examinations. The experience and reputation of many of the authors reporting these cases would in itself assure us of the correctness of the diagnosis as reported. At the same time certain sources of error have been pointed out and conceded, while possible objections have been anticipated.

At a time when many are beginning to recognize certain limitations and sources of error in the diagnosis of pulmonary tuberculosis, it may be well to recall other conditions that may bring about pulmonary changes. One certainly may err in making a diagnosis of tuberculosis on insufficient grounds and in so doing subject our patient to considerable loss, annoyance and worry. The clinical, social and economic significance of such errors is too obvious to require further discussion.

E. T. F. RICHARDS.

**A COMPARATIVE STUDY OF INFANTILE PARALYSIS, ANIMAL DISTEMPER, AND ITS RELATED DISEASES:** L. D. Bristol (The Jour. of Med. Research, Vol. XXXVII, No. 3) has considered the subject from the standpoints of (1) the work of other investigators, (2) the reported experiments of the present, and (3) a hypothesis as a basis for future studies.

He has endeavored to show that there are certain rather suggestive epidemiological, pathological, and clinical characteristics common to distemper (and its related diseases of lower animals) and human infantile paralysis.

He has also endeavored to show by bacteriological and serological experiments that possibly the above analogies may be extended to include biological similarities in the infecting organisms concerned. From these studies he ventures to suggest the possibility that the organism of poliomyelitis is a pleomorphic bacillus (often indistinguishable, however, from a true coccus) and that it may be closely related to the large group of so-called bipolar bacilli, or Pasteurella (Lignieres). It would seem that all of these

organisms, including that of so-called poliomyelitis, have the power to adapt themselves somewhat to variable degrees of oxygen tension.

The chief theoretical suggestion is that infantile paralysis may be nothing more than the manifestation of a common, widespread human Pasteurellosis—the non-paralytic (a better name than “abortive”) cases, representing chiefly the digestive and respiratory types of the disease, while the paralytic cases may be included in the nervous type.

Based on this assumption, the mode of spread may be considered analogous to that demonstrated for all forms of Pasteurellosis in animals, namely: (1) directly, by contact with the fresh secretions or excretions of an infected individual (either diseased or a healthy “carrier”); (2) indirectly, by the carriage of the specific organisms by insects, or possibly in dust, uncooked food, or drink.

Considering the epidemiology of the disease in this light, the great variation in virulence which is characteristic of the various bipolar bacilli must be kept in mind. Thus, bipolar bacilli causing disease in one animal is most virulent for that particular species of animal, but (though somewhat less virulent) this same strain of organism may at times cause symptoms of similar disease in other species. Hence, we might believe that sporadic cases, small outbreaks, or local “out-croppings” in epidemics of a human Pasteurellosis have their origin in lower animal “reservoirs;” but that severe, wide-spread epidemics, and the gradually increasing prevalence of the disease, are due more to the passage of a human strain of the organisms (of a steadily increasing virulence) directly or indirectly from person to person.

E. T. F. RICHARDS.

**THE TREATMENT OF SYPHILIS:** Harrison, (Quarterly Journal of Medicine, Vol. 10, No. 40), gives a detailed critical review of the treatment of syphilis. The remedies employed are arsenic, antimony, silver, mercury, iodine, sulphur and iron compounds. A detailed chemical description is given of salvarsan, neo-salvarsan, and the other arsenical compounds. The various methods of administration and instruments used are fully described.

By testing for the amido group of 606, it can be found in the circulating blood for over one and one-half hours, but can no longer be detected as such, after three hours. In the urine, it was observed from a few minutes to 12 hours after the injection. It was found once only in the vomit. Swift & Ellis showed that the heating of the serum increased its anti-spirochaetal and therapeutical power. When salvarsan is injected intravenously in concentrated solution, it is excreted much more slowly. The excretion of neo-salvarsan is much more rapid than that of 606. In the organs, such as the spleen, heart, lungs, kidneys and liver, arsenic can be demonstrated for several months after an injection of salvarsan. However, none can be found in the parenchyma of the brain.



The bowels excrete from two to ten times as much of the arsenic as the kidneys. There is usually a fall of blood pressure after an intravenous injection, probably due to the action on the heart.

The main side effects due to the intravenous injections were as follows:

Those occurring during or immediately after the injection:

- (a) Vaso-motor disturbances.
- (b) Syncope.
- (c) Pains in the gums and teeth.
- (d) Peculiar taste in the mouth.

Those occurring after several hours:

- (a) Rigor; rise of temperature; headache.
- (b) Vomiting; diarrhea; pain in the back; cramp in the legs.
- (c) Urticaria and herpes.

Those occurring from a day to a month after an injection:

- (a) Albuminuria.
- (b) Stomatitis.
- (c) Chronic headache; lassitude; loss of appetite, weight and sleep.
- (d) Erythema.
- (e) Jaundice.
- (f) Cerebral Symptoms.

Alcoholics and patients during pregnancy are more susceptible to Salvarsan. Previous medication with mercury also increases the susceptibility. Some of these reactions may be due to the release of endotoxins from killed spirochaetes or due to temporarily increased antimotem activity of the same. The main contra-indications for the use of Salvarsan and its allied drugs, are myocarditis, renal and hepatic disease, arterio-sclerosis, aneurism, diabetes and advanced disease of the central nervous system. In cases of gumma of the brain, the injection should be given cautiously, because of the tendency to hemorrhage. Patients with a natural tendency to dermatoses frequently have marked reactions as manifested by eczema, erythema and urticaria.

The author recommends the excision, cauterization and application of 30 per cent Calomel ointment to the local sore. He gives a course of 2.5 to 3 grams of Salvarsan, injections being given on the first, tenth, thirtieth, fortieth and fifty-fifth days. This is combined with mercury and a second similar course administered after an interval. This method is continued until the Wassermann in the blood has become negative. Then the spinal fluid is examined also. The various courses of treatment, as outlined by different authors, are described in detail. In syphilis of the central nervous system, either the intensive method is used or the combined intravenous and intraspinal methods are employed.

E. M. HAMMES.

node through the auriculo-ventricular bundle to the ventricles. He limits his discussion of the action of digitalis to heart disease not produced by acute infections, as he claims digitalis has no effect in these cases. He states that digitalis has very little effect on the rate of a heart with normal rhythm and agrees with Mackenzie that there are but few conditions other than auricular flutter and auricular fibrillation improved by digitalis.

Recent observations on irritable hearts in soldiers have shown that forty-five to sixty minims of digitalis tincture given for fourteen days produced practically no effect.

The author believes that "the increased rate of cardiac contractions plays no part in the causation of heart failure." He defines abnormal rhythm existing where the stimulus starts elsewhere than the sino-auricular node. Extrasystole therefore is not an abnormal rhythm, merely an abnormal contraction. From a practical standpoint it may be said that the great majority of abnormal rhythms are auricular flutter and auricular fibrillations, the latter being more common. In auricular flutter the auricles contract rapidly but regularly. The origin of the impulse is in the auricular wall and the ventricle contracts regularly every second, third or fourth beat as the case may be. In auricular fibrillation, however, each muscle fibre separately contracts and the auricle is in diastole. The stimuli come from the auricle and the ventricular contractions are rapid and irregular. In these two conditions the heart rate is not under the control of the central nervous system.

Regarding the administration of digitalis, Mackenzie recommends 20 minims of the tincture t. i. d. until the physiological effect is shown, usually from the fifth to the seventh day. It is then stopped completely for two days, and half the dose resumed. Signs of sufficient medication are: pulse from 70 to 90, bad dreams, headache, vomiting, diarrhoea, diminished urine and an occasional extrasystole.

The author gives Mackenzie's idea of heart failure, and shows that in cases with regular heart rhythm the question is one of the ability of the heart muscle to do the required amount of work. The various degrees of heart muscle incompetency should be treated with the corresponding amount of rest.

The author relies on the electrocardiograph, clinical polygraph, or the symptoms and physical signs in order to make a diagnosis of cardiac arrhythmia. A rapid pulse from 130 to 160 when at rest and not increased by exercise, indicates auricular flutter. In fibrillation the pulse shows irregular strength of impulses and irregular rate. Sixty to seventy per cent of dropsy cases suffer from fibrillation. The disappearance of a presystolic murmur indicates a fibrillation, also the occurrence of a diastolic diminuendo murmur, in absence of a presystolic murmur, suggests an auricular fibrillation.

C. B. DRAKE.

**HEART FAILURE AND THE ADMINISTRATION OF DIGITALIS:** Flint (*The Practitioner*, Vol. 49, No. 5), discusses the mechanism of the normal conduction of the cardiac impulse from the sino-auricular

## BOOK REVIEWS

*THE DIETARY COMPUTER.* (By AMY ELIZABETH POPE, Formerly Instructor in the School of Nursing, Presbyterian Hospital; Instructor in the School of Nursing, St. Luke's Hospital, San Francisco, Cal. Published by G. P. Putnam's Sons, New York and London, The Knickerbocker Press, 1917. Price, \$1.25.)

This small volume is composed mainly of lists of foods, their percentage composition and caloric values. The essentials of a diet, the proportion of protein, fat and carbohydrate, and the estimations of the approximate number of calories required by a human being as determined by various international authorities are all given.

This book should be of definite practical value to the housewife at a time like the present, as well as to the professional dietitian.

C. B. DRAKE.

*CANCER, Its Cause and Treatment.* (By L. DUNCAN BULKLEY, A. M., M. D., Senior Physician to the New York Skin and Cancer Hospital, etc. Volume II. Published by Paul B. Hoeber, New York, 1917. Price \$1.50.)

The chief value of this book lies in its pointing out that we do not know the cause of cancer as yet. The author has added nothing new to our knowledge of the subject. In fact, a book of this sort warning the profession against early surgery and strongly advocating medical treatment of cancer is dangerous in its influence. Until the author's medical treatment consisting mainly of a meat, alcohol, and coffee free diet, moderate in amount with a potassium salt in some form added thereto shows a higher percentage of cures in cases proved by the microscope than surgery does, the medical profession will not be justified in substituting this line of treatment for surgery. The reviewer cannot agree in every case with the conclusions drawn from statistics quoted in this work.

C. B. DRAKE.

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# Minnesota Medicine

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## ORIGINAL ARTICLES

### THE CONSERVATION OF HEARING.\*

HORACE NEWHART, A. B., M. D., F. A. C. S.,  
*Minneapolis, Minn.*

Diseases of the ear are far more prevalent than is generally supposed. The figures of the federal census for 1900, which returned a total of 89,287 deaf persons in the United States, including 51,870 who were deaf from childhood, and 51,861 who were only partially deaf, represent but a very small proportion of our population who are afflicted with some impairment of hearing. In the outpatient department of the University of Minnesota Hospital with an annual attendance of practically fifty-six thousand, during the past three years between 8½ per cent and 10 per cent have been in the otological clinic.

It is conservatively estimated that in the United States there are not less than 3,000,000 persons who are appreciably hard of hearing.<sup>1</sup> These figures are substantiated by the reports of medical inspection in our public schools, where the examinations are of necessity very superficial. From two to six per cent of all school children are reported as having defective hearing. McCallie and Cornell,<sup>2</sup> as the result of more accurate tests made in Philadelphia in 1910 and 1911, report defects of hearing in no less than 14 per cent of the series of 530 ears examined.

Von Troeltsch, on the basis of careful physiological tests has stated that in persons over

twenty years of age<sup>3</sup> one out of every three has some impairment of hearing.

The wide prevalence and serious significance of aural diseases is even more strikingly suggested by our mortality statistics.<sup>4</sup> The records of Guy's Hospital show that disease of the ear was the cause of death in one out of every 158 deaths. In the Vienna General Hospital the ratio was one to every 232, and in Copenhagen one to every 303. Dr. Koerner, of Rostock, reviewing the carefully kept vital statistics of Prussia, has stated that no less than 4 per cent of all deaths occurring under thirty years of age are due to diseases of the ears. In this rather surprising statement he is upheld by Prof. Bezold, of Munich.

Otology is one of the youngest of the surgical specialties. As such it has made equally rapid progress with other departments of medicine. Through its achievements in surgical diagnosis and in the surgical care of middle ear suppurations, labyrinthine affections and intracranial complications, it has already accomplished much in the saving of life and in the conservation of hearing.

Unfortunately the fact remains that during the past twenty years little advancement has been made in the treatment of those cases of progressive deafness due to chronic non-suppurative disease which constitute so large a proportion of those who are hard of hearing.

Thus the medical profession is confronted by the large problem of preventing the vast amount of economic inefficiency and loss, social embarrassment and isolation and its consequent mental depression, all resulting from avoidable causes. Already there has been successfully established a worldwide movement for the prevention of blindness and for the care and edu-

\*Presented before the Southern Minn. Medical Assoc. Mankato, Minn., Nov. 27, 1917

cation of the blind. In consequence, many of our states have responded with beneficent laws which, backed by public sentiment, are well enforced. Up to the present time comparatively little interest has been manifested in the prevention of deafness, though much has been accomplished in the interest of the totally deaf.

In spite of the fact that otology holds a place of ever-increasing importance in medical education, there are still in the profession a large number of excellent general practitioners who, to quote Dr. W. Sohler Bryant, <sup>5</sup> look upon diseases of the ear as divided into two classes: "First, those that would get well without treatment, and second, those that would not get well with any treatment." This attitude, because of the admitted failure of the profession to be able to restore hearing to the deaf has become widely prevalent and is deeply fixed among the general public.

This almost universal apathy towards diseases of the ear probably does not find its counterpart in any other field of medicine. The reason for this lies in the fact that no other important organ can undergo so great a degree of deterioration without the knowledge of the individual. Originally man is endowed with a far greater acuteness of hearing than he requires in his civilized surroundings. Usually he is not aroused to a realization of his deficiency until he has actually lost from seventy-five to ninety-five per cent of his hearing power. It should be recalled that the acuteness of hearing is quantitatively determined not by the distance, but by the square of the distance at which sounds are perceived.

Without fear of denial it can be stated that over 90 per cent of all cases of deafness are preventable. Pathology teaches that loss of hearing is due to disturbances within the temporal bone causing destructive deterioration of the special sense organ. Generally speaking, the possibility for restoration of function to even an approximation of the normal is in inverse ratio to the time the causal factors have been at work.

With these principles in mind it is plain that our chief efforts in the conservation of hearing must lie in the field of prophylaxis, through the early diagnosis and treatment of every possible etiological factor. The early detection of con-

ditions leading to incipient disturbances of hearing can be assured only by systematic, periodic examinations of every individual.

At the present time the one most effective factor in the prevention of deafness is the medical examination of school children. In the public schools of Minneapolis since the introduction of medical inspection in 1910, Dr. Keene reports the percentage of children with defective hearing has been reduced from 3.7 to 2.1 per cent.<sup>6</sup> Other communities can show equally good results. This rapid diminution in the number of ear defects must be ascribed in part to the decrease in scarlet fever and measles, through early exclusion from the classroom of all suspected cases.

The hearing tests as ordinarily carried out are necessarily hurriedly made, the purpose being to determine the status of the child's hearing as regards his immediate educational needs. As ordinarily made they are not sufficiently comprehensive to safeguard his future hearing by the early detection of the beginning stages of impairment.

In the tuning-fork tests of Weber and Rinne we have a simple means of revealing pathological changes in the ears, long before they would be disclosed by the usual tests with the watch and voice.

The fork tests are rarely made either by the school examiner or by the general practitioner. This is extremely unfortunate, inasmuch as the technic requires but a few moments for each case, and is so simple that the tests can be made by the school nurse or the teacher. The detection of any departure from the normal standard calls for further investigation by the trained physician who must make a complete examination to ascertain the exact nature of the lesion and of every possible contributing cause.

In children under school age the family physician and the pediatrician must assume all the responsibility, for in children under 6 years of age the functional tests are not reliable. Every case of mouth-breathing, every acute pharyngitis, every unusual discharge from the nares or external ear, and the presence of enlarged cervical glands, should be looked upon as the possible symptom of a condition which, neglected, may lead to ultimate deafness.

The contagious diseases of childhood call for

special vigilance. A large proportion of the cases of deafness originating in early life are due to scarlet fever and measles. During their course frequent inspections of the tympanic membrane should be made and on the slightest indication the medical attendant must be ready to incise freely the reddened or bulging drum-head; for in these cases the infection within the tympanic cavity is especially virulent and rapidly destructive. Should involvement of the mastoid cells occur, immediate posterior drainage of the antrum is the safest procedure, and is the best insurance against a later radical mastoid operation.<sup>7</sup>

The ears of all school children should be examined by the medical inspector at least once a year, more frequently if they are found defective on admission; also after every acute illness involving the upper respiratory tract.

Where medical inspection is not provided, many cases might be detected in their incipency by the school nurse, or in rural communities by the interested school teacher. It is to be hoped that our normal schools will soon demand of their graduates a sufficient knowledge of school hygiene to enable them to intelligently make such examinations as are necessary to safeguard the special senses of their pupils.



Fig. 1.

The urgent need of medical inspection in our rural schools is strikingly illustrated by the photograph here shown, which was not taken for clinical purposes.

While aural examinations at frequent intervals are especially important during the growing period, the proper conservation of hearing demands that the ears of all members of the community should be periodically examined.

Such a procedure can be advantageously carried out in all of our institutions of higher education, in all places where labor is employed on a large scale, by social service workers and by our accident, health and life insurance companies.

In the case of the majority of adults, it is the family physician to whom we must naturally look for the regular examination of the ears. This responsibility he has taken too lightly in the past.

A very considerable number of those seeking medical aid for impaired hearing do so not until after they have themselves discovered their deficiency, when much of their hearing power is irreparably lost. Patients of this class have not received the sympathy and attention they deserve. The busy practitioner, priding himself upon his honesty, too frequently tells such a patient with a frankness which is almost brutal, that he cannot be helped. The result is only to discourage the patient from making any further effort.

If the physician wishes to avoid personally discouraging his patient by giving him an unfavorable opinion, occasionally he transfers the responsibility to a specialist. The latter with equal regard for the truth, but with more tact, will tell the patient that he has probably come too late to hope for any great improvement in hearing, but that with proper treatment, based upon the results of a thorough examination, he may hope for some improvement; but that his chief endeavor must be to preserve his present hearing.

The prognosis is admittedly not good. However, in many such cases much can yet be done to arrest the progress of the degenerative changes, if we but look deeply enough for all the causal factors, some of which may still be at work.

It is in order to specifically consider some of these factors.

Any appreciable hindrance to the free ventilation of the Eustachian tube because of nasal insufficiency should be removed regardless of the age of the patient. The nasopharynx in such cases is usually free, but there may be persistent remnants of old inflammatory processes in the form of adhesions or hypertrophy of the tubal lymph-adenoid tissue. The tubes them-

selves may be non-patent from swelling or cicatricial tissue. They should receive appropriate local treatment, which includes far more than the usual course of inflation and massage.

Very frequently the patient affirms that he has had no disturbance of his tonsils. Careful inspection will often reveal small or submerged tonsils, or hypertrophied stumps remaining after a supposed tonsillectomy, harboring in the crypts and in the supra-tonsillar space an incredible amount of purulent debris laden with pathogenic organisms. Any opinion regarding the condition of a submerged tonsil based upon the ordinary casual examination of the fauces without an instrumental retraction of the pillars and exploration of the crypts, is dangerous. A simple retractor, like the one here shown, we have used for years and have come to regard as indispensable. Its only merit lies in its simplicity and in the fact that with it one can retract the pillars, explore the crypts and supra-tonsillar space, and exert sufficient pressure to evacuate the crypts, all without special discomfort to the patient.

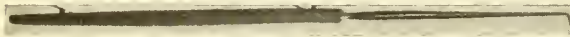


Fig. 2.

Author's retractor for examining tonsils.

Recent teaching in regard to focal infections should cause the otologist to be especially suspicious of all tonsils, however innocent they may appear on the surface.

Though pathological proof is lacking, clinical experience in many cases has convinced us that impaired hearing and labyrinthine irritation manifesting itself in tinnitus and vestibular symptoms, are frequently the effects of toxins originating in submerged, suppurating tonsils, in the blind abscesses of devitalized or diseased teeth, and in smouldering chronic infections of the accessory sinuses of the nose. Whether the toxic products find their way to the delicate nerve endings of the organ of hearing by way of the lymphatics, or are carried by the blood current, has not been proven. Nevertheless, it is a fact that in many cases after the usual forms of treatment have failed, we see an amelioration of the ear symptoms following the removal of the focal infection.

To substantiate this theory, we need only point out the large number of intra-ocular diseases which we now know have their origin in similar focal infections.

In many of our cases of non-suppurative ear disease, in addition to local causes, there are also general systemic disorders at work contributing to the deterioration of the hearing as well as of other bodily functions. Among such may be mentioned diseases of the ductless glands, anaemia, diabetes, acidosis, constipation, and post-syphilitic manifestations such as tabes. Their treatment belongs primarily to the field of the internist, but whoever attempts to diagnose and treat aural diseases must be alert to the recognition of all bodily conditions which may affect unfavorably the course of the ear affection. The etiology of that most unsatisfactorily treated disease known as otosclerosis, is doubtless to be found in some systemic disorder, of which the bony changes within the labyrinthine capsule are but an occasional localized manifestation.

Syphilis, congenital and acquired, is not an infrequent cause of nerve deafness. When it occurs in conjunction with other more apparent causes of the deafness, it may lead rapidly to serious loss of hearing before it is discovered. After several embarrassing experiences, when we failed to secure the expected improvement by the usual treatment, the Wassermann test has saved the situation. This test should be promptly made in all doubtful cases.

Chronic middle ear suppuration exists in from one per cent. to two per cent. of our school children, being more frequent in the lower grades and among children from poorer homes. Every case of chronic otorrhoea, be it in the child or adult, which does not yield in a reasonable time to careful treatment, calls emphatically for the radical mastoid operation. It should be urged not only for the sake of insuring the patient against the ever present possibility of death from an intracranial complication, but also to preserve to the patient whatever residuum of hearing he may possess. Both the public and many of the medical profession need to be educated away from the now obsolete view that the mastoid operation is dangerous to life and is likely to cause increased deafness. The mortality attached to the radical

operation when performed before complications have appeared is negligible, and the hearing in the operated ear is more often improved. Practically never is the hearing made worse by the radical operation when it has been properly performed.

Not until we have removed every possible near and remote cause of impaired hearing can we conscientiously say to our patient who is the victim of progressive deafness that he cannot be helped. And even in the event of failure to restore any considerable amount of hearing, or to stay the progress of his malady, it is our duty to point out to him the great help and consolation to be derived from acquiring proficiency in lip-reading. This expedient, though it be our last resort, inspires the patient to employ and exercise whatever hearing capacity he has left. By doing this he actually stimulates and preserves his hearing power, instead of allowing it to rapidly deteriorate through disuse. Thus he is able to keep in social contact with his fellows and his personal happiness and his usefulness to those about him are materially increased.

We cannot close without pointing out the danger in otological practice of continuing the routine local treatment of inflation and massage of the tympanum in those cases in which these procedures are not clearly indicated or after they are no longer of distinct benefit to the patient. It is easy to fall into the way of doing so unless one checks himself by frequently making tests to control the results of treatment. The abuse of these most valuable procedures leads undoubtedly to further impairment by relaxing the drum-head and ossicular chain, and justly arouses in the mind of the patient a suspicion as to the motives of the physician.

In conclusion, we would emphasize the fact that in order to most effectively meet the large problem of conserving the hearing, there is required the active interest and fullest co-operation of the general practitioner, the educator and the otologist.

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#### DISCUSSION.

DR. E. W. BENHAM, Mankato, Minn.: Mr. President, Ladies and Gentlemen: It seems to me that Doctor Newhart has covered the subject in a very conservative and careful way. I was very much impressed with his paper. We can all agree with Doctor Newhart that prevention is the keynote in the conservation of hearing and especially so in view of the unsatisfactory results of treatment in well established chronic deafness.

I think the medical inspection of schools is extremely important. It brings nose and throat disease to the attention of the parents at a time when something may be done to check the approach of deafness.

As the writer has shown, a large proportion of ear troubles develop through the agency of the Eustachian tube, and all diseased conditions likely to affect the tube unfavorably should, of course, receive attention, especially diseased tonsils and adenoids, which may cause infection and pressure around the mouth of the tube.

Obstructions and abnormalities within the nasal cavity proper are undoubtedly a cause of deafness through interference with drainage and ventilation. I have tried to examine cases of this kind very carefully with a view to forming a more definite opinion in regard to the true relationship between cause and effect, and have come to feel that with the exception of enlargements of the posterior tip of the inferior turbinates, the middle and upper portions of the nasal cavity are usually at fault in their effect upon hearing. A deviated septum is often the cause of a low grade inflammation of the accessory sinuses by interference with drainage and aeration, and these conditions, reacting upon each other, result in a state of chronic hyperemia or mild inflammation which by continuity spreads to the tube, and thus affects the hearing. Such patients are victims of colds upon the slightest provocation, attacks of sneezing, and a more or less chronic state of irritation and congestion of the nasal passages which, in the aggregate, cannot fail to be injurious to the organ of hearing.

It is usually the case, I think, that operations for the relief of nasal abnormalities are disappointing so far as any distinct improvement in hearing is con-

cerned, but they are often of great value to the deaf patient as a preventive measure, enabling him to retain much longer the hearing he still possesses.

The operation should be selected which will best secure free respiration and adequate drainage and aeration of the accessory sinuses. In this connection, I am inclined to think that many unnecessary and therefore useless operations are done upon the inferior turbinates.

An important point in the protection of the ear is greater cleanliness of the nose and throat during the presence of infectious diseases, and early incision of the drum after the onset of acute otitis. Many times patients go on for days suffering acute pain, until the drum ruptures spontaneously. When we consider the very limited capacity of the middle ear and the delicate nature of its mechanism, we realize how much it may be injured by this delay in providing drainage. Early incision will also, in many cases, forestall a complicating mastoid inflammation.

Venereal disease is not often taken into account with reference to conservation of hearing, yet congenital syphilis is responsible for many cases of hopeless deafness in children. Here again the great value of preventive measures is apparent, in the use of such measures as may be employed to prevent the spread of syphilis and secure for those already diseased a prolonged and systematic course of treatment.

I think in the management of chronic cases of deafness, in a great many instances there is some underlying cause which we cannot get hold of. It may be auto-intoxication, or acidosis, or some toxemia; at any rate, it would seem that there is a disturbance of metabolism which exercises an unfavorable influence on the progress of the case and adds to the situation a factor which makes these cases very unsatisfactory to treat. Perhaps some time we shall be able to get the missing factor and connect it up in a way that it will be of help, but I think that with the exception of the preventive measures, as emphasized by Doctor Newhart, the results of treatment, directed to the ear itself, in a large number of cases, are not very encouraging.

DR. S. MARX WHITE, Minneapolis, Minn.: This subject might be thought to be of interest only to the specialist in this region, but that is not true. The paper to my mind, is of particular interest to the general practitioner and to the internist as well. I think we are all coming to the realization of the importance of periodic examinations, not only in this field, but the periodic examination is coming to be looked upon as a necessity in the general field in the discovery of early signs of degenerative disorders that are incident to our life,—renal disease, heart disease, focal infections, etc. I think that the importance of this periodic examination in this particular field ought to be emphasized. I have been impressed with the temporary deafness that occurs in connection with acute infections of the nasopharynx and I would like, for information, to ask the essayist if it

is not true that particular attention should be paid to those individuals, who, during acute infections, acute colds, pharyngeal disease, etc., show signs of temporary deafness, whether that might not be an index to disorders leading gradually by repetition and indicating by the presence of this local sign, that the beginning of degenerative changes is there? And then another thing that interests the internist particularly in relation to this topic is the question of predisposition of the tonsils in this condition, as that is related not only to tonsillar but to other focal infections in this region. The general practitioner and the internist, I believe, must become more acute and better trained in examining the tonsil. The tendency heretofore has been to make a cursory examination and determine the question largely on the appearance of enlargement or from gross and evident signs of follicular infection. As I have seen it in a considerable experience in focal infections as causing generalized infections, rheumatic, cardiac, cardio-renal diseases, etc., it is often a throat that looks quite innocent when grossly examined that is the real cause of more serious metastatic disorders and I believe that Doctor Newhart is absolutely right when he says that the examination should be very much more painstaking, and that the search should be made into the condition of the pillars and crypts in some such manner as he has indicated here. I believe that this little apparatus (very simple) is the thing that should lie on the examining table of most of us, but it should be more persistently sterilized. It should be the means of getting at the root of the infection, but even then, in my experience, many times the tonsils fail to show evidence of infection because they lie deeper and have been covered by scars, and an attempt to follow the pillars and lymph crypts does not get at the bottom of the thing, and hidden abscesses are present. The very occurrence of adhesions should make one strongly suspicious of the tonsils. One other thing is the condition of the glands in the anterior superior triangles of the neck.

A final point is regarding the deafness which occurs in syphilis. It seems to me that particular pains should be taken in dealing with this type. I have, in reviewing these cases of syphilitic infection, particularly late infections (as the internist sees them), been struck with the frequency with which deafness is reported and would like to emphasize the importance of the Wassermann test in this connection. I think many of us are learning the fact that the single Wassermann is not a reliable criterion. A single negative Wasserman in the presence of other things means little. A positive syphilitic reaction must be followed up by repetitions, possibly by Wassermanns after provocative doses, and not so infrequently by cerebrospinal fluid tests, if possible.

DR. J. W. ANDREWS, Mankato, Minn.: I am not an ear specialist at all but I have been interested in this paper of Doctor Newhart's and the discussion following it. If I were going to discuss the tonsils in reference to the ear, I could not say any more and



could not say it as well as has been said by Doctor White. It is only very recently that I examined a throat and found the anterior pillars were red, but nothing could be seen casually in the tonsil indicating that anything was wrong. I took the patient, noticing the color of the anterior pillars, to a specialist and he very soon found suppurating tonsils in the right side of the throat. Indeed, there was a large quantity of pus deeply buried, which did not show at all until examination was made by the specialist, a more thorough examination than I had made, or perhaps would have made.

One thing I was thinking of when Doctor Newhart was reading his paper,—the large percentage of impaired hearing, partial deafness in the adult, is due to chronic non-suppurating inflammation of the middle ear. Now, if Doctor Newhart would impress upon us the importance of an early recognition of the condition (for these cases come on slowly, before the patient perhaps is aware of it), he will do us a great favor. These cases do not begin in the school, for they do not begin in childhood, but are diseases largely of the adult,—not entirely, but largely.

I want to refer to one other thing which interests me very much in reference to deafness. This is the lip method of talking and I wish the medical profession would put itself squarely on record in regard to this matter for there are many people today advocating talking with the fingers instead of teaching children the lip method. Gentlemen, it is all wrong! Observation and some study of this subject will convince you that it is wrong as can be, and yet the physician at the head of the deaf institution of the state is today advocating the finger method instead of the lip method. If you have seen what I have seen, some of the children, some of the young men and young women that have never studied the finger method, but the lip method entirely, you will be surprised to know that they can hear—shall I say hear?—get the conversation, all of a speech, or all of a reading. As this paper was read here one of them could watch the lips of the speaker and understand it almost as well as we could hear who have good hearing.

DR. H. I. LILLIE, Rochester, Minn.: I have been very much interested in Doctor Newhart's paper on the conservation of hearing. I was unfortunate enough not to hear the first part of the paper. There are one or two things I would like to say in regard to the conservation of hearing. First, that it is very necessary to make a very careful functional test of the eighth nerve in order to tell with what sort of deafness we are dealing. In middle and internal ear deafness the treatment is very different. In either case we must search for the causal factors.

In the internal ear deafness, many factors enter into it, mostly toxic. Some even go so far as to say that otosclerosis is a toxic condition and most likely from the tonsil. In a casual functional examination of the ear, when inner ear deafness is discovered, we are frequently confronted in determining whether it

is auditory atrophy or focal infection. There are many such cases that develop from gastro-intestinal complications and many from focal infection. The treatment is to remove the focus. The eighth nerve is an embryologic nerve and succumbs most readily to infections. The first stage in the pathology is swelling. The degenerative process is more or less progressive unless checked. We are in the habit, in these definite nerve deafness cases, of instituting eliminative treatment.

I am particularly interested in pilocarpin sweats and it is astonishing sometimes what this will do for the nerve deafness type. I recall one patient, a girl, suffering from chronic constipation and focal infection, where we attacked both factors. She was unable to hear conversational voices at all. In two weeks she was able to hear birds singing outside her window. She now has to be very careful about the gastro-intestinal tract, and by keeping that clear, she is able to get on very well.

In adults the middle ear type of deafness is frequently diagnosed when we have a combined condition. Nerve deafness combined with middle ear deafness, is a very difficult type to treat. The middle ear deafness is commonly a catarrhal deafness and the treatment is very much overdone. For the benefit of the patient's future, the less amount of treatment instituted the better. For instance, some of these patients are told to have inflation over long periods of time. Inflations over long periods of time do more harm, I feel, that if they are not instituted at all, for if they are not judiciously performed under proper pressure they produce in the middle ear stronger adhesions than the adhesions that had formed previous to that time, and therefore after six months one finds that the deafness is more profound than when we started, although there is temporary relief following inflations. Another type is due to lack of tonus of the intra-tympanic muscles. They are unable to hold the ossicular chain in proper tonus and result in the sound waves not being properly conducted. This type of deafness is, in our experience, not particularly amenable to treatment. The nose and throat affections causing tubal tympanitis, are of great importance. In the examination of a suppurating ear one must differentiate the tube and tympanum as causal factors. Many discharging ears are due to fluids coming up through the tube from the nose. These ears do well when properly treated. While the ear is discharging the patient hears better.

The question of the conservation of hearing is a very important one and one in which the general profession has a particularly vital interest. It is only through the co-operation of the profession in general and the otologists that we are going to accomplish very much in the conservation of hearing.

DR. NEWHART (closing): I wish to express my appreciation of the interest manifested in this paper as revealed by your valued discussion of some of its points.

It was with considerable hesitation that we laid so much stress upon those causes of impaired hearing which in the past have been considered as of little importance, as compared with the well recognized local causes. I refer to systemic conditions and focal infections. Your acceptance and endorsement of the position we have taken in emphasizing the significance of these more remote factors in producing impairment of hearing is very encouraging. Clinical proof of the validity of our position, I believe is strikingly abundant in the practice of all of us. Pathological proof is difficult to obtain for the reason that it practically never happens that we have opportunity to examine postmortem a case with impaired hearing which has been made the object of close clinical study over a long period, with frequent functional tests. Further, animal experiments in otology are nearly valueless because functional tests are impossible.

Replying to Dr. White's question, we heartily agree with him that those individuals showing a temporary deafness with acute infections of the naso-pharynx, to which they have an apparently increased susceptibility, should be closely scrutinized for damage already sustained and for causal factors, both local and general, the removal of which would improve the general health and would protect the patient against further attacks of deafness.

Dr. Andrews asks us to indicate how we may discover the early stages of deafness. As was stated in one of the paragraphs just read, we find great help in the detection of slight impairment of hearing in the careful application of the very simple tuning-fork tests of Weber and Rinne. These show deviations from the normal long before they are revealed by the more crude watch and voice tests.

Dr. Lillie's reference to eliminative treatment is very pertinent. The general practitioner may question the right of the otologist to prescribe other than local treatment for his patients. It is all important that any condition which prevents the patient from securing the maximum of benefit must be treated. Often it is possible for the otologist to refer the case back to his general practitioner for the treatment of systemic troubles underlying his deafness. When this is not possible, the otologist must himself direct the treatment. In all cases of deafness of any considerable degree, although the obstructive form may be more prominent, there is usually present nerve involvement. The obstructive feature alone responds satisfactorily to local treatment, the nerve deafness responding only to general therapeutics, especially to eliminative measures.

Dr. Lillie's reference to the danger of overtreatment of our chronic cases by local measures is very important.

## TUMORS OF THE BLADDER AND THEIR NON-OPERATIVE TREATMENT.\*

W. F. BRAASCH, M. D.,  
Rochester, Minn.

When the method of removing bladder-tumors through the cystoscope by means of a high frequency current was first introduced by Beer, it was believed that a method had been discovered whereby all such tumors could be effectively cured. It gradually became apparent, however, that certain types of bladder-tumor could be readily removed by this method while others were affected but little by it. It is now recognized that fulguration is applicable only to tumors of the papillomatous type.

The exact pathological status of a papillomatous tumor of the bladder may be difficult to establish definitely. All papillomas are potentially malignant. Clinically, however, the grade of malignancy varies widely. It is generally recognized that such growths as are characterized by a uniform arrangement of cells and staining qualities, and are well confined within the basement membrane, are of relatively benign type. Nevertheless such tumors, when removed, frequently recur and may later change to a more malignant form. It has also been established that papillomatous tumors with an irregular arrangement of cells and staining qualities, and such as infiltrate the tissues beyond the basement membrane, are distinctly malignant in type, and when removed have a tendency to rapidly recur and metastasize. Between these two extremes of papillomatous tumors, various grades of irregularity in formation and staining qualities of cells may be observed, and it may be difficult, from the pathologic picture, to determine the future clinical course. It is, however, often difficult to ascertain the exact microscopic character of a papillomatous tumor from specimens removed through the cystoscope, since the outline, staining qualities, and arrangement of cells, may vary in different portions of the tumor.

As a rule, a satisfactory diagnosis of the nature of a papillomatous tumor can be made by its gross appearance as seen through the cysto-

\*Presented before the Annual Meeting of the Minnesota State Medical Association at St. Paul, October 11 and 12, 1917.

scope, together with clinical data. The cystoscopic data which differentiate the malignant from the relatively benign papillomatous tumor are:

1. A tendency to necrosis\* and incrustation of the superficial portions, giving it a dirty gray appearance.

2. A heavy, meaty appearance with a thick pedicle, in contrast to the frail structure of a benign papilloma.

3. The frequent presence of an intractable and very irritating cystitis.

Valuable data may be obtained by simple rectal and vaginal palpation which should be done in every case of suspected tumor of the bladder. A malignant tumor involving the base of the bladder will frequently cause palpable thickening of the bladder-wall. When the process has progressed so as to cause a firm, nodular change in the adherent tissues, any operative procedure is useless. It is obvious that no benign tumor could cause such infiltration, and when the latter is present, fulguration would be futile.

It has been found that papillomatous tumors, regarded as relatively benign on microscopic examination, are readily removed by fulguration through the cystoscope, while tumors regarded as frankly malignant on microscopic examination will not react to fulguration. Such tumors as fall in between these two groups may or may not react to fulguration. In the group of papillomatous tumors, when any doubt may exist as to their malignancy, the best method to ascertain the degree of malignancy is through their reaction to fulguration. If a tumor does not respond to three or four such treatments it may readily be concluded that it is of the malignant type and that a suprapubic resection should be done without delay.

Several patients have come under our observation in the past few years who had previously been subjected to repeated fulgurations,—in the case of one as high as twenty—without affecting the bladder-tumor. This is particularly unfortunate, since a tumor originally amenable to operation may become inoperable after the long delay and ineffectual treatment.

Now that the type of tumor which may be destroyed by fulguration has been definitely established, the question arises: How permanent are the results of the removal of tumors by means of this method? On reviewing our records we find that there were 80 cases of bladder-tumor fulgurated at the Mayo Clinic between January 1, 1911 and September 1, 1917. Of this number 50 were relatively benign papilloma, 9 were papilloma of questionable malignancy, 13 were carcinoma, 1 was angioma, and 7 were questionable papilloma. The Oudin current was employed in the earlier cases but more recently the D'Arsonval current has been used, because of its more rapid results.

Of the 50 patients with benign tumor treated, 33 have been re-examined. No evidence of recurrence was noted in 24 patients, who were examined three or more months following fulguration, while 9 had recurrences. Of the 24 patients having no recurrence, the period following the initial treatment was as follows: 2, six years; 2, four years; 1, two and one-half years; 2, two years; 2, one and one-half years; 3, one year; and 12, less than one year. This leaves 24 of 33 patients (73 per cent) with benign papilloma who have been re-examined, without any evidence of recurrence. It is probable that this percentage will be reduced by subsequent recurrence among the patients treated within the last year or two. Of the 9 patients with recurrence there were four who had a recurrence of the tumor following the first fulguration, but who on recent examination were found well, over periods of from 1 to 4 years. In the 5 patients showing a recurrence at the time of the last examination, the interval following fulguration was as follows: 2, four months; 1, six months; 1, six months, and subsequently eight months; and 1 has had three yearly recurrences.

The site of recurrence was found at the original site of the primary tumor in 6 cases, and at different sites in 3. The exact time of recurrence was difficult to ascertain because of the irregularity of examination following fulguration. However, of the 9 patients with recurrence it was noted in 8 in less than six months. In the one patient in whom the recurrence was repeated it was observed one and one-half years following fulguration. No recurrences were

\*Albarran, J. Les tumeurs de la vessie. Paris, Steinheil, 1892, 494, p.

noted in cases in which the primary tumor was removed by one or two fulgurations. This is corroboratory of a previous observation that the degree of malignancy is in direct proportion to the number of fulgurations necessary to its removal. Keyes claims that recurrence will usually take place within three months. Of the 3 patients with primary multiple tumors re-examined, 2 had multiple recurrences, which would corroborate Keyes' statement that recurrences following the fulguration of multiple tumors are multiple. Multiple recurrence was also noted in one patient with primary single tumor. A second recurrence was observed in but two patients and the primary tumor was multiple in both. Repeated recurrences usually occur with multiple primary tumors.

Of the remaining 17 patients who were not re-examined, 5 were reported as symptomatically well, and no subsequent data were available from 12. Of the patients reported well, the period following the last treatment was as follows: 1, six and one-half years; 1, six years; 1, five years; 1, two and one-half years; 1, two years. Of the 12 patients without subsequent report, 8 were fulgurated within the past year. While it is difficult to draw exact conclusions as to recurrences from this group without having made a cystoscopic re-examination, nevertheless it is significant that 5 patients are reported alive and well from two to six years after fulguration. It is also of interest that there remain but 4 patients who have not been heard from. It is fair to assume that the majority of these are still living.

Of the 9 patients with papilloma of doubtful malignancy, 4 were fulgurated without success and, later, resection was done. Of the remaining 5, 1 was well two years, and 1 six months afterward, 1 had multiple recurrences annually, 1 showed extensive recurrence five months later, and 1 was treated three months previously. An interesting occurrence was that of two tumors in the same bladder; one was relatively benign and was readily removed by fulguration; the other was not affected by fulguration and on resection later, was found to be malignant. It is evident that although a few cases of malignant papilloma will respond to fulguration, the majority will not.

Of the 13 patients with carcinoma, in 9 the treatment was given for recurrences following suprapubic resection for carcinoma. In 4 patients the tumors were of a doubtful nature on clinical examination, but did not respond readily to fulguration and were operated on later. Of the 9 patients that were fulgurated following operation, 1 was fulgurated after fifteen months and has been well for two years, 1 was fulgurated after two years and has been well four years, 1 was fulgurated after eighteen months, and in a letter from the patient three years later he states that he is well, 1 was fulgurated after three years and has not been seen for three months, 1 has been fulgurated yearly for the past three years for recurrences and was last examined five months ago, and 1 was fulgurated three months after operation and has not been examined for three months. Three of the patients have died from one to two years after operation. It will be noted that the period of freedom from recurrence was much longer after fulguration than after operation. The time of recurrence following fulguration was more than a year in all but two patients, and much longer than that observed with relatively benign papilloma. Tumors which have been frankly malignant at operation will frequently respond to fulguration when they recur. The degree of malignancy is evidently reduced with successive recurrence, and even though the patient may not be cured, life is unquestionably prolonged.

In the 9 cases of recurrence in this group, 5 were at the previous site of the tumor and 4 were at different sites. In 3 cases the recurrence was multiple, and in 3 single. Cystoscopic examination several months after resection for a malignant tumor will occasionally reveal evident proliferation of the mucosa at the site of the previous incision. There may be no evidence of other involvement of the external wound, but this proliferation may persist and remain stationary for many months. It is advisable, however, to give it a thorough course of fulguration and radium exposure.

In the 7 cases of questionable papilloma, the time since the last fulguration is as follows: 1, six years; 1, five years; 1, four years; 1, three years; 2, one and one-half years; and 1, less than a year. None of these patients have been

re-examined, but letters received from them indicate that there is no recurrence.

Papillomatous proliferation of the mucosa to a slight degree, the exact nature of which it is difficult to determine, is sometimes visible in the bladder. Such tumors are found more often near the ureteral meatuses or the internal vesical sphincter, and although they are probably the result of a slight chronic inflammatory reaction of the mucosa, no other evidence of inflammation may be visible. They may disappear spontaneously but they will occasionally remain stationary in size for a period of several years. It is quite possible that some of these are the forerunners of papillomas or malignant tumors, which is further suggested by the frequency with which malignant tumors are found near the ureteral meatuses. Such tumors when discovered should be removed at once by fulguration.

Severe chronic inflammation will occasionally cause such extensive proliferation of the mucosa that it may simulate a true bladder-tumor. This is particularly true with vesical tuberculosis. Microscopic examination of the tissue in question, or catheterization of the kidneys, would usually identify the lesion. The specimen obtained, however, may be unsatisfactory and renal catheterization may be impossible, thus making identification of the tumor exceedingly difficult.

The number of treatments necessary to remove tumors is not always in ratio to their size. Occasionally, tumors of considerable size are removed in one fulguration, whereas much smaller ones may require several treatments. It would seem that the rapidity with which the tumors disappear is in a measure in proportion to the degree of malignancy. The treatment of large tumors may be hastened by the preliminary removal of much of the tissue by means of a snare as suggested by Buerger.

Following the removal of a papilloma by fulguration there will usually be considerable inflammatory reaction in the mucosa, and consequent edema and granulation tissue may simulate a persistent remnant of the papilloma. This, however, will gradually disappear spontaneously in the course of three or four weeks. Occasionally, the bladder-mucosa at the site of the suprapubic incision remains congested and irregularly infiltrated for a long time following

fulguration, and such congestion when persistent is frequently indicative of underlying malignancy. Thorough fulguration of the area should be tried, and if the congestion still remains radium should be used.

**Radium.** Since radium has been used with such good results in treating superficial malignant conditions, such as in the skin, larynx, etc., it would be reasonable to expect similar results in the bladder. Thus far, however, the experiences reported have not been encouraging. Geraghty believes that it is of little or no value in the treatment of frankly malignant tumors of the bladder. His method of application consisted of hourly exposures with 100 mg. of radium, screened by a brass capsule of 3 m. m. in thickness, which is applied directly over the tumor by rigid instruments within the bladder. He reports a series of papillomatous tumors, however, that did not respond to fulguration until they had been exposed to radium. After this they were readily removed by fulguration. Barringer, on the other hand, reported evident cures with radium alone in 3 of 9 cases of inoperable malignant tumors. His technic differs from that of Geraghty in that the unshielded original lead capsule of radium is inserted in the bladder and the patient placed in a position to bring the capsule in contact with the tumor. It is further allowed to remain in the bladder for a much longer time, namely, five or six hours. Kolischer\* reported successful removal of several malignant tumors with the use of mesothorium. He employs this intravesically, leaving the capsule in the bladder as long as 24 hours.

Our experience with radium has been largely as an aid to post-operative and preoperative treatment. Following resection of malignant tumors, it has been our custom to leave the unshielded radium capsule in the bladder for several hours in the hope of destroying any superficial malignant cells remaining. In preoperative and inoperable conditions it has been found valuable in reducing infection and cleaning up foul-smelling urine. In cases of persistent bleeding from the tumor a few hours of exposure to radium will often control it. This, together with deep X-ray exposure, is occasion-

\*Kolischer—Radiotherapy and diathermy in malignant tumors of the bladder. *Urol. and Cutaneous Rev.*, 1916, XX, 66-67.

ally of value in controlling pain sometimes found in inoperable cases. In two cases in which there was secondary recurrence of papillary carcinoma, the tumor disappeared following long intravesical application of 100 mg. of radium. In 3 cases of secondary recurrence of the tumor in the suprapubic wound following resection, the nodules were softened and to all appearances the process was temporarily controlled. It may be said, therefore, that although radium does not have the brilliant therapeutic results of fulguration in the treatment of bladder-tumors, it is, nevertheless, a valuable adjunct when the condition is malignant.

In summarizing our experiences with the non-operative treatment of tumors of the bladder, it may be said:

1. Fulguration offers a safe and comparatively easy method of removing bladder papillomas.

2. Fulguration is applicable only to the papillomatous tumors of a relatively benign type.

3. Although the ultimate results following fulguration are much superior to those following suprapubic resection, the method does not always offer a permanent cure.

4. The degree of malignancy is usually readily ascertained by the cystoscopic appearance and clinical data.

5. In doubtful cases the degree of malignancy is best ascertained by its reaction to fulguration.

6. The percentage of recurrence of papillomas in a series of 33 cases repeatedly re-examined was 27.

7. Recurrence when present usually occurs within six months after fulguration and is generally at the site of the primary tumor.

8. Multiple recurrence is more often observed with multiple primary tumors.

9. Tumors which have been frankly malignant at operation will frequently respond to fulguration when they recur.

10. The degree of malignancy is evidently reduced by successive recurrences.

11. Small papillomas, usually situated near ureteral meatuses, are occasionally accidentally discovered. While some are inflammatory, others are forerunners of large papillomas and should be fulgurated.

12. Radium is of value (1) as a prophylactic measure following surgical resection of bladder-tumors, (2) to control hematuria and pain, (3) occasionally in removal of malignant tumors, particularly when recurring.

#### DISCUSSION.

DR. OSCAR OWRE, Minneapolis: There has been a great deal written and a great deal said about tumors of the bladder in the last five or six years, and fulguration in the treatment of bladder tumors has probably made as great an advance in genito-urinary work as any since the advent of the cystoscope. Dr. Braasch is certainly well qualified to speak on the subject, and I think we should consider his conclusions seriously. When he says that microscopic analysis is often superfluous and unnecessary, he voices the actual clinical experience of a great many of the leaders in this country. I am reminded in this connection of one of Dr. Keyes' terse statements when he said that a competent pathologist pronounced the original papilloma of the bladder from a section as benign, and when there was a recurrence of the growth and the pathologist was confronted with this statement, he stood firmly by his diagnosis. A section of the bladder is often difficult to analyze microscopically, the same as a section from a gumma is difficult to analyze, on account of the peculiar type of tissue, the heaping up of epithelial cells, and unquestionably the cystoscopic evidence is more important than the microscopic evidence. There are, however, some very important exceptions to this rule from a clinical standpoint, and among them this: a single papilloma of the bladder in a young individual would probably be benign, but should be looked upon as potentially malignant, as Dr. Braasch has said, while a single papilloma of the same type in an individual past 40 or 50 should be looked upon not as benign but should be considered malignant. Many papillomata in persons of middle age arise from an infiltrating carcinoma beneath the mucosa which sometimes cannot be appreciated by the cystoscopic appearance. Carcinoma in a young individual is unquestionably very grave. My youngest case was a young man, 24 years of age, who died in six months. Cystoscopic evidence was furnished by the first attack of hematuria.

I think Dr. Braasch talks to the point when he says that we should substantiate our diagnosis when we can by vaginal and rectal examinations, and there I might add bimanual examination. I have had this clearly demonstrated in consultation with Dr. Abbott recently, in which he demonstrated bimanual examination through the rectum which we could not appreciate nearly so well through the cystoscope. It would be desirable to have an accurate picture of the pathological nature of the growth in addition to the cystoscopic picture. We should bear in mind that while we may seemingly successfully remove a be-

nign growth, death may occur from metastases in other parts of the body, while the bladder may remain free from all recurrence of the tumor.

There are some important contraindications to the fulguration method, and that is, if the growth is large and of rather firm texture, fulguration is not successful. If there is an intractable cystitis, the fulguration method is certainly contraindicated. If the tumors are sloughing or are ulcerating, it is sometimes difficult to make any progress with fulguration. Also the multiplicity and size of the tumors must be considered. We cannot always tell whether a tumor will yield to fulguration or not, and yet some good men have said that malignant tumors will yield to fulguration. I am strongly reminded of a case of tumor of the bladder which was pronounced by microscopic section to be malignant. A part of the growth was removed by the cystoscope in which the doctor tried fulguration, and it did not progress. The doctor told Dr. Geraghty about it, and he tried more fulguration, the growth receded and disappeared, and it remained so for some years. The malignancy in this case was corroborated by Dr. Geraghty.

I am not permitted within the scope of this discussion to say anything about the cutting operation, and the dangers of implantation from this method of procedure, but with an apology for diverging, I would like to quote one case that is particularly interesting, namely, a case that occurred in the practice of the late Dr. Millett of Rochester. This case was seen by Dr. Millett, and pronounced as a malignant growth near the neck of the bladder. The man was past 40 years of age, and operative procedures at that time were discarded. He had retired from business and awaited the inevitable, but gradually improved. He had hematuria and pain on urination, but at the end of eight years he was doing his work again; then he got a sudden attack of hematuria with pain on urination and was cystoscoped by me five years ago. At that time, the diagnosis of Dr. Millett was corroborated and the growth had filled the entire bladder. It was a large fimbriated papilloma with a gelatinous mass between the fimbriated process. A suprapubic section was done and the growth removed. We could not exercise any care because it was everywhere; it was scooped out, and I imagine it would fill a twelve-ounce receptacle. We found the base was as large as my thumb, the pedicle. This was curetted out and cauterized by actual cautery. I have examined this case off and on cystoscopically for 5 years, and there is still no recurrence. An interesting feature is that there are no implants following the operation, and yet it was microscopically malignant. I do believe the actual cautery has some place in the treatment of these tumors.

Speaking of fulguration again, I think those cases that we can observe for a long time prove to us what is good and what is not good. I recall the case of a woman who had the pyelitis of pregnancy. She had been cystoscoped three times, and the kidney was pronounced tuberculous because she had some sharp

attacks of profuse hematuria. On the fourth cystoscopy which I did I happened to see a papilloma with a good-sized pedicle on the opposite side of the bladder, and determined that the bleeding came from the papilloma. I fulgurated this and it disappeared with one treatment. I have examined this woman and she has had two pregnancies since then. I have examined her several times with the cystoscope over a period of four or five years, and there has been no recurrence. In this case fulguration was the method par excellence for the treatment.

As to relapse, and that is what counts in the treatment of tumors of the bladder, I am strongly reminded of a little incident that occurred in Minneapolis. A prominent physician, of good Scandinavian extraction, who was not a surgeon, attempted circumcision. He thought he could do a circumcision. One morning he stayed at the hospital watching a general surgeon doing a circumcision from start to finish, and at the conclusion of the operation he stepped up to the surgeon and said, "Doctor, I am very glad to have had the opportunity of seeing this operation; I have done a great many circumcisions, but I am sorry to admit that I have had a number of relapses." I am sure there must be some relapses from the papillomata of the bladder by the fulguration and other methods. If confronted with a papilloma of the bladder, I have wondered what I would do. I rather think I would take my chances on fulguration, then on top of that the expectant treatment.

DR. E. STARR JUDD, Rochester: I do not know that there is a great deal more to be said about the fulguration method of treatment of bladder tumors, but there are one or two points Dr. Braasch brought up I would like to emphasize, one of which is that when these tumors of the bladder do not respond promptly to continuous fulguration, they should be operated upon. I think some of the advanced cases that we have done radical operations upon were apparently good surgical cases to start with. If operated upon at the beginning, the tumors could have been removed satisfactorily, but instead, fulguration has been tried and failed.

Dr. Braasch mentioned one case that was fulgurated 20 times. In that case the condition was practically inoperable. The diagnosis, it seems to me, is the important thing from the standpoint of treatment.

I was thinking of two cases when Dr. Owre mentioned the case of Dr. Millett, one the case Dr. Millett had, and a second one seen a few months ago. This patient had been fulgurated and treated for bladder tumor many times, and apparently the bladder was still filled with the papillomatous growth very similar to the first case we had in Dr. Millett's hands. Dr. Braasch was unable to make a diagnosis with the cystoscope. The patient had a stricture of the ureter; I enlarged it. I cut out some tissue for diagnostic purposes and was not able to make a diagnosis, but after two or three months of drainage the bladder cleared up, and then Dr. Braasch was able to catheterize the ureter, and we got evidences of tu-

berculous infection from the right kidney. Recently I took out the right kidney of this patient. The case that Dr. Millett had, turned out to be tuberculosis as well. Where there is extensive involvement of the bladder by a papillomatous growth I think we may safely consider it to be tuberculous.

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## THE TREATMENT OF EPIDEMIC CEREBROSPINAL MENINGITIS.\*

T. L. BIRNBERG, M. D.,  
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The statistics of earlier epidemics have shown the fatal nature of this disease. Even in mild epidemics the mortality was high enough to class this as one of the most fatal of all diseases. Different methods of treatment followed one another in the past, based on the pathology known at those times. The antiphlogistic method of treatment in vogue at the date of the first recognition of the disease remains to some extent still in fashion.

This being physically a desperate disease, naturally drastic remedies were suggested. Venesection was always employed, also blistering the head, cupping and leeches. Mercury was pushed to salivation and emetics were used. In spite of these heroic measures the mortality was as high as ever.

At a later period, the administration of drugs and soothing remedies followed. The application of ice to the head or Leiter's Coil, opium to relieve the pain, and iodides to increase absorption, were much used. With this method of treatment the suffering of the patient was lessened and his strength husbanded; but the mortality was not much if any lower.

As evidence of the failure of old methods of treatment, the death rate was about 80 per cent. and even 90 per cent. In 1904 and 1905 the mortality in New York, according to Heiman and Feldstein, was 86 per cent. (at a time when the bacteriology and the pathology of this disease were known). In Boston, according to Dunn, the mortality was 70 per cent. in 1902; 90 per cent. in 1907. In Belfast in 1908 the mortality was 76 per cent. . Ker, in Edinburgh, re-

ported a mortality of 80 per cent. . This shows that up to this point in spite of the knowledge of pathology, no progress was made.

In 1905 Flexner and Joehman began to experiment with serums, and to Flexner must be given the credit for selecting the subdural route. The results they obtained are almost as important as those from the discovery of diphtheria antitoxin. Flexner reports 1,294 cases in 1913 with a mortality of about 30 per cent. (excluding cases dying within twenty-four hours after treatment, where we would be led to suppose that serum had not been given a fair trial).

Although Flexner's mortality was 30 per cent. in 1913, unfortunately the mortality in other places, especially in England, has not been so low under serum treatment. In the cases occurring in the Royal Naval Depots of England (1914-1915), the mortality of serum treated cases was 64 per cent; but many of these cases came late for treatment.

The report of the Medical Research Committee on cerebrospinal fever (1916) shows that the majority of the reporters seemed unable to determine how much benefit was derived from the serum and how much from the associated lumbar punctures. The average mortality seemed to be as high as 59 per cent. in serum treated cases.

In 1916 F. W. Andrews had 11 cases with a mortality of 36 1/3 per cent. . On the other hand, Gaskel and Foster in a series of 30 cases treated by puncture alone had a mortality of 30 per cent. .

The one fact upon which most observers seem to agree is that chemical substances employed, such as soamin, protargol and lysol, are of no value in influencing the course of this disease. Flexner and Amoss have shown that protargol and lysol have no effect on meningococci in guinea pigs and monkeys, and moreover, being antiphagocytic, do more harm than good. We must confess that a definite line of treatment for epidemic meningitis has as yet not been satisfactorily determined, as methods of considerable diversity are still employed by various observers. Some difference of opinion exists as to whether serum is or is not of any efficiency; whether cases are best treated by lumbar puncture alone, or if vaccines contribute to success.

\*Read at the annual meeting of the Minnesota State Medical Association, St. Paul, Minn., Oct. 11 and 12, 1917.



All records of a number of consecutive cases treated by a particular method may be of some value in the ultimate decision as to the best method of combating the disease.

Recognition must be given to the fact that the symptom complex consists of (1) symptoms of sepsis, (2) symptoms of meningeal irritation, (3) symptoms of pressure. Therefore, each must in its turn receive due consideration in order to get the lowest mortality. We must determine in the treatment of meningitis in what stage the disease exists, whether it be the (1) catarrhal stage, (2) stage of sepsis, or the (3) stage of meningitis.

In the treatment of the catarrhal stage the routine to be advised would be the spraying of the nose and throat with antiseptic solutions, preferably hydrogen dioxide. This should be combined with the intramuscular injection of serum. In the septicemic stage it must be borne in mind that we have a condition of meningococcic sepsis which can be diagnosed during an epidemic. Here, large doses of serum intravenously or intramuscularly are curative and abortive in results. In the treatment of the meningeal stage one must consider that the symptoms are due to sepsis, pressure and also meningeal irritation.

In our series of 49 cases, from February 16th to August 2, 1917, we tried to fit our cases into the above grouping, and always to bear those three stages in mind.

On admission we made a spinal puncture and administered serum. If septic we always gave serum intramuscularly every day to counteract this condition; always administering the serum warm, giving less serum than the fluid removed (otherwise we would not relieve the pressure), never giving less than four doses of serum subdurally; and as a rule repeating the serum injections until we obtained two specimens of spinal fluid free from bacteria. We found the latter to be a better index of the results of our therapy than the appearance of the spinal fluid or the physical symptoms.

We drained off all the fluid that would flow until normal pressure was secured, paying no attention to the rapidity with which the fluid escaped. We found in a series of 473 punctures that no bad results followed. Foster reports 300 successive punctures under like con-

ditions without unpleasant symptoms. We believe the central route the one of choice in spinal puncture in both adults and children on account of simplicity of technique. We were unusually fortunate in this series of punctures in that no mixed infections in the spinal canal resulted. We were aided, probably, by the resistance of this locality to infection.

Of the two methods of administering serum intraspinally—the syringe method and the gravity method—we preferred the latter on account of its being safer and more easily controlled. We always administer the serum slowly, and warmed to body temperature. In only three instances did complicating symptoms arise.

After the stage of administration of serum had passed we continued puncturing the spinal canal at intervals, to relieve the pressure and to prevent symptoms of hydrocephalus. We believed this to be better than waiting for such symptoms to develop and then treating them. As a result of this course we had only two cases in our series which showed any evidence of hydrocephalus.

Accidents sometimes follow the subdural injections of serum, among them being the breaking of the needle, which is rarely mentioned under this heading but which does occur. In such a case, authorities agree that the procedure should be the same as with a foreign body elsewhere, namely, to leave it alone unless symptoms develop. Accidents are reported following the rapid removal of fluid from the canal. Possibly this danger is over-emphasized. In our experience no bad effects were met with no matter how rapid the rate of flow. In administering serum great care must be taken. It must first be given warm, next very slowly or considerable pain and severe symptoms will be met with. Whether this is due to the introduction of foreign substance into the canal or to sudden increase in pressure has not been determined. In our series we encountered difficulty in three patients during the administering of serum, with one fatal result. In the other two cases the symptoms of nystagmus, pallor, and shallow respiration, followed by cardiac disturbances, were overcome by oxygen and mechanical respiration. In endeavoring to ascertain if pressure was the cause of these symp-

toms, we observed that no phenomena occurred in one of these cases when normal saline was injected in the place of serum.

The statistical summary of our series is as follows:

We had 49 cases, with 19 deaths and 30 recoveries. This makes our crude death rate 38.7 per cent. and our recovery rate 61.2 per cent. . There were two cases on whom we did not use serum, the patients being moribund when first seen. Thus, out of 47 cases treated with serum, we had 17 deaths and 30 recoveries, or a death rate of 36 per cent. and a recovery rate of 64 per cent. . If we exclude two other cases which died inside of twenty-four hours, where serum probably was not given a fair chance, we had 45 cases remaining. Of these, 15 died and 30 recovered, or a death rate of 33 per cent., and recovery rate of 66 per cent. .

This last conclusion is similar to the report as given by Dr. Simon Flexner in his review of over 1,200 cases in which he had a mortality of 30 per cent. .

The most encouraging part of the serum treatment is the absence of unpleasant permanent sequellae, although while under treatment we had three cases of central deafness, one case of ptosis, five cases of strabismus, and two cases of hydrocephalus. None of them left permanent results and have not recurred. Of this we are fairly confident, as we tried to keep these patients under observation for a few months after leaving the hospital. This is a much lower percentage and is in marked contrast to the older forms of treatment when so many were left crippled mentally and physically. In our series we had only one case of chronic meningitis, a patient who died later from a complication of pharyngeal diphtheria.

A few words must be said of the prophylactic treatment. Systematic prophylaxis against epidemic meningitis consists in active treatment of carriers during the epidemic. These carriers may be healthy or sick. The subject of carriers is very important, especially in military life, as is shown in a case reported by Settle in 1910 where a man who had been infected three months before, returned to his regiment with meningococci still in his throat. Seven days after his arrival, ten out of thirty men in his part of the barracks were found to be carriers.

The treatment of carriers should be: (1) quarantine; (2) medical, (a) local (b) internal treatment; (3) specific treatment, (a) serum prophylaxis, (b) active vaccination.

(1). Quarantine is the most important step. An arbitrary quarantine time cannot be established. The carrier should be controlled in a manner similar to that used in diphtheria, that is, not released until the cultures of the nose and throat are negative. The house should then be disinfected.

(2). Medical treatment consists in local and internal treatment. (a) Bethge reports best results with nasopharyngeal sprays of normal saline followed by peroxide. Sophian used saline followed by a one-half per cent. peroxide in the Dallas epidemic, with good results. Most patients become negative in a few days, never more than ten days.

(b) Internal Treatment. Urotropin may be of benefit. Flexner found that preliminary use of this drug afforded protection against inoculation with poliomyelitis. This drug was used by Sophian in an epidemic in 1912 in the Southwest in conjunction with the local treatment.

(3). Specific Treatment. This produces a specific immunity. It can be produced by injecting serum, causing a passive immunity, and by vaccines, causing active immunity.

(a) Passive Immunization. This is produced similarly to that in diphtheria. This was recommended as early as 1906 by Joekman. The average dose is 10 cc. of serum and is especially to be used in an epidemic in immunizing nurses and physicians. This was tried by Sophian in the 1912 Texas epidemic, many nurses and doctors being inoculated, and in no case did the disease develop under this method. The objections to passive immunization are, (1) the immunity lasts only temporarily, probably only a few weeks, (2) serum sickness, (3) danger of future anaphylaxis, should a patient get the disease and require serum.

(b) Active Immunization. Active immunity by vaccines has been tried in many cases by Sophian, no one contracting the disease afterwards. We must remember that only a little protection is needed, as the organism is of low virulence. The vaccine should be made from mixed cultures of the organism of the existing epidemic.

### Conclusions.

All the older forms of treatment did not in any way lower the death rate or diminish the terrible sequellae. Our only hope is in the serum treatment.

The benefit derived from this method is partly due to the drainage and partly to the serum. If no reliable serum is available, simple repeated punctures and drainage should be used.

Under the serum treatment the course of the disease is shortened, the death rate is lowered, and the unpleasant sequellae and cases of chronic meningitis are almost eliminated.

### DISCUSSION.

DR. J. J. MCGROARTY, Easton, Minn.: Mr. President, Ladies and Gentlemen: I think we ought to be thankful that we had such a fine symposium on meningitis here this afternoon.

In my series of 18 cases, I found that the time the case comes under observation aids greatly in making a diagnosis.

There is one symptom I would like to lay much stress upon, and that is the pulse rate. Early in the disease, whatever form of meningitis you may have, or whatever germ you may find in the spinal fluid, you have a slow pulse the first day or two of the disease. So then, if you find a child suddenly taken ill with fever, severe headache, vomiting, and all the symptoms of an acute illness, with a slow pulse, it should be your duty to do a lumbar puncture. In this series of cases I found that the pulse was slow the first few days of the disease. The behaviour of the pulse is characteristic. In the early stage it is disproportionately slow. Later on the pulse in meningitis increases in rate, so that at the end of five days or a week it is commonly above 100 and just before death there is a very marked acceleration of the pulse.

In the early stage of the disease, during the period of muscular irritability, rigidity and hypertonus, there is also a marked irritability of the cardiac pneumogastric inhibitory fibers. This is shown by the fact that the pulse rate often runs as low as 50. This very slow pulse, in other words, is due to irritation (i. e., stimulation) of the cardiac inhibitory center in the floor of the fourth ventricle, either because of direct

pressure upon it from the increased pressure in the cerebrospinal fluid, or because of irritation by the toxins upon the cardiac inhibitory center. There is at any rate in the early stage a marked irritability of these cardiac fibers, and the result of the increased irritation is a marked slowing of the pulse.

The acceleration of the pulse marks the stages in which the irritation of that center is passing over into the stages of complete paralysis of that apparatus. Therefore, death in practically all the cases of cerebrospinal fever is primarily due to a paralysis of the cardiac inhibitory fibers with secondary paralysis of respiration.

When you suspect the affection to be meningitis, you should have the temperature, pulse and respiration taken every two hours by a well trained nurse, because the pulse and temperature are very variable and this record carries with it the diagnosis. For example, at 2 P. M. the pulse may be 80; at 4 P. M. 66; at 6 P. M. 72; at 8 P. M. 50, and at 10 P. M. 86.

There is only one acute condition which can cause such a peculiar relationship between pulse rate and temperature, and such a peculiar oscillation of pulse rate and temperature, and that disease is meningitis, whether of the tuberculous, epidemic, pneumococcic, or any other variety.

The earlier we make our diagnosis, the quicker we can give our serum, and, as a result, I believe we will cure more cases.

DR. T. L. BIRNBERG, St. Paul: There are two points which I would like to bring out from my personal experience, which may be of value to others. According to the books the bulging of the fontanelles is of value. In actual practice it does not work. We have found that two of our infants did not have the bulging fontanelles, but did have a depressed fontanelle. I said that it was not meningitis, but the postmortem findings convinced me that the books and myself were wrong, and that the patient did have meningitis.

The slow pulse also is not of value in the diagnosis of meningitis, although emphasized as such by most authorities. It is only a sign of pressure and the diagnosis should be made before much pressure exists by means of exploratory spinal puncture. This slow pulse was characteristically absent in our series of cases due to the fact that we laid great emphasis on the relief of pressure being imperative to proper therapy, both during the acute stage and during early convalescence.

ABSOLUTELY NECESSARY MICROSCOPIC DIAGNOSIS.\*

WM. CARPENTER MACCARTY, M. D.,  
Rochester, Minn.

The role which expert microscopic diagnosis plays, and should play, in the practice of the science of medicine can best be appreciated by a study of figures.

The subject may well be treated from three standpoints, each of which possesses practical and important significance, not only from a diagnostic standpoint, but from a standpoint of justice and efficiency rendered the general public.

The day of dressed diagnosis and prescription therapy has given way to accurate physical examination and therapy which knows nothing but the rendition of the most efficient service to the patient, regardless of types of therapy.

The relation of the expert microscopist to this service may be divided into the following three groups of activities from a diagnostic standpoint:

1. Confirmation of clinical diagnosis.
2. Correction of clinical diagnosis.
3. Clinical diagnosis.

In so far as pathologic tissues are concerned, each may be seen in the accompanying tables.

There are three points of observation, i. e., the clinical, surgical, and pathological, each of which serves as a means of reckoning the duty which the medical profession owes his clientele.

I.

From a Clinical Standpoint.

Total No. of cases registered July, 1917.	4,752	
Total No. of operations.....	1,699	= 35 %
Total No. of surgical specimens.....	1,046	= 22 %
Total No. of specimens removed for diagnosis .....	179	= 3½ %
Total No. of necessary microscopic diagnoses .....	208	= 4.3 %
Percentage of operation cases.....		= 35 %
Percentage of operative cases producing surgical specimens.....		= 22 %
Percentage of operative cases producing specimens for diagnosis.....		= 3½ %
Percentage of operative cases which need microscopic diagnoses.....		= 4.3 %

It may be seen that out of all patients who come to examination, regardless of the physical ailment, 3½ per cent cannot be diagnosed clinically, in so far as tissues are concerned, without the aid of the expert tissue microscopist, and that 22 per cent of all patients possess definite pathologic tissues which can, and probably should be, removed.

The question of how many patients possess lesions which must be diagnosed microscopically—bacteriological, blood and tissue examinations excepted—can be answered by saying that 4.3 per cent of all patients present tissues which of necessity require microscopic diagnosis. These figures are of greatest importance in showing the inefficiency of hospital and private practice which is carried on without the aid of expert tissue microscopy.

II.

From a Surgical Standpoint.

Total No. of cases registered July, 1917.....	4,752
Total No. of operations.....	1,699
Total No. of surgical specimens.....	1,046
Total No. of specimens removed for diagnosis.	179
Total No. of necessary microscopic diagnoses.	208
Percentage of operations which yield specimens .....	61%
Percentage of operations which need microscopic diagnoses .....	12%

In the second table there is food for thought for the operator who works without the aid of immediate expert tissue microscopy. It may be seen that 61 per cent of all operations yield surgical specimens and that 12 per cent of all operations require the assistance of tissue microscopy.

III.

From a Pathological Standpoint.

Total No. of cases registered July, 1917.....	4,752
Total No. of operations.....	1,699
Total No. of surgical specimens.....	1,046
Total No. of necessary microscopic diagnoses.	208
Total No. of specimens removed for diagnosis.	179
Total No. of specimens removed for diagnosis needing microscopic diagnosis.....	149
Percentage of surgical specimens which need microscopic diagnosis .....	19.8%
Percentage of diagnostic specimens which need microscopic diagnosis .....	83 %

In the third table the so-called "gross pathologist" may see his limitations in so far as his aid to surgical and clinical procedure is concerned.

\*Presented before the Southern Minnesota Medical Association, Mankato, Minn., Nov. 27, 1917

Of 1,046 surgical specimens, it was absolutely necessary to resort to the microscope in 19.8 per cent, which is practically one out of every five. If such organs as the appendix, gall-bladder and ovary, all of which rarely need a microscopic diagnosis, be excluded in reckoning the percentage, it may be seen that the necessity of microscopic diagnosis jumps up to 28 per cent.

IV.

Percentage Reckoned Without Appendices, Gall-bladders and Ovaries.

Total No. of surgical specimens.....	1,046
Total No. of appendices, gall-bladders and ovaries .....	321
Total No. of surgical specimens minus appendices, gall-bladders and ovaries.....	725
Total No. of necessary microscopical diagnoses	207
Percentage of necessary microscopical diagnoses .....	28%

That there is a great organic variability of the necessity for such precision may be seen in the following table:

V.

Necessary Microscopic Diagnoses in Organs and Anatomical Regions.

	Total No.	No. Mic.
APPENDIX .....	181	0
BREAST .....	29	5= 17%
EXTREMITIES .....	13	7= 5%
GALL BLADDER .....	84	0
GENITO-URINARY SYSTEM .....	53	7= 13%
Bladder .....	3	0
Epididymus .....	2	0
Kidney .....	20	5= 25%
Prostate .....	20	1= 5%
Recto vaginal septum.....	1	0
Seminal vesicles .....	3	1= 33%
Testicle .....	2	0
Vas deferens .....	2	0
HEAD .....	7	2= 28%
Cheek (Tumor) .....	1	0
Jaw (Tissue) .....	1	1=100%
Lip (Epithelioma) .....	2	0
Scalp .....	3	1= 33%
INTESTINES .....	28	13= 46%
Colon .....	3	2= 66%
Duodenum .....	3	0
Intestine (large) .....	1	0
Rectum .....	15	9= 60%
Recto-sigmoid .....	2	0
Sigmoid .....	4	2= 50%
LIP AND GLANDS.....	3	3=100%
NECK .....	34	11= 32%
Glands .....	22	7= 31%

Parotid (tumor).....	6	2= 33%
Tissue or tumor.....	5	2= 40%
STOMACH .....	14	10= 71%
THYROID .....	175	3=1.7 %
TRUNK .....	11	4= 36%
Larynx .....	1	0
UTERUS, TUBES AND OVARIES.	17	3= 17%
UTERUS .....	52	5= 9%
TUBES .....	48	4= 8%
OVARIES .....	56	1=1.7 %
COLONIAL LABORATORY.....	161	64= 39%
OFFICE (SPEC. FOR EXAMINATION) .....	46	46=100%
HOSPITAL (SPEC. FOR EXAMINATION) .....	34	20= 58%

The figures shown in the accompanying tables clearly show the necessity of intimate affiliation of the tissue pathologist with both the clinician and the surgeon.

It must be remembered that these figures represent activity carried on by men who have been especially trained by a large experience which has been obtained by whole-time devotion to their subject. They are not figures which might obtain in the hands of interne pathologists, individuals who do pathology as a side-line, or by professors who teach the subjects of immunology, serology, bacteriology and postmortem pathology, all under the subject of pathology, but by men who do nothing but study fresh tissues in their relation to clinical medicine.

It may not be out of place at this time to state a few facts relative to other branches of clinical microscopy, each of which is conducted by specialists. During the same month during which 4,752 patients were examined, there were 4,825 examinations of urine, 2,000 examinations of blood, 250 stool examinations, 165 sputum examinations, and 258 miscellaneous examinations, all of which were microscopic, and all of which were necessary, either from the positive or negative standpoint.

In summing up these figures, it may be stated from the standpoint of the clinical microscopist in all branches that it was necessary to make 7,706 microscopic diagnoses, all of which positively or negatively affected the diagnosis and prognosis of the patients.

There seems to be one conclusion to be drawn from these facts, namely: The practice of medicine to occupy a place in science and to render justice to the patient who places faith

in the sincerity and accuracy of the profession, cannot be justly and efficiently carried out without the assistance of expert or specialized microscopy as practiced in the various specialties.

#### DISCUSSION.

DR. S. MARX WHITE, Minneapolis: Mr. President, Members of the Society: Of course, Dr. MacCarty had time only to sketch a very rough outline of the things he desired to present. Having been interested both in the laboratory and in the clinical field, I have gotten to feel that the microscope is simply one means of extending the field of our senses; that the microscope gives to the eye impressions of objects that are too minute to get by other means, and we must not forget that relationship. The microscope gives only an extension of our field. That thought constantly impresses itself upon me. I feel that with the microscope as with the field of vision, other senses must be brought into play, and we must correlate our knowledge gotten from other sources with that gotten from the laboratory.

Unquestionably Dr. MacCarty in his work presented here realizes that clinical data can be correlated with the microscopical data very advantageously. I feel, however, that no man in clinical work has any right to relax his vigilance with the microscope; that the pathologist and the clinician must work together, and the clinician must keep his eye, so to speak, on the laboratory. Dr. MacCarty shows a large number of cases in which the microscope is of major importance, and he has given us the correct impression.

He complains about the scarcity of laboratory men. The basis on which he makes his complaint is probably not well taken, because in the directory of the American Medical Association, for instance, a man is prevented from listing more than one specialty. There are a good many men who are doing a good deal of laboratory work although not limiting themselves absolutely to that field, who in this directory will emphasize the clinical field. That is one reason for the apparent scarcity of laboratory men.

Another reason is that the laboratory man, the pathologist, has gone out of the laboratory in which the compensation for men is inadequate. I know the feeling on the part of a good many clinicians is that the laboratory man, if he is paid a moderate salary, is sufficiently paid. Only yesterday in talking with a clinical man, the idea was brought out by him that the scale of living for the laboratory man and the clinician is different, the clinician needs more money, the clinician lives on a different scale, he has to entertain more, he has to go farther afield to get the things of importance. I do not believe that. I feel that the scarcity of whole-time laboratory men is principally and largely due to the inadequate compensation given to those men, and that as clinicians we look upon a small fee for laboratory service as a

sort of unnecessary expenditure. I think the reason is that we do not correlate our work with that of laboratory men. We ought to be willing to pay the men who are doing that work very much more than we are now willing to see them get.

DR. R. E. FARR, Minneapolis, Minn.: From the remarks of Dr. MacCarty concerning the pathologist I gained the impression that more time may be necessary than some of us have been led to believe, to prepare a man to do this kind of work. That phase of the matter is of much interest to those of us whose clinics are not large enough to control the services of one or more pathologists. In a city the size of Mankato, for instance, there must be one or two pathologists, and perhaps it is difficult to support them. In Minneapolis, we can depend upon the trained pathologists at the University, but there is more or less difficulty in commanding these men just when frozen sections, etc., are required. If a man has a small private hospital, he may be unable to control a pathologist as others may want this service at the particular time he does.

I have lately associated with a man who has not graduated in medicine, he is only a junior at the University Medical School, but has his degrees in science and has been in the laboratory for many years. For the past two years he has been doing the pathologic work of a fairly large, well-equipped hospital. Before taking him into my clinic I was assured by the teachers at the University that this man is perfectly competent to furnish me the laboratory assistance required in these cases, but I would judge that Dr. MacCarty would put him in the class he refers to as assistants, or internes. I would like to know if the doctor would consider it safe to rely upon the findings of such a man in this work. This is important to all of us who cannot control experienced and highly specialized pathologists, and the only practical solution of the problem, it seems to me, is that Dr. MacCarty suggests,—have more laboratory men. These men do receive relatively small compensation, but, with the exception of the few who become expert pathologists and teachers, most of the men in the cities who are working in the laboratories use pathology merely as a stepping stone to clinical medicine. Dr. Marx White did that,—he taught pathology some time ago, and the same plan is being followed by Dr. Drake, of Minneapolis, whom I consider an excellent pathologist. In that way they do receive requisite compensation as it is perhaps the best possible groundwork for the study of clinical medicine, but this state of affairs does not tend to furnish the number of trained pathologists necessary for our surgical clinics.

DR. MacCARTY (Closing): No one realizes the difficulty of the practitioner any more than I do, but in carrying out this reform in the medical profession I must exaggerate in order to make the profession get my point. I should encourage Doctor Farr to keep the young man, and send him away and keep him well posted on the latest methods of pathology

and give him larger experience in every way, but not to consider him an expert pathologist. We cannot all have expert pathologists around, but we have been satisfied many times to take the opinion that was not expert and call it expert. I would say that the man who has not graduated from medicine is not going to give efficient service. I have been looking through the microscope ever since I was 12. I made celloidin sections when 12, and have added frozen sections, etc., to it. I have devoted my entire life to my pathology. I have devoted my entire life from the standpoint of the clinician, and I think the pathologist who is going to be of service to the clinician must have clinical knowledge, just as we have clinicians practicing microscopy. The pathologist who is not a clinician is not a good pathologist. The clinician who is not a pathologist is not a good clinician. I know this from practical experience. I have my work checked up by the clinicians and they come to me and tell me when I make a mistake, but they must come to me in the spirit of a consultation between clinician and pathologist. We must be consultants together.

The pathologist must not go off in some corner and look over sections but must have his laboratory near the patients and co-operate with the physicians and surgeon. A man who has not had prolonged experience will lead you into error, but that does not mean that he cannot do good work. You should encourage this young man, but do not consider him an expert pathologist when he is not. I must say I write more question marks today in my diagnoses than I ever have before. I shall write more question marks as I grow older. I am just beginning to see things in pathology after years and years of experience. One is the necessity of standardization of the pathologic conditions to clinical facts. The pathologist has not done it. He has been off in a laboratory in one corner of the block, has not seen the patient and has not paralleled the clinical facts with the pathologic facts. It is part of the propaganda which I am trying to carry out, not only to give these figures, but to also standardize pathologic conditions with the clinical conditions. It has to be done by somebody if we are to have efficient practice of medicine.

One thing more, every man in the practice of medicine must recognize the necessity of the pathologist. We have our surgical assistants work one day per week in the laboratory, not to make them expert pathologists, but to show them the relation between expert pathology and the work they are doing; and so it is with the practitioner in the field—we have to have him, although he cannot always be an expert; he can call in, however, the expert pathologist occasionally as consultant, just as he calls the clinician and surgeon. The solution of the problem has been found in a small town in Iowa where the County Society has employed an expert pathologist at \$3,000 a year; he charges for each examination, extra. He is satisfied with the work, is doing the work well, is a recognized general pathologist, and is giving efficient service to every practitioner in the county who wants it.

## THE PHYSIOLOGY OF THE CORPUS LUTEUM.

EDGAR T. HERMANN,

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*Minneapolis, Minn.*

In the consideration of the function of any organ, a brief presentation of its anatomy and development aids greatly in comprehending the activity of the structure in question. Therefore, the following paper is divided into three parts, namely:

- I. Anatomy,
- II. Development,
- III. Function.

### I. *Anatomy of the Corpus Luteum.*

The emptied ovarian follicle, after ovulation, forms the basis of the corpus luteum. If pregnancy intervenes following ovulation, the corpus luteum attains great development, being known as the corpus luteum verus, to distinguish it from the corpus luteum spurium, which occurs when there is no pregnancy. This structure matured, consists of a number of large, irregularly polygonal cells, containing a yellow fatty pigment, a lipid. These cells are arranged in trabeculae converging toward the center of the follicle, being accompanied by sinus-like blood vessels, numerous in amount and rich in supply of blood. The size of the corpus luteum, the character of the cells, and the blood supply, vary with different stages of its development. The adult luteal cell is mono or multi-nucleated and contains a homogeneous protoplasm that is yellow in color, due to its lipid contents. The degenerating organ shows cells in which vacuolization has taken place, as well as a certain amount of fatty change.

Microscopically, the corpus luteum at the height of its development is from 1.5 to 3 centimeters in diameter, large and yellow. The early stage is well described by Novak: "Just after rupture of the graafian follicle, the corpus luteum is usually a small, collapsed structure, with thin moderately undulating walls, which are of grayish yellow hue instead of the brilliant yellow color of the later stages." Correspondingly, the atrophic corpus luteum is simply a mass of scar tissue.

## II. *Development of the Corpus Luteum.*

The interesting point in the development of the corpus luteum centers around the place of origin of the lutean cell, and at present there are two main views: each supported by a number of investigators.

The older view regards the lutean cell as a derivative from the theca cells, i. e., really of connective tissue origin. The more recent view contends that these cells are derived from the epithelial cells of the granulosa. The function of the lutean cells favors an origin from epithelial cells as, being derived from a more highly differentiated cell, one might by analogy more easily explain its modified function. Specialized function is more easily granted a cell of epithelial origin than it is to one of connective tissue origin.

The older view is described by Schafer in his monograph, *The Endocrine Organs*. He says in part: "The larger follicles become gradually more distended with liquor folliculi, and ultimately split open at the thinnest and most prominent part. When the follicle bursts, the ovum and discus proligerus escape and the rest of the follicular epithelium also becomes detached from the follicular wall and extruded or disintegrated. The cavity of the follicle is now usually occupied by a blood clot, derived from vessels at the point of rupture of the follicle. The enlarged cells in the wall of theca multiply and grow into the cavity, displacing the clot towards the hilum of the follicle. The cells are now known as luteal cells." Again he says: "From the above account, which is based upon observations in the rabbit and corresponds with that originally furnished by Von Baer, since confirmed by many histologists, it seems clear that the corpus luteum is developed entirely from the theca cells of the burst follicle; these cells are themselves derived from stroma cells, so that the follicular epithelium takes no part in the formation of the corpus luteum."

The more recent view is championed by Noel Paton. He states that "the old view that a hemorrhage occurred into the follicle, and that the clot was gradually invaded by the cells of the zona granulosa or theca interna which removed the shed blood, has been disproved by the work of Sobotta on the corpus luteum of the mouse. He shows that hemorrhages do not

occur; and recent work on the human ovary seems to indicate that here, too, the essential change is a great proliferation of the granulosa cells to completely fill and distend the follicle with peculiar luteal cells—large cells containing fat droplets and pigment, and resembling the interstitial cells of the ovary." Loeb discussing the formation of the corpus luteum says that during atresia of the follicles the granulosa degenerates entirely, in the case of the corpus luteum it remains preserved and the cells increase in size and number. He adds, however, that a number of granulosa cells degenerate even in the follicle which has ruptured. His conclusions were based on an examination of the ovaries of 30 guinea pigs, cut into serial sections and microscopically studied. The most recent advocate of this view is Novak. He examined 102 series of human ovaries in a study of function and development and finds in some of his sections an actual transformation of granulosa cells into lutean cells. He says: "The early corpora lutea described by me in this paper fully confirm Meyer's claim that the cells of the membrana granulosa do not undergo degeneration after follicular rupture. Furthermore, the paralutean cells found in many corpora lutea, constituting a distinct zone between the lutean layer within and the theca externa to the outer side, are, with scarcely a doubt, developed from the theca interna. If this be true, there is no reasonable doubt of the origin of the lutean cells from the epithelium of the membrana granulosa."

If pregnancy supervenes, the corpora lutea become large in size and remain well marked throughout, otherwise they soon degenerate. The cells undergo a change; they lose their distinct outlines, become stained with great difficulty and finally degenerate, forming a mass of scar tissue.

### *Summary.*

1. Lutean cells are developed from the theca cells, those of the membrana granulosa degenerating after the bursting of the follicle.

2. More recently it is held that the granulosa cells do not degenerate and that the lutean cells are derived from these cells, i. e., they are of epithelial origin.



3. During pregnancy the corpus luteum verum remains intact, afterwards degenerating and forming scar tissues; if pregnancy does not supervene, the development is less marked and the corpus luteum spurium, so-called, becomes atresic much more rapidly.

### III. *Function of the Corpus Luteum.*

The most exhaustive work on this subject has been performed chiefly by Loeb and Frankel. In this paper the work of Loeb is chiefly quoted, that of Frankel being unavailable. Results of Ancel and Buin and others are taken from their work as quoted by other writers.

The function of the corpus luteum is here discussed under five heads.

(a) *Influence of the corpus luteum on the formation of uterine decidua.*

Frankel, as quoted by Loeb and others, holds that the function of the corpus luteum is to prepare the mucosa of the uterus for the reception of the ovum, this being accomplished by its causing a hyperemia and softening of uterine tissues. Leo Loeb in a series of experiments in which 900 guinea pigs were used, most of whose ovaries were microscopically examined in serial section, comes to the following conclusion:

1. The corpus luteum acts as a formative stimulus on the mucosa and induces growth phenomena of two kinds.

a. In response to a weak stimulus it enables the uterine mucosa to respond with predecidual growth phenomena, chiefly seen in an amitotic nuclear proliferation of decidual cells.

b. In response to strong stimuli its influence leads to the formation of maternal placenta.

However, if the ovaries of a guinea pig are extirpated soon after rupture of the follicles, these growth phenomena do not take place.

2. In all of his cases except one, Loeb found that the corpus luteum is indispensable for the formation of maternal placenta. Its influence is exerted by means of a certain substance which is given off to the body fluids and is thus transmitted to the uterine mucosa.

3. To obtain a maximal effect in the forming of decidual tissues, the influence of the corpus luteum must be exerted continuously; there is a certain co-operation between the me-

chanical stimulus given by the ovum and the chemical influence excited by the corpus luteum.

4. Serial sections showed that this lutean influence acts (in the case of guinea pigs at least) only on the uterine mucosa, and does not affect the mucosa of the uterine tubes, a fact which Loeb accepts as explanatory of the absence of tubal pregnancy in guinea pigs.

5. Intermittent injection of corpus luteum substance into the guinea pig cannot act as a substitute for the continuous action of living corpus luteum, although it has a slight influence. This, Loeb thinks, is due to the fact that there is a small, but continuous discharge of secretion in the normal corpus luteum, which is essential in producing its characteristic effects.

6. Extirpation of the corpus luteum soon after ovulation prevents the formation of maternal placenta which takes place partly under the influence of a mechanical stimulus. If the corpus luteum is extirpated on the second or fourth day after ovulation, small deciduomata frequently form. Later extirpation of the ovaries does not prevent the production of maternal placenta, but diminishes its size.

7. Further, Loeb says it can be experimentally shown that the above function is independent of nervous connection between the uterus and ovaries.

The endocrine action of the corpus luteum is further accentuated by observations of Novak. Of a corpus luteum removed on the 14th day of the menstrual cycle, he says: "The most significant feature of this stage is the invasion of the lutean layer by small blood channels. These are clearly traceable back to the ring of blood vessels which marks the division between the granulosa and the theca. Some of the blood is present in definite endothelium-lined vessels, while some lies free between the cells, making its way to and into the cavity of the corpus." Such a condition, of course, besides carrying nutriment to the cells, enables these to pour their secretion directly into the blood stream.

(b) *Influence of the corpus luteum on fixation of the embryo.*

Schafer states that Frankel, working on a hypothesis suggested by Born, found that if the

corpora lutea are destroyed in early pregnancy (in the case of the rabbit) the embryo does not become adherent to the mucous membrane of the uterus. Marshall and Jolly obtained the same results in work done on dogs and rats.

(c) *Influence of the corpus luteum on the embryo during early pregnancy.*

If the corpus luteum in the guinea pig is removed within the first three days after copulation, according to Loeb, there is no trace of pregnancy. Dick substantiates Frankel's claim that the corpus luteum is apparently essential for the development of the embryo during the early part of pregnancy. He says: "In our experiments, removal of both ovaries within the first two weeks of pregnancy caused absorption of the embryo of every one of a series of 14 rabbits." On removing one ovary, he found that one case resulted in absorption, while in three, pregnancy was not interfered with. From these results, Dick concludes that Mandl is wrong in stating that pregnancy can be maintained in the absence of corpora lutea.

(d) *Influence of the corpus luteum on the sexual cycle.*

In experiments performed on several hundred guinea pigs, Loeb came to the following conclusions regarding the influence of the corpus luteum on the periodicity of the sexual cycle:

1. In both pregnant and non-pregnant animals, the corpora lutea lengthen the sexual period between two ovulations. The hurrying of ovulation after the extirpation of the lutean bodies is not due to a mechanical stimulus, but is due to their removal.

2. Not pregnancy, but the lengthened or protracted function of the corpus luteum, prevents a new ovulation in the pregnant animal.

3. Three conditions are necessary for the occurrence of ovulation:

a. The time necessary for the ripening of a follicle.

b. The cessation of corpus luteum activity preventing ovulation.

e. Partly accidental conditions, such as copulation. Extirpation of the corpora lutea in the guinea pig accelerates bursting of the ripe graafian follicles, i. e., is conducive to ovulation, according to his investigations.

(e) *Influence of the corpus luteum on menstruation.*

The recent work of Novak, already quoted above, briefly summarizes this relationship. His facts, for the most part histological, are the following:

1. During the menstrual life of the normal woman, lutean tissue in some stage or another of development is always found in the ovaries.

2. In the non-menstruating woman, corpora lutea are absent.

3. While fetuses, new-born children, and girls before puberty, show ovaries with a greater or less degree of maturation of the graafian follicles, corpora lutea are never found.

4. Corpora lutea are never found in the ovaries of women who have ceased to menstruate.

5. The amenorrhea of lactation is probably due to an inhibition of lutean influence by the mammary hormones.

6. While Novak found no evidence to explain menorrhagia and metrorrhagia, he inclines to the belief that these are due to functional increase of the corpora lutea, as well as possibly also the influence of the other endocrine organs.

(f) *Influence of the corpus luteum on the mammary gland.*

Schafer summarizes the work of the principal investigators on this point. Ancel and Bouin, as well as O'Donoghue, found that if a graafian follicle be ruptured in a virgin rabbit (even by mechanical means) so that a corpus luteum develops, the mammae undergo evolution; however, if the corpora lutea do not develop, there is no such evolution. Hammond and Marshall state that under such conditions, the mammary development may proceed as far as the free secretion of milk. Ott and Scott obtained the same results by injecting young virgin rabbits subcutaneously at frequent intervals for a month with extract of corpus luteum. Ancel and Bouin further state that if all the corpora lutea are destroyed in a pregnant rabbit, the development of the mammary gland is arrested.

#### *Summary.*

1. The corpus luteum makes possible the formation of maternal placenta by supplying a

sensitizing substance to the uterine mucosa.

2. Fixation of the embryo is aided by the activity of the corpora lutea.

3. The corpus luteum is apparently essential for the development of the embryo early in pregnancy.

4. The presence of corpora lutea militates against ovulation, i. e., lengthens the sexual cycle, at least in the guinea pig.

5. The presence or absence of corpora lutea means presence or absence of menstruation, and possibly their hypo or hyper-function means, in part at least, dysmenorrhea or menorrhagia.

6. The activity of lutean secretion affects development of the mammary gland, even to free secretion of milk.

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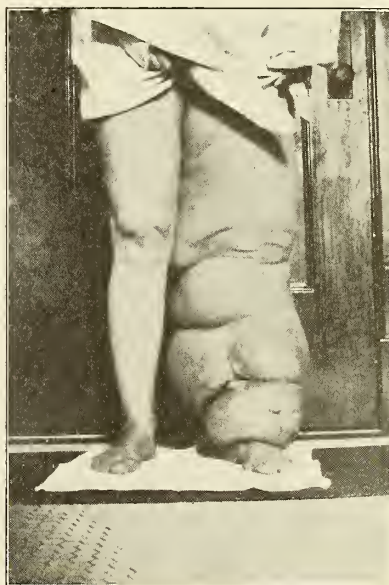
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#### ELEPHANTIASIS: REPORT OF A CASE IN MINNESOTA.

A. N. BESSESEN, M. D.,  
*Minneapolis, Minn.*

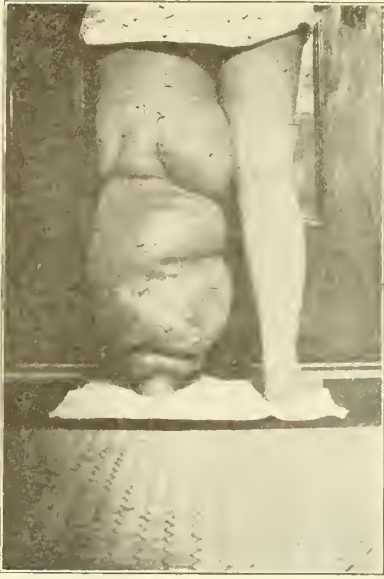
Elephantiasis is a disease of such rare occurrence in Minnesota that I am taking the liberty to report a case that was under my care during the last year of her illness, which was gradually progressive, with only slight remissions, up to the time of her death.

The patient, Miss J., was born at Jamestown, N. Y., of healthy Norwegian parents, May 27, 1874, and moved to Cannon Falls, Minn., when three years old. She had typhoid fever when four years old and was very sick, so much so that she had to learn to walk again after her recovery. She moved to Minneapolis when fifteen years old and was never out of the state of Minnesota after that. When sixteen years old she cut her left leg on a nail, suffering a rather severe injury near the ankle. This left a jagged infected wound that was slow to heal. The patient ascribes her elephantiasis to this injury. Otherwise she was always in good



health, normal mentally, and of cheerful disposition. She lived at home and worked in a local laundry where she was on her feet most of the time.

At the age of thirty she first noticed a slight swelling on the left leg at the ankle near the nail injury. This gradually extended but was painless and gave no trouble except for the deformity. The limb continued to enlarge from that time regardless of treatment by various medical men. The limb finally became so large, in the course of years, that the weight and awkwardness interfered with walking and she had to give up work. She suffered no other discomfort or pain, except that at intervals she would have an attack of elephantoid fever.

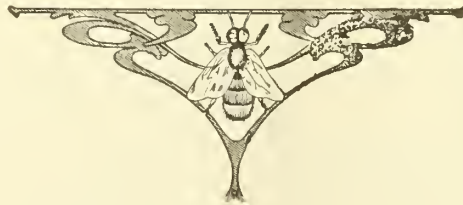


When the circulation seemed to stop in the limb, it would become very pale with a feeling of pain; this would be followed by an intense redness, almost erysipelatous, with elevation of body temperature. The limb would become enormously swollen, and in two or three days the skin would break where most distended and discharge large quantities of watery fluid. This would result in a rapid reduction in size of the limb until it seemed only two or three times larger than normal. The skin abrasion would heal promptly and the condition of elephantiasis would gradually return to its former size and probably somewhat larger, extending toward the body. At the time that I was first called, she was in such an attack more severe than at any previous time. The disease at that time involved the left hip as well as the thigh and the lower leg. The calf of the leg measured fully thirty-six inches in circumfer-

ence. Later, after the attack had subsided, I saw her at my office and the limb measured thirty-four and one-half inches about the calf, and thirty-two and one-half inches about the knee. At the time the accompanying picture was taken, the limb measured thirty-two inches about the calf and twenty-nine and three-quarter inches about the knee. I did not find evidence of tuberculous or syphilitic infection, although no Wassermann test was made. I desired to show her case to other medical men but she had become so sensitive of her condition that it was with difficulty that I could obtain her consent to an examination of her blood by Dr. Guah, a native of India. He made an examination for filaria, and while he may have found a single one, he could not be certain, and the patient would not permit a second examination. Dr. Guah said, however, that the case was in every way similar to elephantiasis so common in India.

The patient, while in my care, suffered a severe attack of elephantoid fever from February 15th to March 3rd, 1916, a second milder attack from September 22nd to September 29th, 1916, and a third attack from March 10th to 13th, 1917, that proved fatal. The patient died March 13, 1917.

After the death of the patient, the undertaker could not inject the vessels of the left side from the shoulder down. The limb and left side to the shoulder was enormously swollen. Death was probably due directly to pressure of the oedematous tissues on the heart. The skin burst and gallons of watery fluid ran from the body through the break in the skin so that the casket had to be lined with lead to prevent leakage of fluid.



# Minnesota Medicine

OWNED BY THE MINNESOTA STATE MEDICAL  
ASSOCIATION

THE FORTHCOMING ANNUAL MEETING  
OF THE AMERICAN MEDICAL  
ASSOCIATION.

The Sixty-Ninth Annual Session of the Amer-

## IMPORTANT!

### A CALL TO EVERY MEDICAL MAN IN THE STATE OF MINNESOTA.

The Committee of National Defense at Washington, has instructed Major Henry D. Jump to hold a meeting on the evening of Saturday, May 18th, at 8 o'clock, in the Gold Room of the Radisson Hotel, Minneapolis, Minnesota.

This meeting is for the purpose of getting all the physicians possible in Minnesota to join the Medical Reserve Corps. All physicians up to fifty-five years of age are eligible. The need of physicians for this Medical Reserve Corps is very urgent. Five thousand physicians are needed for the army and one thousand for the navy. All those of proper age will probably receive commissions. . . Those who are incapacitated from active duty in any manner will undoubtedly be given some service so as to assist our Government in this great emergency.

The wives, mothers, sisters and friends of the physicians, as well as the public, are requested to be present at this meeting as it will be purely a patriotic affair.

It is hoped to have the Governor of the State present, either to preside or to speak at the meeting, and other prominent men will take part.

It is urgently requested that all physicians in the State of Minnesota will respond promptly and thus show their patriotism and their enthusiasm in attempting to rid the world of the horrible menace that now confronts it.

Foreign Countries \$3 00 per annum.

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No. 5

## EDITORIAL

### THE URGENT NEED FOR DOCTORS.

Telegrams have been received by the members of the State Council of the Medical Defense stating as follows:

"An urgent need exists for several thousand additional Medical Officers in the Army and Navy, some for immediate work, some for training, and others to be held in reserve. Please urge your State and County committees to speed up enrollment as effectively as possible."

F. F. Simpson.

Dr. Thomas McDavitt has been called to a special meeting in Chicago for this purpose. Every member of the State Association is urgently requested to consider fully this matter with a view of entering the Army Medical Service.

medical military service of our nation and its allies will take part.

At its recent meeting the Council on Scientific Assembly arranged for meetings of the Section on Miscellaneous Topics, the subject to be taken up being the re-education and rehabilitation of the disabled soldiers. Major Frank Billings, head of this division in the Surgeon-General's Office, has accepted the chairmanship of the section. The subject is one of great importance, especially to medical men. Further announcement will be made later.

Alumni and section dinners will be held on Wednesday evening from 6 to 8 o'clock so as not to conflict with other events which are being planned. The chairman of the subcommittee on alumni and section entertainment, Dr. J. H. Stowell, announces that his committee is co-operating with officers of alumni associations in arranging for reunions. The committee desires, also, to assist the officers of those sections which desire to arrange for section dinners.

The Executive Officers of the Local Committee on Arrangements are as follows:

Ludvig Hektoen, Chairman.

Charles J. Whalen, Secretary.

William A. Pusey, Treasurer.

John V. Fowler, Frank Billings,

Hugh T. Patrick, James B. Herrick,

Maleolm L. Harris, Chas. E. Humiston.

All correspondence with this committee or with any of its subcommittees should be addressed to 25 East Washington St., Chicago.

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### THE JUNE MEETING OF THE SOUTHERN MINNESOTA MEDICAL ASSOCIATION.

The summer meeting of the Southern Minnesota Medical Association will be held at Winona next month, June 24 and 25. The program, which will be published in the next issue of "*Minnesota Medicine*," promises to be most interesting and it is hoped that a full attendance will reward the painstaking efforts of the Association's Program Committee. The meetings will be held at the Masonic Temple in Winona and there will be an evening session on June 24 which will be opened by a banquet and followed by two addresses, one, the oration in surgery, which will be illustrated, will be given by Dr. John Lyncoln Porter, of Chicago, and the other, the oration in medicine, by Dr. J. E. Engstad, of Grand Forks, N. D., on "Feeding vs. Starvation in Typhoid Fever." The days' programs will be so varied as to appeal to all practitioners. Entertainment for visiting physicians will be in charge of the Winona County Medical Society.

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### OSTEOPATHS AND MORPHINE.

The question has been brought to our attention whether or not osteopaths are permitted to prescribe or administer morphine under the laws of the State of Minnesota. The question as to the legality of such has been submitted to the Attorney General of this state. His reply is final and needs little comment. It is as follows: "An osteopath cannot prescribe morphine or administer the same hypodermically or otherwise under the laws of our state. Chapter 260, Laws of 1915, designates who may prescribe or administer morphine in this state, and an osteopath is not among those so designated.

The fact that an osteopath may have a permit from the federal government to administer narcotics, does not give such osteopath the right to administer the same in this state in violation of the statutory law thereof."

Therefore, although osteopaths are permitted under the law of Minnesota to prescribe drugs for external use and to perform minor surgery, and are allowed to register under the Harrison Narcotic Law, they are not allowed under the Minnesota laws either to prescribe or to administer morphine in this state.

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### FOOD PRODUCTS.

War is making great demands on our food supply. It has made an accurate knowledge of the uses of cereals, meats, fish, milk, eggs, butter, oils, and many forms in which our food products are now being manufactured, a very important part of the physician's work.

New conditions not only demand the exercise of all the skill, but the trained intelligence of physicians, to provide the special kinds of diet best adapted to the ages and physical requirements of the public, as well as their patients. War conditions also make it imperative that physicians who buy for their own families, for sanitariums, and other public institutions, be thoroughly familiar with the constituents of bread, meat products, fish, as well as the many new foods which changed conditions have produced.

The Journal of the American Medical Association (March 9th) discusses "New Food Products," the use of which it is said is being encouraged by government authorities. These include such fish as shark and whale meat; the canning of evaporated vegetables, such as carrots, turnips, potatoes, onions, peas, and beans; bread made from bananas, sweet potatoes, breadfruit, etc. In fact, so much public interest is now centered in the food supply, that new substitute foods are not only "encouraged" by the government, but are being manufactured. There are a large number of new "nut" butters on the market, besides many animal oleomargarines. It is highly important in these times of "food conservation" to make extensive use of the many vegetable oils, such as peanut, cocoanut and olive; they also have a high caloric value. Necessity and opportunity

have stimulated the manufacture of new food products. No physician will keep abreast of the development of all lines of foods, unless he gives this subject his careful attention.

Physicians should be familiar with the relative food values of wheat, corn, oats, barley, rice and other cereals. What percentage of proteins and carbohydrates are found in meat, eggs, fish, milk, potatoes, beans, corn? Which foods are best adapted to particular conditions? What are the relative dietetic values of malted foods, grape juice, baking powders, gelatins, condensed milks, and the scores of other well known food products?

### AN ACKNOWLEDGMENT.

We desire to extend our deep appreciation and thanks to the Pennsylvania Medical Journal for the following:

"The first number of *Minnesota Medicine* made its appearance in January, with the Minnesota State Medical Association, owner and publisher. The size of the printed page is the same as our journal and the editorial and mechanical work is in every way worthy of the medical profession of Minnesota. This is the twenty-eighth state medical journal that follows the plan of admitting to its advertising pages only such articles as comply with the rules of the Council on Pharmacy and Chemistry of the American Medical Association. It is difficult to harmonize the double standard adopted by some medical journals published on a purely business basis where the editorial management and the advertising department are supposed to be independent one from the other. It must be humiliating for some of our medical editors who are recognized as honorable and ethical to reflect on the conflict between the scientific matter and the advertisements in their journals."—*Pennsylvania Medical Journal*, March, 1918.

### PROPAGANDA FOR REFORM.

Revolutionary changes in the medical sciences have been so numerous and so rapid that the general practitioner has been unable to keep pace with them. In the resulting confusion the nostrum maker has seen his opportunity for exploiting his useless, unscientific or dangerous preparations. Because of the danger of ther-

apeutic chaos, the American Medical Association established the Council on Pharmacy and Chemistry to place the results of therapeutic progress before the medical profession in an impartial manner. Are you availing yourself of the work of the Council and using drugs of established value, or are you prescribing proprietaries on the advice of their promoters? Keep abreast of the times. Read the *New and Non-official Remedies* and the *Propaganda for Reform* published each month in *Minnesota Medicine*.

### Notice.

To The Secretaries of County Societies:

You will confer a favor by reporting to me, any deaths of members having occurred since the last meeting of the State Association, together with the name of a friend or relative of the deceased who is in a position to give information desired in making a report.

Yours truly,

A. E. Spalding,

Committee on Necrology.

Luverne, Minn., April 18, 1918.

## OF GENERAL INTEREST

### MINNESOTA'S HONOR ROLL.\*

The following members of the medical profession of Minnesota are now in the service of the United States and its Allies in the War for Humanity and Democracy:

- Lt. John S. Abbott, St. Paul, 18th F. A., B. E. F., France.
- Lt. Stewart H. Anderson, Wells, Cleveland, O.
- Lt. P. A. Ashley, Minneapolis, Signal Corps Detachment, St. Paul, Minn.
- Capt. J. V. Avery, Minneapolis, 44th Infantry, Camp Lewis, Mich.
- Lt. Burton A. Baird, Rochester, Fort Riley, Kan.
- Maj. L. B. Baldwin, Minneapolis, Duty in Surgeon-General's Office, Washington, D. C.
- Lt. Robert I. Barickman, Lewisville, Camp Custer, Battle Creek, Mich.
- Lt. Moses Barron, St. Paul, Base Hospital No. 26, Lakewood, N. J.
- Lt. Bret V. Bates, Wheaton, Fort Omaha, Neb.

- Lt. Parker L. Berge, Brainerd, Signal Corps, Aviation Camp, Waco, Texas.
- Lt. Alick Bernstein, Naytahwaush, Fort Riley, Kan.
- Lt. Ralph B. Bettman, Rochester, Bellevue Hospital, New York City.
- Lt. Grover C. Black, Minneapolis, Park Field Signal Corps Aviation School, Memphis, Tenn.
- Lt. Francis G. Blake, Minneapolis, Fort Sam Houston, Texas.
- Lt. Walter F. Bleifuss, Elgin, U. S. A. Gen. Hosp., No. 2, Fort McHenry, Md.
- Capt. Walter D. Brodie, St. Paul, Ambulance Co. No. 350, A. D., Camp Dodge, Iowa.
- Lt. Paul F. Brown, Minneapolis, Camp Lewis, Wash.
- Lt. Herman C. Bumpus, Jr., Rochester, Fort Riley, Kansas.
- Maj. F. E. Burch, St. Paul, Base Hospital, Camp Dodge, Iowa.
- Lt. Floyd W. Burns, St. Paul, Ellington Field, Aviation School, Houston, Texas.
- Lt. H. A. Burns, Minneapolis, Fort Riley, Kan.
- Capt. John Butler, Minneapolis, Camp Lewis, American Lake, Wash.
- Lt. Verne S. Cabot, Bowerville, Fort Riley, Kan.
- Capt. Wm. G. Carhart, Minneapolis, Camp Pike, Little Rock, Ark.
- Capt. Wm. M. Chowning, Minneapolis, Duty in Surgeon-General's Office, Washington, D. C.
- Lt. Andrew Christiansen, St. Paul, F. H. C. No. 135, Camp Cody, Deming, N. M.
- Lt. Jean B. Clair, Winsted, Fort Logan H. Roots, or Fort Riley, Kan.
- Lt. Charles M. Clark, Rochester, Fort Riley, Kan.
- Maj. Chester H. Clark, Duluth, Camp Hospital, Aviation Section, Waco, Texas.
- Lt. Thomas G. Clement, Vernon Center, Fort Oglethorpe, Ga.
- Capt. Wallace Cole, St. Paul, Amer. Exped. Forces, France.
- Maj. Paul B. Cook, St. Paul, Camp Doniphan, Fort Sill, Okla.
- Maj. James F. Corbett, Minneapolis, University of Michigan, Ann Arbor, Mich.
- Lt. Ernest Cowern, North St. Paul, Fort Riley, Kan.
- Lt. Carl C. Cowin, Adrian, Base Hospital, Camp Lee, Va.
- Maj. Bronson Crothers, St. Paul, Camp Jackson, N. C.
- Capt. Jared W. Daniels, St. Peter, 339 Field Artillery, 88th Division, Camp Dodge, Ia.
- Lt. Karl Dedolph, St. Paul, U. S. Army Balloon School, Fort Omaha, Neb.
- Lt. T. H. Dedolph, Braham, Fort Riley, Kan.
- Maj. Warren A. Dennis, St. Paul, Neurological Institute, New York.
- Geo. W. Dewey, Fairmont, Fort Riley, Kan.
- Lt. John J. Donovan, Litchfield, Presbyterian Hospital for instruction and on completion to Camp Sherman.
- Lt. Henry E. Douglas, Hutchinson, Fort Riley, Kan.
- Lt. C. B. Drake, St. Paul, Camp Doniphan, Fort Sill, Okla.
- Lt. Wm. J. Eklund, Duluth, Fort Riley, Kan.
- Lt. Frank J. Elias, Duluth, Cornell Medical College, New York City.
- Lt. Frank E. Ellison, Monticello, Carnegie Institute, Pittsburgh, Pa.
- Lt. Edward J. Engberg, St. Paul, Nervous and Mental Board, Base Hospital, Camp Doniphan, Fort Sill, Okla.
- Lt. Frederick A. Engstrom, Hills, Camp Dodge, Des Moines, Iowa.
- Lt. Paul S. Epperson, Biwabik, Cornell Medical College, New York City.
- Capt. J. C. Ferguson, St. Paul, Fort Riley, Kan.
- Lt. S. R. Fraker, Cass Lake, Signal Corps Aviation School, Houston, Tex.
- Lt. E. Geer, St. Paul, Naval Detention Training Camp, Deer Island, Mass.
- Maj. Emil S. Geist, Minneapolis, Base Hospital, Fort Oglethorpe, Ga.
- Lt. Charles H. Ghent, St. Paul, Camp McClellan, Anniston, Ala.
- Lt. Paul W. Giessler, Minneapolis, New York City.
- Lt. Richard B. Girvin, Villard, Walter Reed General Hospital, Takoma Park, D. C.
- Lt. John G. Goggin, Stewartsville, Fort Riley, Kan.
- Capt. J. M. A. Gravelle, St. Paul, General Hospital No. 18, Dansville, N. Y.
- Lt. Frank A. Grawn, Duluth, Signal Corps Detachment, St. Paul, Minn.
- Capt. A. R. Hall, St. Paul, R. A. M. C., 3 Whitehall Place, W. C. London.



- Lt. Walter H. Halloran, St. Paul, Fort Riley, Kan.
- Lt. J. Felton Hammond, St. Paul, R. A. M. C., 3 Whitehall Place, W. C. London.
- Lt. E. W. Hansen, Minneapolis, 18th Infantry, U. S. A., A. E. F., France.
- Lt. T. L. Hansen, Albert Lea, Camp Grant, Rockford, Ill.
- Capt. J. C. Harding, St. Paul, Fort Riley, Kan.
- Lt. Stuart W. Harrington, Rochester, Fort Riley, Kan.
- Maj. F. E. Haynes, Minneapolis, Fort Riley, Kan.
- Capt. W. B. Heagerty, Mazeppa, 314 Sanitary Train, 89th Division, Camp Funston, Kan.
- Lt. Arthur T. Henrici, Minneapolis, Cape May, N. J.
- Lt. Charles K. Holmes, St. Paul, Camp Lee, Petersburg, Pa.
- Lt. Herman W. Hundlung, Rochester, Rockefeller Institute.
- Lt. Albert E. Johann, Minneapolis, Camp Beauregard, Alexandria, La.
- Lt. Reuben A. Johnson, Minneapolis, Wilbur Wright Field, Aviation Section, Signal Corps, Fairfield, Ohio.
- Capt. A. Josewich, Minneapolis, Fort Worth, Texas.
- Capt. Charles H. Keene, Minneapolis, Fort Oglethorpe, Ga.
- Lt. L. M. Keene, Alexandria, Fort Riley, Kan.
- Lt. C. G. Kelsey, Unit 17-164 Depot Brigade, Camp Funston, Kan.
- Capt. Paul E. Kenyon, Wadena, Fort Riley, Kan.
- Lt. Emil King, Fulda, Field Hospital No. 310, Camp Dix, N. J.
- Capt. Ralph T. Knight, Minneapolis, Commandant 9th Battalion, U. S. Army, Ambulance Service, Allentown, Pa.
- Lt. Louis R. Koller, Minneapolis, Dansville, N. Y.
- Dr. A. T. Laird, Duluth, Tuberculosis Committee and Commission in Paris under Livingston Ferrand.
- Lt. R. L. Laney, Brown Valley, Military Police, Camp Dodge, Iowa.
- Lt. Albert M. Larson, St. Paul, Del Rio, Texas.
- Maj. R. T. LaVake, Minneapolis, Field Hospital Co. No. 16, A. E. F., France.
- Maj. A. A. Law, Minneapolis, Base Hospital No. 26, Lakewood, N. J.
- Lt. Richard L. Leavenworth, Glencoe, U. S. Army Balloon School, Fort Omaha, Neb.
- Lt. Walter D. Lee, Madison, Camp MacArthur, Waco, Texas.
- Lt. William A. Lee, Underwood, Fort Oglethorpe, Ga.
- Lt. Lawrence J. Leonard, Minneapolis, Fort Riley, Kan.
- Capt. William V. Lindsay, Winona, Camp Meade, Annapolis Junction, Md.
- Capt. Gustav H. Luedtke, Fairmont, Fort Riley, Kan.
- Lt. Thomas F. McCormick, Minneapolis, Camp Taliaferro, Fort Worth, Texas.
- Lt. Charles F. McCusker, Minneapolis, France.
- Lt. R. D. McHugh, St. Paul, 136th Infantry, Camp Cody, Deming, N. M.
- Lt. Wm. J. McKillip, Duluth, Camp Dodge, Des Moines, Iowa.
- Capt. James A. McLaughlin, Minneapolis, Fort Oglethorpe, Ga.
- Lt. James R. McVay, Rochester, Fort Riley, Kan.
- Lt. W. F. Maertz, New Prague, Camp Grant, Rockford, Ill.
- Capt. John S. Macnie, Minneapolis, Fort Riley, Kan.
- F. H. Magney, Duluth, 125th Field Artillery, Camp Cody, Deming, N. M.
- Walter Marcey, Minneapolis, Tuberculosis Committee and Commission in Paris under Livingston Ferrand.
- Lt. J. L. Martineau, St. Paul, F. H. C. No. 135, Camp Cody, Deming, N. M.
- Lt. Stanley R. Maxeiner, Minneapolis, c/o 8th Somerset L. T., A. E. F., France.
- Maj. Wm. J. Mayo, Rochester, Duty in Surgeon-General's Office, Washington, D. C.
- Maj. Chas. H. Mayo, Rochester, Duty in Surgeon-General's Office, Washington, D. C.
- Lt. Wm. A. Meierding, Springfield, Camp Grant, Rockford, Ill.
- Maj. E. A. Meyerding, St. Paul, Hospital Train No. 25, Fort Riley, Kan.
- Lt. J. C. Michael, St. Paul, Base Hospital, Fort Riley, Kan.
- Lt. Virgil H. Moats, Minneapolis, Camp Doniphan, Fort Sill, Okla.

- Lt. Frederiek P. Moerseh, Minneapolis, Camp Upton, N. Y.
- Lt. Wm. W. Moir, Minneapolis, Base Hospital, Camp Kearney, Cal.
- Capt. Robt. M. Monahan, International Falls, Fort Oglethorpe, Ga.
- Capt. A. W. Morrison, Minneapolis, Base Hospital No. 26, Lakewood, N. J.
- Lt. N. G. Mortensen, St. Paul, Field Hospital Co. No. 135, Camp Cody, Deming, N. M.
- Lt. Joseph Moses, Jr., New London, Fort Riley, Kan.
- Lt. Oliver C. Nelson, Rochester, Base Hospital, Fort McPherson, Ga.
- Capt. Winfield S. Nickerson, Long Lake, Fort Leavenworth, Kan.
- Lt. G. T. Nording, Minneapolis, Fort Riley, Kan.
- Lt. John J. O'Hearn, Rochester, Camp Grant, Rockford, Ill.
- Lt. W. P. O'Malley, St. Paul, Ambulance Co., Fort Dodge, Iowa.
- Lt. Bernt Odegnard, Emmons, Fort Riley, Kan.
- Lt. Henry Odland, Minneapolis, Fort Leavenworth, Kan.
- Lt. Justus Ohage, Jr., St. Paul, Camp Infirmery, Fort Riley, Kan.
- Lt. R. G. Olson, Nicollet, Camp Devens, Ayer, Mass.
- Surg. F. J. Patton, Duluth, c/o Armed Guard Office, Navy Yard, Philadelphia, Pa.
- Lt. Carl Paulson, Minneapolis, Chicago, Ill.
- Capt. Robert P. Pearsall, Aurora, Fort Riley, Kan.
- Lt. J. J. Platt, St. Paul, 153d Infantry, Camp Beauregard, La.
- Lt. Ursus V. Portmann, Jackson, Cornell Medical College, New York City.
- Lt. Francis L. Powers, Pipestone, Signal Corps Detachment, St. Paul, Minn.
- Lt. Paul J. Preston, Minneapolis, 15th Field Ambulance, B. E. F., France.
- Maj. C. E. Prudden, Duluth, Hospital Section, Camp Cody, Deming, N. M.
- Lt. Louis Ramaley, St. Paul, Fort Riley, Kan.
- Lt. Clarence A. Rathbun, Rice, Fort Riley, Kan.
- Capt. Chas. A. Reed, Minneapolis, Base Hospital No. 26, Lakewood, N. J.
- Lt. Hugh W. Reynolds, Hibbing, Field Hospital No. 35, Camp Greenleaf, Ga.
- Lt. Charles D. Richmond, Jeffers, Camp Cody, Deming, N. M.
- Maj. H. E. Robertson, Minneapolis, France.
- Maj. W. C. Rutherford, St. Paul, F. H. C. No. 135, Camp Cody, Deming, N. M.
- Lt. Albert F. Ryan, Hibbing, Camp Taylor, Louisville, Ky.
- Lt. Hugo N. Sarehet, Redwood Falls, Ft. Riley, Kan.
- Capt. F. J. Savage, St. Paul, Base Hospital, Camp Custer, Mich.
- Lt. George F. Schmidt, Pipestone, Camp Travis, San Antonio, Texas.
- Lt. Otto J. Seifert, New Ulm, Fort Riley, Kan.
- Capt. Harry H. Sellers, Minneapolis, Fort Riley, Kan.
- Lt. Iver F. Selleseth, Glenwood, Camp Crane, Allentown, Pa.
- Maj. John C. Sessions, Minneapolis, Fort Riley, Kan.
- Capt. R. J. Sewell, Minneapolis, San Francisco, Cal.
- Lt. B. J. Shalett, Minneapolis, Fort Riley, Kan.
- Maj. Daniel M. Shewbrooks, Minneapolis, West Point, N. Y.
- Lt. Ralph R. Simmons, Rochester, Rockefeller Institute.
- Lt. Hugh H. Slocumb, Belgrade, Fort Riley, Kan.
- Lt. George W. Snyder, Bell Plaine, Field Hospital, Camp Dodge, Des Moines, Iowa.
- Capt. Olaf Sohlberg, St. Paul, Ambulance Co. No. 135, Camp Cody, Deming, N. M.
- Lt. J. E. Soper, Minneapolis, 151st F. A., 42d Division, A. E. F., France.
- Lt. Robert E. Spinks, Middle River, Camp Grant, Rockford, Ill.
- Maj. J. C. Staley, St. Paul, Base Hospital Co. No. 26, Lakewood, N. J.
- A. F. Striekler, Sleepy Eye, Fort Riley, Kan.
- Maj. Kenneth Taylor, St. Paul, 55 Rue de Verneuil, Paris, France.
- Capt. Gilbert J. Thomas, Minneapolis, Base Hospital No. 26, Lakewood, N. J.
- Lt. H. A. Thompson, Minneapolis, Base Hospital, Camp Custer, Battle Creek, Mich.
- Maj. Frank C. Todd, Minneapolis, Base Hospital, Camp Dodge, Des Moines, Iowa.
- Capt. Rudolph H. Wald, Hastings, Camp Doniphan, Fort Sill, Okla.
- Lt. Joseph D. Waller, Wilmot, Camp Grant, Rockford, Ill.

- Lt. Percy A. Ward, Minneapolis, Army Medical School, Washington, D. C.
- Lt. Samuel D. Weaver, Rochester, Fort McPherson, Ga.
- Lt. Merritt Wheeler, Glencoe, Fort Riley, Kan.
- Maj. J. S. White, St. Paul, Sanitary Inspector, 92d Division, Camp Funston, Fort Riley, Kan.
- Maj. S. M. White, Minneapolis, Base Hospital No. 26, Lakewood, N. J.
- Lt. Frank W. Whitmore, St. Paul, Ann Arbor, Mich.
- Lt. Albert E. Williams, Backus, Fort Riley, Kan.
- Lt. Leon A. Williams, Slayton, Fort Logan H. Roots, Ark.
- Maj. Louis B. Wilson, Rochester, Duty in Surgeon-General's Office, Washington, D. C.
- Lt. Irving G. Wiltrout, Minneapolis, Camp Grant, Rockford, Ill.
- Lt. Otto Winter, St. Paul, Harvard Medical Unit, Y. M. C. A., Boston, Mass.
- Lt. Wm. R. Winne, Rochester, Camp Grant, Rockford, Ill.
- Lt. Paul W. Wippermann, Minneapolis, Ambulance Co. No. 10, Fort Sam Houston, San Antonio, Texas.
- Lt. John R. Wood, Hallock, 343d Infantry, Camp Grant, Rockford, Ill.
- Capt. H. B. Zimmermann, St. Paul, Base Hospital No. 26, Lakewood, N. J.

\*This list is made up from all available sources at hand, and is corrected as far as possible up to April 10th. Members of the State Association who may be aware of any changes or corrections in the above list are asked to bring them to the attention of the Editorial Staff.

Lieut. John S. Abbott, M. R. C., attached to the 18th F. A., B. E. F., is reported in the casualty list of April 15, as missing in action.

Dr. Abbott, a practicing surgeon of St. Paul, received his commission early in June of 1917 and immediately left for France, assigned to the British forces. He was one of the first physicians to answer the call of Gen. Gorgas for medical officers to assist the British forces.

The success of Clinical Week, under the management of the Hennepin County Medical Society, has been such as to insure that it will

be made an annual affair in Minneapolis. The attendance of physicians from outside of the city has been almost four hundred, or more than twice as many as had been expected. Some of them came from as far away as Montana.

The wealth of clinical material afforded by the city's fourteen hospitals, maintaining no less than twenty-two hundred beds, affords the essential basis for such an institution, while the leadership of Minneapolis in the profession is of so high a character as to attract progressive practitioners from all over the Northwest.

Clinical Week has been founded on a broad basis. It covers the whole field of the healing art—internal medicine as well as surgery. The specialists have demonstrated in their various lines for the benefit of professional visitors, the treatment of children's ailments having had special attention.

Notwithstanding "ethical" obstacles in the way of securing for Clinical Week the helpful sort of publicity that would be given to a similar effort in almost any other line, the medical profession's rule against self-advertisement has not altogether prevented the public from learning much about what has been done. And the prospects for the continued growth and usefulness of this admirable enterprise are promising indeed.

The following hotels have been tentatively designated as general and section headquarters for the A. M. A. meeting in Chicago next month:

General Headquarters: Hotel Sherman, North Clark and West Randolph.

Practice of Medicine: Hotel Morrison, 83 West Madison.

Surgery, General and Abdominal: Auditorium Hotel, 430 South Michigan.

Obstetrics, Gynecology and Abdominal Surgery: Congress Hotel, South Michigan and Congress.

Ophthalmology: Hotel La Salle, La Salle and West Madison.

Laryngology, Otology and Rhinology: Hotel La Salle, La Salle and West Madison.

Diseases of Children: Congress Hotel, South Michigan and Congress.

Pharmacology and Therapeutics: Auditorium Hotel, 430 South Michigan.

Pathology and Physiology: Auditorium Hotel, 430 South Michigan.

Stomatology: Congress Hotel, South Michigan and Congress.

Nervous and Mental Diseases: Blackstone Hotel, South Michigan and East Seventh.

Dermatology: Blackstone Hotel, South Michigan and East Seventh.

Preventive Medicine and Public Health: Auditorium Hotel, 430 South Michigan.

Genito-Urinary Diseases: Auditorium Hotel, 430 South Michigan.

Orthopedic Surgery: Congress Hotel, South Michigan and Congress.

Gastro-Enterology and Proctology: Auditorium Hotel, 430 South Michigan.

Scientific Exhibit, Registration Bureau, Commercial Exhibit, Information Bureau, and Branch Postoffice: Hotel Sherman, North Clark and West Randolph.

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In comparison with the tax levied in England on incomes, our own income taxes are moderate, indeed.

In England the tax on incomes of \$1,000 is 4½ per cent, in America nothing.

In England the tax on incomes of \$1,500 is 6¾ per cent; in America nothing for married men or heads of families, and 2 per cent on \$1,500 for an unmarried man.

In England the tax on an income of \$2,000 is 7⅞ per cent; in America nothing for a married man or head of a family, and 2 per cent on \$2,000 for unmarried men.

The English income tax rate also increases more rapidly with the growth of the income than ours, a \$3,000 income being taxed 14 per cent, \$5,000 16 per cent, \$10,000 20 per cent, and \$15,000 25 per cent, while our corresponding taxes for married men are respectively two-thirds of 1 per cent, 1½ per cent, 3½ per cent and 5 per cent, and only slightly more for the unmarried, due to the smaller amount exempted, the rate being the same.

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Dr. W. A. Meierding, Springfield, Minn., who enlisted in the Medical Reserve Corps several months ago, departed April 5th for Camp Grant at Rockford, Ill.

Dr. J. Wellcome was re-elected Mayor of Sleepy Eye, Minn., at the recent spring election.

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Dr. A. F. Strickler, Sleepy Eye, who enlisted in the Medical Reserve Corps last August, left for Fort Riley, Kan., April 5th.

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A meeting of the Olmsted County Medical Society was held in the Assembly Room of the Mayo Clinic, Rochester, April 10, 1918. Dr. E. C. Rosenow reported on a recent trip to Fort Riley where he went to investigate the epidemic of pneumonia. The subject of pneumonia was further discussed by Dr. Rosenow, Dr. H. Witherstine and Dr. von Hess. Two other papers were presented: "The care of the premature infant," by Dr. R. Taylor; and "Skin grafting," by Dr. J. C. Masson.

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The third assignment of officers from the Medical Reserve Corps completed the six weeks' course in general surgery at the Mayo Clinic, April 1, and the fourth group of officers have arrived to take the course.

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Major C. H. Mayo returned April 12th, after three weeks' absence in Washington, Fort Oglethorpe and New York.

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Major W. J. Mayo departed April 13th for Washington to be absent about three weeks. He will carry on the work assigned to him in the Surgeon General's Office.

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Dr. O. E. Belcourt who, with the exception of four or five years' absence in the province of Quebec, has been engaged in the practice of medicine since 1882 at Argyle, Marshall county, recently gave up active work and has gone to LaFlesche, Sask., Can., to reside with a son who is a practicing physician at that place.

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Dr. Baldwin Borreson of Warren and Dr. R. E. Spinks of Middle River, Marshall county, were both called to report for active "Military Service" on April 10th.

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Dr. H. H. Clark has recently located at Edgerton, Minn.

The Program Committee of the Southern Minnesota Medical Association consists of Dr. E. Starr Judd, Dr. J. P. Sedgwick and Dr. A. F. Schmitt. The summer meeting will be held at Winona, June 24th and 25th.

The personnel of the Mankato Medical Advisory Board is as follows:

Dr. J. S. Holbrook.  
 Dr. D. J. Harrison.  
 Dr. V. I. Miller.  
 Dr. G. A. Dahl, Secretary.  
 Dr. A. F. Schmitt, Chairman.

## NEW AND NON-OFFICIAL REMEDIES

During March the following articles were accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

**Calco Chemical Company:**  
**Chlorcosane (Calco)**

**Gilliland Laboratories:**  
**Normal Horse Serum**  
**Concentrated and Refined Diphtheria Antitoxin**  
**Concentrated and Refined Tetanus Antitoxin**  
**Typhoid Vaccine**  
**Small-pox Vaccine**  
**Original Tuberculin, "O. T."**  
**Tuberculin Ointment in Capsules (for the Moro Percutaneous Diagnostic Test)**  
**Bouillon Filtrate Tuberculin, "B. F."**  
**Bouillon Emulsion Tuberculin, "B. E."**  
**Tuberculin Residue, "T. R."**  
**Tuberculin for the Detre Differential Diagnostic Test**

**Monsanto Chemical Works:**  
**Dichloramine-T**

### NEW AND NON-OFFICIAL REMEDIES.

**Typhoid Vaccine, Prophylactic.**—A vaccine made from killed *Bacillus typhosus*. The vaccine is used for the prevention of typhoid fever, for which purpose typhoid vaccines are of recognized utility. Marketed in different sized containers, containing 500 million and 1,000 million killed *Bacillus typhosus* in 1 Cc. Eli Lilly and Company, Indianapolis.

**Typhoid Vaccine, Therapeutic.**—A vaccine made from killed *Bacillus typhosus*. The vaccine is proposed for the treatment of typhoid carriers and as a concomitant measure to the usual routine of typhoid therapy. Marketed in different sized contain-

ers, containing 100, 250, 500 and 1,000 million killed *Bacillus typhosus* in 1 Cc. Eli Lilly and Company, Indianapolis.

**Typhoid Mixed Vaccine (Typho-Bacterin Mixed).**—A vaccine made from killed alpha and beta *Bacillus paratyphosus* and *Bacillus typhosus*. The vaccine is used for the immunization against typhoid and paratyphoid fevers and in the treatment of mixed infections of the typhoid bacillus and the paratyphoid bacilli. Marketed in different sized containers, containing 250 million alpha and beta *Bacillus paratyphosus* and 1,000 million *Bacillus typhosus* in 1 Cc., and 500 million alpha and beta *Bacillus paratyphosus* and 1,000 million *Bacillus typhosus* in 1 Cc. Eli Lilly and Company, Indianapolis.

**Bulgarian Bacillus Tablets-Mulford.**—Tablets containing a practically pure culture of *Bacillus bulgaricus*. Used in the prevention and treatment of conditions due to intestinal putrefaction. Marketed in vials containing fifty tablets. An expiration date is stamped on the label. H. K. Mulford Company, Philadelphia. (Jour. A. M. A., March 2, 1918, p. 623).

**Arsenobenzol (Dermatologic Research Laboratories) 1 Gm. Ampules.**—Each ampule contains 1 Gm. arsenobenzol (Dermatologic Research Laboratories), a brand of arsphenamine complying with the New and Non-official Remedies standards. These ampules are prepared for use in hospitals in divided doses. Dermatological Research Laboratories, Philadelphia Polyclinic, Philadelphia.

**Halazone-Monsanto.**—A brand of halazone complying with the New and Non-official Remedies standards. Halazone is parasulphonedichloramidobenzoic acid. The Monsanto Chemical Company, St. Louis, Mo.

**Procaine-Abbott.**—A brand of procaine complying with the New and Non-official Remedies standards. Procaine was first introduced as "novocaine." Chemically it is the monohydrochlorid of para-aminobenzoyldiethyl-amino-ethanol. It is used as a local anesthetic as a substitute for cocaine. The Abbott Laboratories. (Jour. A. M. A., March 16, 1918, p. 779).

### PROPAGANDA FOR REFORM.

**Shotgun Nostrums.**—As the soldier of today uses a rifle instead of a blunderbuss, so the modern physician uses single drugs rather than shotgun mixtures. There are many types of "shotgun" nostrums. Some are dangerous, as in the case of "Bromidia;" some are preposterous therapeutic monstrosities which excite the contempt of educated physicians, as in the case of "Tongaline;" some are merely useless mixtures of well known drugs sold under grotesquely exaggerated claims, as in the case of "Peacock's Bromides." It is impossible to determine from the published formulas just how much hydrated chloral and potassium bromide Bromidia contains; but it is probable that there are about 15 grains of each of these two drugs to the fluidrachm and va-

riable amounts of Indian cannabis and a small amount of either extract or tincture of hyoscyamus. Bromidia is a distinctly dangerous mixture for indiscriminate use, particularly so if the advertising creates the impression that in it the chloral hydrate has been deprived of its untoward effects. Tongaline is said to consist of tonga, *cimicifuga racemosa*, sodium salicylate, colchicum and pilocarpin. This jumble of drugs would be merely ludicrous, if anything that degrades therapeutics could be considered so lightly. Peacock's bromides is said to consist of the bromides of sodium, potassium, ammonium, calcium and lithium. The exploiters claim superiority over extemporaneously prepared mixtures because of the absence of contaminating chlorids said to be present in commercial bromids. The truth is that the chlorids are used as antidotes in bromid poisoning. Bromidia, Tongaline and Peacock's Bromides have been the subject of reports of the Council on Pharmacy and Chemistry. (Jour. A. M. A., March 2, 1918, p. 642).

**Some Misbranded Nostrums.**—"Notices of Judgment," reporting prosecutions for misbranding under the Federal Food and Drugs Act, have been issued for the following: Hayseen's Sure Goitre Cure Balsam, a solution of potassium iodid in water, sugar and alcohol. Hayseen's Sure Goitre Ointment, containing petrolatum and potassium iodid.—MacDonald's Atlas Compound Famous Specific No. 18, consisting essentially of sodium sulphate, sodium bicarbonate, a laxative plant drug (apparently aloes), ginger, a small amount of phosphate, a trace of alkaloid and talc.—Faucine, said to be a "warranted remedy" for piles, diarrhea, dyspepsia, scratches of horses and "good" for female complaints, "hog cholera" and other conditions.—Contrell's Magic Troche, containing a little ipecac and claimed to cure catarrh, asthma and diphtheria.—Benn Capsules contain strychnin, arsenic, iron and water soluble sulphates, and are sold as a cure for dyspepsia, backache, headache, leukorrhea, falling of the womb, etc.—Collins' Voltaic Electric Plasters, claimed to relieve pain and inflammation of the kidneys, of value in fever and ague and "good" for simple bone fracture, and would relieve many cases of bronchitis and asthma, female weakness, etc.—Mother Noble's Healing Syrup, containing vegetable cathartic drugs, iron chlorid, Epsom salt and sand.—Stuart Buchu and Juniper Compound, containing no appreciable amounts of buchu and juniper. (Jour. A. M. A., March 9, 1918, p. 718).

**Medeol Suppositories.**—The Council on Pharmacy and Chemistry reports that Medeol Suppositories appear to be an imitation of Anusol Suppositories, which in 1907 were found inadmissible to New and Non-official Remedies. "Anusol" was formerly said to be bismuth iodoresorcinsulphonate, but after publication of an analysis in the A. M. A. Chemical Laboratory in 1909, this claim was abandoned and today Anusol Suppositories are said to contain unstated amounts of the indefinite "bismuth oxidid

and resorcinsulphonate." "Medeol" is said to be "resorcinated iodobismuth," but no information is vouchsafed as to the character or composition of the ingredient. As the composition of the two preparations are similar, so are also the therapeutic claims. The Council declared Medeol Suppositories inadmissible to New and Non-official Remedies because their composition is secret, because unwarranted therapeutic claims are made for them, because the name is objectionable, and because the combination is unscientific. (Jour. A. M. A., March 9, 1918, p. 719).

**Sodium Cyanid.**—Loevenhart, Lorenz, Martin and Malone report experiments looking toward the use of sodium cyanid, administered intravenously, as a means of stimulating respiration in threatened collapse from drowning, etc. (Jour. A. M. A., March 9, 1918, p. 692).

**Hypophosphites for the Army.**—The purchasing department of the medical department of the U. S. Army asks for bids on three tons, in one pound bottles, of the "Compound Syrup of Hypophosphites." These six thousand bottles of a relic of past generations must be paid for and are to occupy valuable freight space in shipping to various Army posts. (Jour. A. M. A., March 16, 1918, p. 783).

**Melubrin.**—Chemically, melubrin is closely related to antipyrine. It acts as an antipyretic and analgesic and is said to be useful in sciatica, neuralgias and in febrile affections, and as an antipyretic in febrile affections. In Sollmann's Pharmacology, in a discussion of coal-tar antipyretics, it is stated that practical experience has shown that acetphenetidin, acetanilid and antipyrine are the most useful representatives of the group, and that all the others may well be spared. (Jour. A. M. A., March 23, 1918, p. 874).

**Thyroid Hyperplasia and Iodin.**—The evidence indicates that simple goiter is associated with a deficiency of iodine in the thyroid gland and that goiter formation may be prevented by iodine administration. Marine and Kimball have undertaken a study of goiter prevalence and its prevention by administration of iodine at the request of the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry. In a complete census of the condition of the thyroid gland in girls from the fifth to the twelfth grades of a school population of a large community at the southern edge of the Great Lakes goiter district, they found that 2,184 or 56 per cent, had enlarged thyroids, 13 per cent having well defined persistent thyroglossal stalks. (Jour. A. M. A., March 23, 1918, p. 848).

**Tyree's Antiseptic and Aseptinol.**—This was claimed to be a combination of "borate of sodium, aluminum, carbolic acid, glycerin and the crystallized principles of thyme, eucalyptus, gaultheria and mentha." "Pulv. Aseptinol Comp." is claimed to combine boric acid, the salts of aluminum, crystallized phenol, and the active crystalline principles of thymus, mentha and gaultheria. As a twin may differ from his brother

by a wart, so Aseptinol was claimed to contain hydrastis canadensis in addition. An analysis of Tyree's Powder showed it to be essentially a mixture of boric acid, zinc sulphate with insignificant amounts of odorous principles. In view of the misrepresentation in one case, it is difficult to understand why it should have been taken for the model of the other. These twin nostrums have been exploited by similar preposterous claims; they are utterly unfit for the treatment of the various conditions for which they are or have been recommended.

More important than the relative merits of nostrums such as these is the question whether the medical profession is going to help to perpetuate the chaotic conditions that the use of such nostrums fosters. (Jour. A. M. A., March 30, 1918, p. 949).

**Compatibility of Phenolphthalein.**—It is better not to combine several laxatives, but those who believe in doing this may combine phenolphthalein with drugs that can properly be prescribed in powders or pills as, for instance, calomel. Since phenolphthalein and calomel are both tasteless, they may be prescribed in powders or enclosed dry in capsule, cachet or wafer, the amount of each ingredient being estimated according to the susceptibility of each patient. (Jour. A. M. A., March 30, 1918, p. 950).

**Barbital (Veronal) Classed as a Poison by England.**—Because of frequent reports of accidents and habit formation, the Privy Council of Great Britain has classified as poisons "diethylbarbituric acid, and other alkyl, aryl, or metallic derivatives of barbituric acid, whether described as veronal, propional, medinal, or by any other trade name, mark or designation; and all poisonous urethanes and ureides." As a result veronal will seldom be dispensed except on a physician's order, and that a record of such sales will be kept in the pharmacist's poison book. (The official name for diethyl-barbituric acid of the British Pharmacopoeias is barbitone; in the United States the official designation for this product is barbital). (Jour. A. M. A., March 30, 1918, p. 953).

## REPORTS AND ANNOUNCEMENTS OF SOCIETIES

### MINNESOTA ACADEMY OF MEDICINE.

The regular monthly meeting of the Minnesota Academy of Medicine was held on Wednesday evening, March 13th, the president, Dr. Cross, in the chair. Twenty-six members and two visitors were in attendance. In the absence of the secretary, Dr. J. E. Hynes acted as secretary pro tem. The minutes of the previous meeting were not read.

Under the head of Reports of Cases, a number of offerings were made. Dr. Wilcox exhibited various types of splints, with photographs of the splints in

use. Dr. Wright reported a case of rupture of the testicle. Dr. Farr recently operated for cleft palate under local anesthesia, reporting the same to the Academy. Dr. Abbott, in a case of tuberculous peritonitis with unusual clinical symptoms, found the focus of infection to be in the Fallopian tube; and Dr. Hare reported a similar condition of tuberculosis where the focus of infection was in the appendix—the Fallopian tubes were also involved. Dr. Mann spoke of a patient who suffered a fracture of the third lumbar vertebra, the patient later developing an osteomyelitis that necessitated the amputation of both legs. Still later there developed an osteoporosis of the head of the femur. A bone graft from one of the patient's ribs was followed with apparently good results. Dr. Moore mentioned a case of elephantiasis involving the left hand only. Dr. Dunsmoor gave the history of a patient who had a pathological fracture of the humerus, caused from a round-cell sarcoma. The fact that the fracture was not accompanied by any palpable change in the bone, gave to the case a very unusual clinical aspect.

Dr. Frank Wright read a paper entitled "Shall Operation for Hypertrophied Prostate be done in Two Stages?" which was fully discussed by Drs. Schwyzer, Earl, Colvin, Wilcox, and Farr.

### REPORTS OF CASES.

The following case was reported by Dr. Hammes: A man 54 years of age was found unconscious in the back of a saloon, apparently having fallen down stairs. He was brought to the hospital with a suspected fracture of the skull. An X-ray examination proved negative. There was, however, a most marked bilateral spasticity of all four extremities, with a bilateral patellar clonus and ankle-clonus; also a double Babinski. A lumbar puncture was made and about 30 c. c. of pure blood withdrawn. A Wassermann made from this blood was positive. For four days the patient remained moribund; then gradually improved. Another lumbar puncture was made, the spinal fluid being of a yellowish color and under normal pressure. At the end of the second week, the patient was conscious, the spasticity had disappeared entirely, there was normal control of the extremities, and the reflexes were normal, except for a slight Babinski on the left side. At the end of the fourth week another lumbar puncture was performed at nine in the morning, and 5 c. c. of normal-colored spinal fluid withdrawn. At seven o'clock in the evening of the same day the patient became suddenly cyanotic, dyspneic, unconscious, and died. A post-mortem examination was made on the skull only. It showed a fracture of the right parietal bone, extending upward, with a marked intradural hemorrhage from the left Rolandic region, and some softening. There was marked evidence of a contra-coup, in that there was softening in the right temporal region of the brain. This, together with the marked clinical improvement in spite of the pathologic feature, was the interesting feature of the case. The immediate cause of death, apparently, was a pulmonary embolus.

Specimen of a stomach removed January, 1918. Presented to the Academy by Dr. H. B. Sweetser. History: Male, aged fifty-two. About a year ago he began to have discomfort in the epigastrium, especially after a heavy meal. Yet he enjoyed eating, his appetite was good, and he did not vomit. There was a slight loss of weight at this time which was restored upon forced feeding. The X-ray gave a typical picture of carcinoma of the stomach. Because of the very meagre clinical symptoms, a great deal of surprise was experienced at the time of operation at the extent of the lesion, which extended from the pylorus along the lesser curvature for a distance of three and one-half inches. It involved both the anterior and posterior walls of the stomach, leaving at the pylorus less than an inch of normal wall, adjacent to the greater curvature. There was no visible glandular involvement and no metastasis to the liver. So much of the stomach was, of necessity, removed that it was impossible to do a gastroenterostomy. The technic of Polya was employed. Recovery from the operation was smooth and satisfactory. The patient now is eating a full diet and is up and about the hospital.

Dr. Arthur T. Mann reported a congenital deformity of the genitals in a girl of nineteen. The uterus was absent; there had been no menstruations nor any symptoms of a menstrual period. The hymen and vagina were normal up to the vault of the vagina, which, here, spread from side to side in a broad, smooth arch like an umbrella. At the extreme corners, on either side, was a small, red, funnel-shaped opening where the remnants of the ducts of Mueller entered. These ducts had failed to fuse and produce an uterus, and there was nothing felt on either side to suggest the separate parts of a double uterus. It was as though the ducts of Mueller might have formed tubes corresponding to the Fallopian tubes which opened directly into the vagina at the angles. The fact that there had been none of the symptoms which go with menstruation, suggests that the ovaries are rudimentary also. The case must be exceedingly rare. More common are those cases where the ducts fuse, the form of the uterus varying with the amount of fusion. The bicornate and unicornate uterus, the uterus with a septum, and the double uterus are examples of this type. When the Muellerian ducts fuse below the uterus, the septum failing to absorb, we have the double vagina and the double hymen; when the lower end fails to open, we have the imperforate hymen.

Dr. Mann also reported a case of double uterus with a double vagina in which the woman had given birth to a full-term child from the left uterus with laceration of the cervix on that side and a complete rupture of the vaginal septum. She presented herself some years ago for a repair of the lacerated cervix. He had seen two cases of bicornate uterus, in one of which a doctor in one of the smaller towns had performed a supravaginal hysterectomy for some unknown cause. He also reported a case of imper-

forate hymen in girl of seventeen, who had all the symptoms of menstruation for four years with increasing pain and distress, but without the flow, and in whom all the remains of the menstrual flows were imprisoned behind a tough, bulging hymen in a dilated uterus and vagina.

FRED. ELMER LEAVITT,  
Secretary.

## PROGRESS IN MEDICINE AND SURGERY

### ROENTGENOLOGICAL SECTION.

*Edited by Frank S. Bissell, M. D.*

#### INTRODUCTORY.

It is our purpose to present under this caption a brief but comprehensive resumé of current or recent roentgenological literature. Editorial comment may be made, from time to time, to clarify or supplement the more important subject matter.

Roentgenologists throughout the world have responded so generously to the war call that there has been a noticeable decline in the volume of current literature dealing with the progress and problems of this branch of medical science. Hence, the reader may occasionally find here extended reference to articles, not very recent in origin, but whose age has not destroyed their semblance of modernity.

**SARCOMA AND THE ROENTGEN RAYS:** Sarcoma we have always with us, and it seems to present constantly new phases for discussion and investigation. There has been noted a wide variability in the sensitiveness of sarcoma to the roentgen rays, and this variability has been attributed variously to the seat of the lesion, and to its degree of malignancy. However, G. F. Gaarenstroom, in the *Archives of Radiology and Electro-Therapeutics*, Vol. XXL, No. 7, believes that this sensitiveness depends directly upon the histological structure of the tumor.

He reports twenty-three cases which were treated by the roentgen method at the Dutch Cancer Institute of Amsterdam, and reviews them as follows:

**Round Cell Sarcoma;** twelve cases, all of which have responded favorably to roentgenization. Some of these have remained symptom free, while others, though locally cured or improved, have finally died from metastases.

**Spindle Cell Sarcoma;** three cases only, two of which have shown favorable reaction.

**The Polymorphous Type:** There were four of these cases, none of which have shown the slightest response.

The writer concludes, therefore, that it is necessary to know the type of sarcoma with which one is dealing, before an intelligent prognosis can be made as to the result of roentgen therapy in these cases. He confesses, however, that his series is too small



to establish a hard and fast rule. In fact, one can find in the literature reports of many cases of polymorphous cell sarcoma, which have been improved or cured under roentgen therapy.

Kienboeck's rule that those sarcomata which develop rapidly, and recur promptly after operation, are the most favorable cases for roentgenization, is not supported by the writer's observations. Thus, he points out that sarcomata of the fibula, femur and upper jaw, while of rapid growth, failed to react favorably, whereas a slowly developing angio-sarcoma of the tympanic cavity responded promptly and was cured.

**ROENTGEN TREATMENT OF 530 CASES OF MALIGNANT AND OTHER TUMORS OF THE FACE:** H. W. Dachtler (Am. Jour. of Roentgenology, Vol. IV, No. 1) states that sixty-two per cent of the cases were diagnosed as malignant, but in the absence of microscopical diagnosis, he classified the series according to the area involved.

The writer observes that in the earlier part of the sixteen years covered by the report, a large number of malignant conditions of the eyelids were referred to the roentgenologist, because the common destructive methods could not be applied without danger to the eye. Also, in the earlier years, it was not customary to refer cases with lesions of the nose, ear or cheek, until repeated attempts at destroying them by cautery had failed. At the present time, the cases are referred earlier because physicians are more convinced of the efficiency of the roentgen method.

The more favorable locations appear to be the forehead, upper lip and chin, while less favorable are the cheek, the cartilages of the nose and of the external ear.

In the eye cases, the small percentage of failures were in advanced lesions involving deep structures. "Taking the series as a whole, it may be confidently asserted that they could not have been as satisfactorily dealt with by any other method. In such cases, roentgen therapy is without a peer. On the other hand, if a case does not yield in a reasonable time, nothing is gained by continuing and it is wise to institute some other treatment in the hope of effecting relief."

The author's observations relative to cancer of the lower lip are interesting: In the earlier years, cases which were clinically of the squamous cell type, without glandular involvement, were treated by the V-shaped excision followed by roentgen treatment of the cervical glands. "Unless glands were already in-

olved, the results accomplished by this method were as favorable as those following the radical operation."

Later, in selected cases roentgen therapy was applied to the lesion as well as to the glands, and results have been as good as in the earlier cases treated by the combined method.

Lupus and lupus erythematosus have not responded well, in the hands of the writer. All cases of keloid were cured or improved.

**PULMONIC INSUFFICIENCY AND STENOSIS:**

The literature upon this subject has, in the past, dealt almost exclusively with congenital pulmonic stenosis in combination with patent Ductus Botalli. J. Zodek, however, in the Fortschritte auf dem Gebiete der Roentgenstrahlen, Vol. XXIII, No. 4, reports at length a case of acquired pulmonic stenosis and insufficiency which came to autopsy under a mistaken diagnosis of aneurism. The roentgen observations in this case had been the following: The heart enlarged markedly and uniformly in all directions, pulsation excursions not marked. Aortic column very wide. On the left side, at the level of the 3rd and 4th ribs (rather low), there is noted a large rounded prominence, lying upon the left ventricle below, while above it is "fused" with the aorta, from which it cannot be sharply differentiated. Left auricle not distinguished. There is no visible pulsation of this shadow. Since the patient has a deep, thick-walled thorax, observations in the first diagonal and frontal dimensions were unsatisfactory. A diagnosis of aneurism of the descending aorta was made, but aneurism of the pulmonary artery was also considered because of the low position of the most prominent convexity.

The autopsy, however, revealed an endocarditis chronica verrucosa of the pulmonic valves. There were calcium deposits, shrinking, and fixation of all the leaflets, producing distinct stenosis and insufficiency. There were no changes in the arterial walls.

Since all symptoms of this lesion had apparently developed subsequent to an attack of acute polyarthritis five years before, the inference was that it was acquired at that time.

The author finds the differential diagnosis of this condition a difficult one. However, his case demonstrates that in the presence of such a lesion, a marked prominence of the pulmonary convexity, non-pulsating, and apparently overriding the left ventricle and auricle, may be noted.



COUNTY SOCIETIES IN AFFILIATION WITH THE MINNESOTA  
STATE MEDICAL ASSOCIATION.

County.	President.	Address.	Secretary.	Address.
Aitkin .....	Carlton Graves .....	Aitkin .....	J. J. Ratcliffe.....	Aitkin
Beltrami .....				
Cass .....				
Crow Wing .....				
Hubbard .....				
Koochiching .....	Geo. Wm. Beach.....	State Sanatorium.....	J. A. Evert.....	Brainerd
Morrison .....				
Todd .....				
Wadena .....				
Brown .....				
Redwood .....	F. D. Gray.....	Marshall .....	G. F. Reineke.....	New Ulm
Blue Earth .....	Victor T. Miller.....	Mankato .....	T. C. Kelly.....	Mankato
Clay .....				
Becker .....	J. W. Meighen.....	Ulen .....	F. W. Briggs.....	Moorhead
Chisago .....				
Pine .....	H. G. Murdock.....	Taylor's Falls.....	C. A. Anderson.....	Rush City
Carlton .....	J. G. W. Havens.....	Cloquet .....	R. G. Spurbeck.....	Cloquet
Dodge .....	F. D. Smith.....	Kasson .....	Chas. E. Bigelow.....	Dodge Center
Faribault .....				
Martin .....	U. G. Strobel.....	Welcome .....	J. A. Broberg.....	Blue Earth
Freeborn .....	J. P. von Berg.....	Albert Lea .....	R. G. Stevenson.....	Albert Lea
Goodhue .....	H. T. McGuigan.....	Red Wing .....	H. T. McGuigan.....	Red Wing
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Kandiyohi .....				
Swift .....	B. J. Branton.....	Willmar .....	J. C. Jacobs.....	Willmar
Lyon .....				
Lincoln .....	E. T. Sanderson.....	Minneota .....	H. M. Workman.....	Tracy
Mille Lacs .....				
Isanti .....				
Sherburne .....	S. H. Olsen.....	Milaca .....	Geo. E. Parsons.....	Elk River
Kanebec .....				
Meeker .....	A. W. Robertson.....	Litchfield .....	Karl A. Danielson.....	Litchfield
Mower .....	D. E. McBroom.....	Adams .....	C. A. Fjelstad.....	Austin
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Nicollet .....				
Le Sueur .....	C. C. Blakely.....	St. Peter .....	Jos. E. LeClere.....	Le Sueur
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Pipestone .....				
Rock .....				
Nobles .....	Wm. A. Piper.....	Mountain Lake.....	F. G. Watson.....	Rushmore
Murray .....				
Cottonwood .....				

# Minnesota Medicine

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## ORIGINAL ARTICLES

### FRACTURES ABOUT JOINTS.\*

B. F. LOUNSBURY, M. D.,  
*Chicago, Ill.*

Mr. President and Members of the Southern Minnesota Medical Society: I appreciate the honor of being asked to address you this evening. My greatest concern has been to be able to bring to you something that would in a measure compensate for the privilege.

So much has been said and written about fractures that it seems difficult to find a phase of the subject with which you are not already familiar. In the great majority of instances fracture troubles do not arise from a lack of knowledge, but from failure to diligently and persistently keep the cases under observation and be able at all times to know the exact condition of the patient. Believing that fracture problems are much the same everywhere, I shall discuss some of the things that have been the most troublesome to me. These have been fractures about joints.

In examining the records of the Washington Boulevard Hospital for several years, I found that aside from the small joints of the fingers and toes, the ankle was injured more frequently than others. Two groups of factors are responsible for this result—one artificial and the other anatomical. Most important among the first group is the style of shoe and especially the heel worn. Catching the heel on a stair, door sill or sidewalk, has produced some of the

most serious conditions of the ankle a surgeon is called upon to treat. Quite as frequently a high heel has tilted laterally, producing a Pott's fracture. Anatomically, the weight bearing surface of the foot is triangular in shape with its base forward, at the anterior ends of the metatarsals, and its apex posterior at the tuberosity of the os calcis. The weight of the body transmitted through the tibia falls along the medial side of this triangle. The ankle is well braced from the lateral aspect by the longer external malleolus and the external lateral ligament. On the medial side, the internal malleolus is much shorter, but is reinforced by the broader and heavier internal lateral ligament. Without the proper balancing of the muscles, tendons and ligaments of the foot, there would be a tendency to eversion. The ankle joint carries the greatest weight of any joint in the body, and nature has accordingly provided it with powerful ligaments and tendons so grouped and opposed that they permit the widest range of flexibility and stability. In event of some external force overcoming one of these groups of muscles or ligaments, disaster may result. If a violent force works from a lateral direction against the ankle, the strain will be borne by the internal malleolus and the internal lateral ligament. If the force is sufficient to overstretch or tear the ligament, the astragalus is thrown against the inner aspect of the external malleolus, driving its lower end laterally. The interosseous ligament holds firmly to the fibula at a point level with the articular surface of the tibia. The ligament is usually so strong that the fibula will break before it will tear, thus producing a Pott's fracture of the first degree. Sometimes the internal lateral ligament is very strong and instead of yielding,

\*Read at the Annual Meeting of the Southern Minnesota Medical Society at Manato, Minn., November 26, 1917.

it tears away the internal malleolus and carries it laterally with the astragalus, producing a second degree Pott's fracture. When the force is violent enough to wedge the astragalus in between the tibia and fibula, rupturing the interosseous ligament and fracturing internal malleolus and fibula, we have a third degree Pott's fracture.

The radiograph in these cases does not show all the damage that has been done. Clinically the most marked sign is the eversion of the foot. Frequently there is great swelling due to haemorrhage into the joint and soft tissues. For the accurate diagnosis of the bone condition we should depend on the radiograph. This not only makes the diagnosis of the presence of a fracture, but gives us the best information on which to select treatment.

In determining the management of a case, we unfortunately are not always able to carry out the measures which would seem indicated from a study of the radiograph. The soft parts sometimes, rather than the bony structures, must receive first consideration. This is true when there has been great haemorrhage into the joint and surrounding tissues, or when the wound is compound. In general, the earlier the distorted parts are restored to normal position, the better. Great swelling sometimes makes it necessary to wait for it to subside. When the wound is compound, the necessity for drainage is added to the other measures. The forces for the reduction of a Pott's fracture are directed in practically the opposite way to those that produced it: The foot is pulled down and inward, and held in marked inversion and at right angles to the tibia. If plenty of raw cotton is wound about the limb before the plaster is applied there will be less pain from constriction and little danger from gangrene or pressure necrosis. If there has been great trauma to the soft parts, it may be well to split the cast up the front as soon as it has hardened. Usually at the end of six weeks daily massage can be begun. The advisability of starting massage in any given case should be determined by the appearance of the callus in a radiograph when the cast is removed. The soft tissues can be improved in their circulation and movement by massage long before the patient should be permitted to bear his weight on the foot. The cast

can be taken off and put on much the same as a boot to protect the limb until it is safe to leave it without this support.

Ordinarily a Pott's fracture does not produce the difficult problems that we find in a transverse fracture through the articular end of the tibia. Frequently there is a displacement of anterior or posterior lip and a dislocation of the astragalus. Viewed laterally, the articular surface of the tibia presents a concave surface to articulate with the convex surface of the astragalus. When the posterior lip of the articular surface is fractured, the mechanical forces are such that they draw the heel backward, over-extending the anterior group of muscles and the anterior ligament. The astragalus impinges on the posterior articular lip of the tibia and it gives way, usually displacing upward and backward, permitting the astragalus to displace backward. This injury usually results when the heel is caught on a stair, door sill or crack in the sidewalk, throwing the foot backward. Just the opposite mechanical forces will fracture the anterior lip of the tibia. This is seen when the foot is violently forced upward, as in stepping unexpectedly on a curb with the ball of the foot, permitting the heel to go down. The anterior lip gives way and usually the astragalus slips forward.

The nearer the line of fracture is to the apex of the arch of the articular surface of the tibia, the greater will be the difficulty in maintaining the fragments in position after reduction has been accomplished. In other words, the more concave surface there is in contact with the convex surface of the astragalus, the more likelihood of its being held in position. Failure to recognize this fact and to make diligent and frequent observations during convalescence has resulted many times in disabling deformity.

Whenever it is apparent that normal reposition and maintenance of position cannot be accomplished by manipulation and cast, then an open operation should be performed. The danger to the function of the joint is much less from such a procedure than from union in malposition. With the open operation a perfect reduction can usually be accomplished, and a small bone peg will insure against displacement of the fragments later. Fracture of the anterior lip of the tibia with displacement forward

of the foot, differs little in the problems of management from fracture of the posterior lip. In my experience it has occurred less frequently. One of the lantern slides will show a fracture of the anterior lip with displacement forward of the foot united in malposition at the end of eight months. The anterior fragment was displaced upward about one-third of an inch; the astragalus was anterior to the tibia and the leg was practically functionless. It was not considered practical to cut the callus and bring down the displaced anterior fragment. In order to make the concave surface necessary to receive and hold the astragalus, the posterior lip of the tibia was cut with an electric burr and chisel to match the position of the anterior lip. The astragalus was then replaced and the anterior ligament repaired as well as could be. After six weeks of immobilization, daily massage was given for about four months. Motion in the joint was then about three-fourths of the normal range and the man returned to duty.

Fractures of the astragalus are less common and often occur with fractures of the os calcis. Most frequently the fracture is through the neck, with displacement of the head. The tail is sometimes torn off with forward displacement of the body. I have not seen many fractures of the astragalus. I am not considering here the so-called sprain-fractures, in which the ligamentous attachment to the bone tears off a chip when great strain is put on the ligament. In a series of thirty fractures of the os calcis I found an accompanying fracture of the astragalus in three cases. One fracture of the astragalus occurred with a fracture of the shaft of the tibia, and one with an inward dislocation of the tarsus. In all cases an open operation was necessary for reduction. In one instance it was necessary to remove the displaced head.

The wrist has been quite generally a stumbling block and a fruitful field of disabling deformity following fractures. The most common fracture here is the Colles' type with its "silver fork deformity." In general, there is seldom necessity or excuse for bad results in the treatment of these cases. Here more than in any other place have fractures been overlooked and treated as sprains. This is probably partly accounted for by the fact that they are generally impacted and the diagnostic sign of

crepitation is lacking. Many times the condition is recognized, but failure results from inefficient methods of reduction or lack of diligent observation during convalescence. Many times the wrist is thick and fat and the swelling rather fusiform, obscuring the typical deformity. Sometimes the deformity is slight or only noticeable by a little broadening of the wrist.

We could save our patients much discomfort and in many instances permanent disability, if in all injuries about the wrist followed by swelling which obscures the contour, we would use all our powers of observation and then have radiographs made. These should be made both in the anterior-posterior and lateral planes. An excellent idea is to place both wrists on the plate for comparison. In examining an anterior-posterior view of a Colles' fracture, there will almost invariably be a shortening of the radius as compared with the ulna. The lateral margin of the articular surface of the radius displaced upward on the ulna, the ulna will appear too long and project beyond the articular surface of the radius. A lateral view is the one most likely to plainly show the presence of a fracture, as usually there is a displacement backward of the lower fragment with change of direction of the articular surface.

When the diagnosis has been made, the treatment presents no unusual difficulties. After reduction, check up the result with a radiograph and if the fragments have not been satisfactorily replaced, do it again and again, and if necessary get help. I have never seen a Colles' fracture that could not be reduced and maintained in position. Many cases are not diagnosed until two or three weeks after the injury when the swelling is gone and the displaced fragments show that something more severe than a sprain had taken place. At this time a fairly good callus is maintaining the deformity.

If the deformity is such as to greatly interfere with the function of the wrist, I do not hesitate to make a small vertical cut in the back of the wrist, over the site of the fracture, and thrust a chisel through between the fragments. After refracturing in this manner, I manipulate the wrist the same as would be done in a recent case, producing the pistol-grip position of over-correction and holding it with a well-molded

cast. Usually at the end of four weeks the cast can be removed and daily massage instituted. In restoring the function of the hand and wrist in such cases, the massage is almost as important as the correction of the bone deformity. In this way I have been able successfully to treat deformities of six to eight months' duration.

A condition in the wrist sometimes occurring with a fracture of the styloid process of the radius or ulna and frequently diagnosed and treated as a Colles' fracture or sprain of the wrist, is a forward dislocation of the semilunar bone. It is produced by practically the same mechanism that causes a Colles' fracture. In both cases the patient falls on the outstretched hand, so the history would not materially aid in the differentiation. In many respects the external appearances are similar. A thickened wrist with some resemblance to "silver fork" deformity is produced. The displaced semilunar bone stands forward in the front of the wrist at the end of the radius, nearly at the point where the lower end of the upper fragment of the radius would appear in a Colles' fracture. By comparison with this point, the wrist and hand seem thrown backward. Without a radiograph this condition is easily diagnosed and treated as a Colles' fracture. There is, however, one point of difference in the two conditions which I have never found lacking. In both cases there is pain in the wrist, but in dislocations of the semilunar bone there is very definite pain in the sensory distribution of the median nerve into the hand and up the arm. One is not justified in making a diagnosis in so important a functioning member as the wrist, without utilizing all the aids at his command, most important of which is the X-ray.

With the diagnosis disposed of, the problem is by no means solved. The replacement of this bone is exceedingly difficult. In seven cases I have never been able to accomplish it by manipulation. It is true that most of my cases were from six weeks to six months old when reduction was attempted, but even in the case where immediate reduction was tried manipulation failed. I have found it necessary to open the back of the wrist through a rather long vertical incision and displace all the extensor ten-

dons and open into the space formerly occupied by the semilunar bone. Strong traction on the hand opens this space as wide as possible. With a hook such as an aneurysm needle, the bone can be teased back into position after freeing its former site of fibrous tissue. Immobilize the wrist from four to six weeks and massage daily until function is restored.

Fracture of the scaphoid sometimes occurs with a Colles' fracture or fracture of the styloid of the radius, and sometimes unaccompanied by other bone injury. The bone usually breaks in two fragments, separated by an anterior-posterior plane passing vertically through it. Sometimes the fragments are comminuted. Unless displaced fragments cause persistent pain, immobilization is the only treatment necessary; this to be followed by massage.

Fractures of other bones of the carpus seldom occur except in crushing injuries or dislocation through the carpo-metacarpal joint. This last condition will be illustrated on the screen.

Of the injuries about the shoulder joint, I shall speak only of the fracture of the neck of the humerus. When this is accompanied by dislocation of the head into the subclavicular or subglenoid space, the problem of treatment becomes a difficult one. This is especially true when the fracture is through the anatomical neck. All of these cases should be operated upon and an attempt at least made to restore the displaced head to its normal position and secure it either by suture with kangaroo tendon or bone peg, or both. There are many reports of good functional results in the shoulder where the head of the bone has been removed. While it is true that the results with the head of the bone removed should be better than with it displaced, yet I do not believe the same function can be obtained with the absence of the head that might be secured if the head could be replaced. It has been claimed by some that when the fracture is through the anatomical neck the nourishment of the head is destroyed and it will atrophy. We do not yet know all there is to know about the nourishment of transplanted bones, and while in theory it might be that the head should die from lack of nourishment, yet it does not always do so. I see no reason for not treating the fractured displaced

head of the humerus the same as we would an autogenous bone graft with just the same hope of a successful union.

I have replaced the head of the humerus in a number of cases and entirely removed it in two. It would be my practice that unless the head were comminuted, to make an attempt at least to replace it. I believe the best interests of the patient would be conserved by so doing.

#### DISCUSSION.

DR. H. W. MEYERDING, Rochester, Minn.: I regret very much the absence of Dr. Ryerson who was to have discussed the paper. The president has just asked me to discuss the paper. It is late, and I will discuss it very briefly.

Regarding a Pott's fracture with rupture of the ligament and fracture of the tibia, I think there is one point of importance to be brought out. We have seen cases of over-correction in the tibia of so-called Pott's fracture where the internal malleolus is torn off. Several of these cases have come to our notice in which it is necessary to reoperate to correct the deformity. It is well to have an anatomical reapposition if possible but if we get a functional result it is a thing sought after.

Our experience has been similar to Dr. Lounsbury's in regard to the fractured semilunar bone of the wrist joint. When displaced, a great deal of disability results, and I do not believe a dislocated semilunar carpus permits a good functional wrist. I have one case in mind in which there was nerve irritation relieved following operation.

Regarding the use of the X-ray, it is negligence not to take an X-ray of a fractured part. Oftentimes we find impaction in good position so that reduction is not necessary. I think one of the lessons that should be taught all of us is that in taking an X-ray we must know how to interpret it, and after interpreting it, not to meddle with bones in good position.

Regarding fractures of the shoulder, it has been our custom to treat these fractures by abduction and extension if the fractures are reduceable, maintaining this position for two or three weeks, and in those cases in which it is necessary to do an open operation, to properly reduce and treat in a similar manner. Very excellent results are obtained in comminuted fractures of the upper end of the humerus, without surgical interference, by this method.

The astragalus, I am sure, has been better treated in recent years than formerly, since the advent of extension, by means of the Steinman peg, or as described by Dr. Lounsbury, and by open operation.

#### A PLEA FOR CO-OPERATION IN VENEREAL DISEASE CONTROL.\*

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The prime duty of every good citizen at the present time is to do everything possible to help win the war. The physician citizen should be particularly concerned with the conservation of health, and as regards the war, more especially concerned with the conservation of the health of present and prospective soldiers and sailors. A glance at the most recent report of the Surgeon General (week ending April 12, 1918) is at once suggestive of the army's greatest disease problem. Here we find the total admittance for the week ending April 12th for venereal diseases was 2,485, as against 838 for pneumonia its nearest competitor, and 677 for measles the next in order of prevalence. The United States had some opportunity to profit by the experiences of the armies in Europe, and shortly after our declaration of war, a definite program was prepared for combating and controlling venereal disease in the army. This program was written not alone by men who had taken an active part in social hygiene work, but also by men such as Morton, Politser, Pusey, and others, who are recognized among the highest authorities in this country in this field. I wish to emphasize this latter statement, as there seems to be a question in the minds of some as to the correctness of some of the details of the program. Particularly, that part calling for repression of prostitution. In the past, the army, lacking any co-operation of civil authorities in nearby communities, has been forced to adopt some system of regulation. Now, with a law to assist them, and a

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\*No effort was made in this paper, on account of lack of time, to cover the subject of venereal disease control, but merely to cover that angle applying to the control of private patients. The author requested, therefore, that the discussion be not limited to points covered by the paper.

tendency at least, for the communities to cooperate, a plan for absolute repression is practical, and most of the officers with whom I have come in contact in my recent work in California, are now heartily in favor of this. It is not within the scope of this paper to go into the details of the problem of prostitution, but I do wish to make one point clear, and that is, that this law enforcement is called for, not on a moral issue alone, but from the standpoint of public health, and as such, I believe the medical profession ought to support it. Along with repressive measures, all diseased prostitutes are to be isolated or quarantined and treated. The program as it was first planned and developed, was directed almost entirely to the enlisted men, but when it was found that great numbers of men coming into the National Army were already infected with gonorrhoea and syphilis, it became apparent, that to be adequate, the civil population must also be included. Whereas, the original work was entirely under the Surgeon General, active work is now also being directed by the U. S. Public Health Service, and a special committee of the Council of National Defense. While these national agencies, and various State Boards of Health can do a great deal toward directing the work, the real results must finally rest largely with the medical profession, and indeed, with the individual practitioner. The War Department, and particularly, the Surgeon General's office, has taken up the matter with the officials of every state, calling upon them to arrange for, and adequately finance the work in their respective states. They particularly request that a special division or bureau be organized under the Board of Health, and that rules and regulations be adopted for the adequate control of venereal diseases. Many states have already undertaken the work, and for the most part, it is pretty well standardized, so that it may be taken for granted that whatever we attempt here in Minnesota is somewhat similar to the work going on all over the country. Minnesota is particularly fortunate, however, in being among the first to have a division of this kind, which is adequately financed. For this, Governor Burnquist should be given a great deal of credit in initiating the work by appointing the Minnesota Social Hy-

giene Commission, and later, in urging the appropriation for the Board of Health. The Division of Venereal Diseases is now fairly well organized and is ready to undertake active work. The matter of co-ordinating the work of the police departments and courts, the matter of co-operation with the military authorities, and the educational work, can be handled largely by its own staff, but the question of enforcements of rules and regulations, and the organization of adequate dispensary facilities, requires the active co-operation of the profession.

About fifteen years ago there was appointed in the American Medical Association a Committee on Prophylaxis of Venereal Diseases. The second annual report of this committee was printed in the Journal of the A. M. A. in June, 1904. In order to ascertain what, if anything, was being done throughout the United States in the way of venereal disease control, they sent out a questionnaire with the following questions:

1. What laws exist in the different states relating to prostitution?
2. Is there a sanitary marriage law which provides for the medical examination of the contracting parties?
3. Is there any law against wilfully or knowingly communicating venereal diseases?
4. What, if any, municipal regulations exist in any city of your state regarding these diseases?
5. Is notification required of these diseases in your state?

Answers were received from 33 states. With the exception of Rhode Island and Connecticut, all states replying to question 1 stated there were the usual common laws and sundry police regulations of general character against houses of ill-fame, including specified nuisances therein against soliciting in the streets, and against enticing of females under 16 years. To questions 2, 3, 4, and 5 the answer, in all instances, as far as relating to venereal diseases, was negative, except Michigan, which was the only state doing anything relating to venereal disease. It was evident that at this time practically no cognizance was taken of the problem. Thinking that some cities might have local ordinances on the subject, the same questionnaire with some additional questions on hospital facilities was sent to 40 large cities.



Again the answers were practically negative, and it was shown that there was an absolute lack of hospital facilities throughout the country so far as these diseases were concerned. I had occasion when working on a paper for the 1916 meeting of the State Medical Association, to look up this question, and I found at that time that syphilis and gonorrhoea were reportable in New York, Vermont, Indiana, Michigan, Kansas, Iowa, Louisiana and Wisconsin, and in North Dakota there was a law preventing the marriage of infected persons.

Just a word of what European countries have done may also be of interest. To Belgium belongs the honor of having taken the initial step toward an international undertaking, which resulted in the formation in 1899 of the "First International Conference for the Prophylaxis of Venereal Diseases" in Brussels. The second was held in 1902. Through the agitation of Neisser, Lesser, Blasko and others, a similar German society was formed in 1902. This society was instrumental in securing from the sick benefit societies payment of weekly benefits for venereally diseased members. It was instrumental in securing reporting of cases, especially in prostitutes. Italy requires at present that syphilis be reported. Denmark issued laws against the spread of venereal diseases as far back as 1874, and in 1895 required physicians to make weekly reports without names of venereal cases. A Danish society for combating venereal disease was established in 1902. In Norway brothels were abolished in 1888, and physicians were compelled to send in monthly reports without names of all cases of venereal diseases. In nearly all the countries of Europe treatment of prostitutes is compulsory. At the last International Congress such men as Finger, Blasko, Neisser, and Gancher, went on record as against any system of regulation of prostitution in so far as its having any effect on reducing venereal diseases.

This gives an idea of conditions up to the time of the war.

In 1915 Western Australia passed laws governing the control of venereal diseases, and inasmuch as these laws form the basis of most of those now being enacted in this country, it seems worth while to give them somewhat in detail.

Provision is made that no person other than a qualified medical practitioner, shall attend, or prescribe for any person suffering from one of these diseases. Also, a person suffering from any venereal disease, shall, within three days of his becoming aware, or suspecting that he is so suffering, consult a medical practitioner. Exception is made only in case that the patient is not at any time within twenty miles of a medical practitioner, and that he did, within such a period of time, consult such a practitioner by letter, and has followed as far as possible the advice given. Provision is made for the patient consulting his physician at least once in every four weeks, and following as far as possible, the directions given for his treatment. Provision is also made for the patient changing physicians. If a patient does change physicians, he must notify the second physician of his being previously treated, and this second physician shall notify the first physician that the patient still continues under treatment. Provision is made also for the notification of the Health Department of every case of venereal disease applying for treatment, and in the event such patient does not remain under treatment, and no notice is received of his being under treatment by another physician, his name and address is reported to the health authorities. Every physician must give to each patient a pamphlet containing information and instructions concerning these diseases, and the care necessary to prevent the danger of infecting others. The physician shall give to the patient a certificate of cure on a prescribed form, when a cure is arrived at. Parents and guardians are made legally responsible for the compliance of minors to the law.

Advertising the sale of any preparation or nostrum used in the treatment of venereal disease is prohibited.

Provision is also made for free treatment and free laboratory facilities.

At the time of their passage these laws were by far the most radical of any that had been proposed in any country in the world, and considerable skepticism was shown as to the possibility of their being enforced, and it did not appear likely that any other country would adopt anything similar. After two years of investigation by the Royal Commission on Vene-

real Diseases, England decided not to adopt any system of notification, although they placed themselves on record as acknowledging the advantages of reporting, and that they believed at some future time it would become a necessary part of the program. The greatest argument against reporting was that they believed patients would be turned into the hands of charlatans or quacks, and to drug stores. There is undoubtedly some weight to this argument, but I believe it will be largely offset by the intelligent administration of the law, if, at the same time, a definite campaign is undertaken to stop the prescribing by druggists and to put the quacks and fakirs out of business. Early in 1917 England passed laws requiring that no one but a qualified practitioner be permitted to treat venereal disease, and that no medicine or preparation could be given or sold to any person to be used in treating a venereal disease unless prescribed by a physician. There has apparently not been the hesitancy in this country of accepting this valuable part of the system of control. This is testified to by the fact that practically every state adopting new rules and regulations is following rather closely the Western Australia law. At the present time, California, New Mexico, Arizona, Colorado, Massachusetts, Michigan, Illinois, Arkansas, and several other states, have enacted rules and regulations providing for almost every one of these points, and are making some effort in the carrying out of the provisions.

It is imperative that we have data, and it is also desirable that the confidential relationship between the physician and patient be maintained. For this reason it has been suggested that a serial number be used for reporting these cases to the Health Department. It also seems only fair, when we realize that possibly 50 per cent of the cases of venereal disease are contracted innocently, that something should be done to protect the community in event any patient does not remain under treatment, or so deport himself as to protect others. Provision should, therefore, be made for the reporting of the name and address of such individuals when necessary. There is no reason why the patient should not be privileged to change physicians, and it is necessary, therefore, to arrange for

some sort of record being kept of those changes, and still maintain the confidential relationship of physician and patient as long as the patient complies with the important provision of his remaining under treatment. Many of us who have worked in clinics have found difficulty in having uninformed and unintelligent parents bring children to the clinic in order that they may have the necessary treatment; therefore, a rule requiring that parents or guardians be held legally responsible for the treatment of minors is necessary.

Investigation has shown that approximately 50 per cent of the cases of gonorrhoea apply to druggists for treatment before going to a physician, so that it is apparent that even without a system of reporting there was this problem of incompetent prescribing. The modern rules and regulations will endeavor to stop this entirely. This can be done in one of two ways. If possible, rules can be made which will directly apply, making it a misdemeanor for any person to sell any preparation or medicine to be used in the treatment of these diseases, except upon a written prescription of a medical practitioner, or, a rule can be made which will require the reporting of every case applying to any person for treatment. It would seem that this rule would automatically prevent such prescribing by druggists, for if they thus placed themselves on record as treating patients, by making these reports there should be no difficulty in the Board of Medical Examiners taking up the matter. Members of the State Pharmaceutical Association have already placed themselves on record as being anxious to cooperate with us. There should also be a definite campaign waged against the quacks and fakirs. There is already a law in Minnesota directed against any sort of advertising for the treatment or cure of venereal diseases. While this law has been on the statute books for several years, there has been comparatively little effort made toward enforcing it. This is especially true beyond ordinary newspaper advertising.

It is not expected that syphilis and gonorrhoea can be legislated out of existence by the passage of rules and regulations, but it is believed that the work in connection with them will have a vast educational effect, not only

upon the laity, but upon a considerable number of physicians who have had little interest in this problem. In relation to the rule requiring that the physician give each patient a pamphlet of information and instruction, we hope to issue one that will be couched in simple and plain language, but still be satisfactory for any private patient. So soon as active work starts, these pamphlets will be distributed to the physicians, and they will have a detachable report card which will be serially numbered, this will be filled out and mailed to the State Board of Health in the envelope supplied. The physician will make the serial number a part of his own record, and will thereafter identify this patient by that number in any report or in sending specimens to the laboratory. There will also be two additional blanks supplied, one to notify another physician of a patient changing, and one to notify the Board of Health of an infectious case which is not under treatment. I am sure these pamphlets will save the physician much time that might be used up in explaining to the patient his condition, and will by making certain that the patient has this information, keep many patients under treatment.

Hospital and dispensary facilities are still wholly inadequate throughout the country for taking care of this class of patient. There is not the slightest doubt but what if these facilities are increased and bettered, at least ten times as many patients will be gotten under treatment. These dispensaries must come up to standard to do worth-while work. Investigation in New York and Boston a few years ago disclosed the fact that only about ten per cent of patients were shown to be cured. This is not accomplishing very much from a public health standpoint, when we realize, especially with gonorrhoea, that the other ninety per cent still remained infectious. It has been demonstrated in a number of clinics that from 65 to 90 per cent of patients can be kept under control if the clinic is efficiently manned by experts, who give plenty of time to the work, if there is good equipment, plenty of room, nurses, and above all, a good social service department. Realizing this, it is proposed that standards be created and only those clinics

recognized which conform to these standards. Salvarsan will be furnished free to all clinics coming up to standard. There are a great many working people who do not need to patronize a free clinic, and who could not leave their work to attend one, who still cannot pay the fee for expert service. For this class there is a great need for the so-called pay clinic, which is held in the evening. A charge of fifty cents to a dollar a visit is sufficient to pay the cost of the clinic, including salaries for the attendants. Such clinics are in operation in Boston and New York. Besides treating cases, dispensaries can serve a definite educational function by giving advice and literature to those applying. We expect to get out placards, such as were formerly used by the quacks to advertise. These will be placed in public toilets and comfort stations, and will serve to advertise the available dispensaries in that community.

In conclusion, I want to emphasize the fact that this work is primarily undertaken as a war measure, it is not the whim of the few of us that are trying to do the work, it is the request, almost demand, of our government. It is not a thing which is being done just here, it is being done all over the country. So far, there have been over 30,000 cases on the sick list in the army. This has meant the loss of over 500,000 days of military training. Many, if not a majority, of the cases were contracted in civil life. It is expected that the United States will raise an army of not less than three million; if we can send fewer cases into the army by this work, we will have helped distinctly to win the war. There have been over 17,000 of our profession go into the Medical Reserve Corps; shall we who stay home feel under less obligation to do our part than they who go? If every physician will give his hearty co-operation in handling his private patients, and in volunteering, if necessary, to do some dispensary work, and if our county societies will get behind an organized effort at securing the necessary hospital and dispensary facilities in their districts, there can be no doubt but that a vast deal will be accomplished.

## DISCUSSION.

THE PRESIDENT, DR. ROBERT EARL: This interesting paper will now be open for discussion. As there are many here who wish to be heard and who wish to express themselves upon this subject, I believe we shall have to confine ourselves to the rule of the Society that discussion be limited to five minutes. The Chair will rap with the gavel when the time is up. I will call upon Dr. Charles D. Freeman to open the discussion.

DR. CHARLES D. FREEMAN: Mr. President and Members. I was very glad to hear Dr. Irvine's paper and get his views, as this is a subject that deserves our most sane and careful consideration. I think, as long as I have been a member of the Ramsey County Medical Society, this is the first time a paper of this nature has come before us. I have a few points to make which Dr. Irvine has not brought out and which I think are very necessary to check the spread of venereal diseases.

Venereal diseases, from the standpoint of the medical profession, as compared to all other diseases, hold a unique position. Every disease, except those resulting from sexual intercourse, we have tried to attack scientifically from the preventive, from the causative and from the curative standpoint; but not so with venereal diseases;—from the causative and curative standpoint, yes,—but from the preventive, no. We have left the latter to the moral teachers.

Preventive medicine is the most important branch of our science. As a matter of fact, it comprises all of medicine. Because everything we know we put into prevention and it has done more for humanity than any other effort we have made. During epidemics, whether it be bubonic plague, smallpox or venereal diseases, we do not proceed as of old by holding public prayer meetings or erecting pest columns, as was done in Vienna, but we isolate, disinfect, quarantine and vaccinate. It is a little more expensive, but a thousand times more effective, because we know that man is governed by the same natural and physical laws as any other animal. If I could show you tonight, gentleman, some method of reducing the mortality from cancer or of preventing innumerable cases of infantile paralysis, you would not hesitate one second to adopt it, but if I should advocate prophylaxis against venereal diseases, I question if a small percentage even of the medical profession would openly agree with me, in spite of the fact that prophylaxes against venereal diseases, when properly used, are effective, and the only sound argument against any method of prevention is to prove that when properly used it is not preventative. The anatomy of the urethra demonstrates that if prophylactics are used soon after exposure they should be effective, as the first one-third of the male urethra is lined with stratified pavement epithelial cells. Here the gonococcus does not penetrate to any depth but grows superficially by extension until they reach the columnar epithelium when they dip down into the subepithelial layers and get beyond reach of our

medicine. The time to destroy the gonococcus is when it is on the surface, and it is very easily destroyed providing our silver salts come in contact with it. I am speaking from the medical and scientific standpoint. No moral question enters here at all. It is strictly a scientific proposition from our standpoint. Here is a germ and here is a medicine to destroy it. Are we going to advocate its use, or not? Every one knows that the one real prophylactic is continence, an admirable quality and one that should be encouraged. With many it is indicative of great strength of character, while with others little restraint is required; where possible, it should always be practiced, but only to the point of maintaining the highest type of manhood and womanhood; what I mean by this is,—if onanistic practices are necessary to satisfy one's sexual desires, it is much better that they do it in the natural way. The fact that continence may cause non-contagious sexual diseases is aside from the question, as these are the lesser of the two evils. We know—or should know—that moral suasion, laws, and fear, have never prevented people from exposing themselves and that it cannot be wrong in offering these people as much scientific protection as we know.

I realize full well that there will be many objections to the advocating of prophylactics against venereal diseases, but I can conceive of none with a scientific basis.

The objections run about as follows:

(1) I have had physicians state that they do not believe in teaching patients self-treatment. This is not self-treatment, this is prevention. You would not hesitate to give a man advice as to methods of procedure after he had swallowed poison and you were unable to get to him, or in case he were bitten by a snake, etc.; in both cases, as in prophylaxis against venereal diseases, to be effective, preventative measures must be applied early.

(2) Some claim that with successful prophylactic measures that immorality would run rampant. Now, gentlemen, think of the good women you know, do you think it would influence them one bit,—and to those of us who know about it, has it made moral reprobates out of us? No, this has never been demonstrated. I believe that nine out of every ten women who desire sexual intercourse, and refrain from it, do so more on account of fear of pregnancy than on account of fear of infection. The question of pregnancy is inherent in them. They will take their partner's word so far as infection is concerned, but he can promise them nothing as to pregnancy, and the vast majority are absolutely ignorant as to the danger of infection.

(3) That prophylactics will not be properly used. As I stated above, the only argument against any method of prevention is to prove that where properly used it is not preventative.

(4) The claim that the transgressor should suffer, and that it serves him right, etc., is too ridiculous to consider. We know that thousands of innocent people suffer every year,—mostly women and children.

(5) That prophylaxis will make immorality easy. If the moral teachers do their work they can control inclinations toward immorality. This is not up to the physician. We have tried this method.

(6) Fear. Fear has never succeeded in preventing people from exposing themselves,—otherwise, venereal diseases would not be so prevalent. The sooner the whole question of morality is divorced from the methods of treatment of disease, the better. Moral and medical must not be confused. All recognize the necessity of treating venereal diseases but few are willing to openly advocate prevention.

Prevent gonorrhoeal ophthalmia in the infant—but do not prevent the disease that causes it. To me it is the height of inconsistency for scientific men to take such a position.

Do not think that I believe with the teaching of prophylaxis venereal diseases will soon disappear, and that the millenium will soon be reached, but I am firmly convinced that as far as our present knowledge goes, it will prevent more infections than any other method, and for this reason—and this alone—do I advocate their use. As time is very much limited in these discussions I will not be able to go into detail, but before closing I wish to say a word or two on prostitution and education. I would like to hear other views on this subject. It is a question that should be discussed sanely. To my mind prostitution exists for one reason—and for one reason only—and that is on account of the demand. As some one has said, every community has the kind of prostitutes that it deserves. Criminal laws make criminal prostitutes. All drastic measures simply nurse secret prostitutions. For instance, the recent action of the Legislature—no doubt it was with the highest intent possible—in closing the segregated districts, but instead of abolishing prostitution, it simply disseminated it all over the city, without a possibility of control. Prostitution existed before our civilization,—exists now, and will exist forever, unless something unforeseen happens. All legislation has been made against the supply and no laws have been able to control or remove the demand. You could remove all the prostitutes tomorrow and in a short time their vacancy would be filled. Every one would like to see prostitutes abolished—but, it cannot be done. It has been tried for hundreds of years. Prostitutes have been branded and banished and given to the hangman,—but still they exist. We must acknowledge that it is not within our power to make things as we think they ought to be, but we should look at things as they are and discuss them openly without disguise.

Just a word about education: I believe in giving as much scientific publicity to venereal diseases as we do to typhoid fever, tuberculosis, etc. Instead of having them called "private diseases," let every one know that they are public diseases par excellence. As to education, as a preventive measure, I have my grave doubts. My experience with patients who have had venereal diseases is that they never refrain from exposing themselves later. If a person does not

learn by experience, he certainly will not learn anything from a pamphlet or lecture. But education will at least remove the ignorance and secrecy, and allow people to go in with their eyes open.

THE PRESIDENT: Dr. Sweeney will next discuss the paper.

DR. ARTHUR SWEENEY: Mr. President and Gentlemen. I wish to approve, as far as I can, of the very excellent paper which Dr. Irvine has presented. There is no question in the mind of all of us that gonorrhoea and syphilis should be treated, that everyone who is so unfortunate as to have the disease should have the proper care provided by the State Board of Health system of dispensaries. In theory the plan is correct. In practice it will work to a certain extent. It will not work fully, because we are trying to legislate against an instinct. We are trying to legislate against something fundamental. It is notorious that a law which is not directly beneficial to the individual and the public generally is not enforced, but is allowed to become a dead letter. I venture to say that provisions made by the Legislature will not seriously affect the presence of gonorrhoea or syphilis.

We are face to face with the crisis in the treatment of venereal diseases. Shall we keep it secret? Shall we make it public? Shall we hide from the public and from those who are about to suffer from the disease the knowledge of its prevention? Shall we, for moral or other reasons, conceal that knowledge from him and allow him to contract the disease himself and spread the disease in his family and his friends? This is the question that really is to be discussed.

No one can object to the paper or to the legislation, but it doesn't go anywhere and doesn't get anywhere. The argument of those opposed to publicity is that if we tell people how to avoid gonorrhoea they will fornicate with impunity. Fornication is as old as history. Legislation never prevented it. Moral teaching never prevented it. Preaching has never prevented it to any appreciable degree. If it can be prevented, let it be prevented by the home influences and churches and moral teaching, but do not attempt to prevent venereal diseases by making people moral, because it has never succeeded.

I contend that sexual errors are only a phase in a man's life. I believe that most men are moral but that moral teaching will affect only those who can be reached. The environment is not good for most, as far as religion and moral teaching are concerned. You can't talk about moral teaching to the gutter rat or the little night walker on the streets.

Shall we decide not to say a word about prevention and let the punishment follow the crime? It is not a nice thing to say that every man who sins shall be immediately punished. It seems to me that people who say that really assume the Almighty prerogative of judging, and inflicting punishment on the man who has sinned. I don't think the Lord Almighty intended that sort of thing.

In regard to the actual meeting of the situation, there is only one thing for the doctors to do. There is only one way in which this can be reached—by education. If we know of a reasonably adequate preventive of disease, it is our duty as physicians and as citizens to make that knowledge public, as we do that in regard to typhoid fever or any other preventable disease. We do not do our full duty unless we do that. We cannot escape the odium that ought to come to us from allowing people ignorantly to expose themselves to danger of contact. We must consider this as a scientific proposition. The moral side does not concern us as physicians; it may as citizens. Home influence and church surroundings and moral teachings will prevent a certain amount of incontinence, but I feel that it is a crime for us not to let people know how to prevent disease. I believe the fullest publicity should be given to the prevention of venereal disease. I don't believe that our scientific efforts in this direction should be retarded in any degree by the religionistic pleas of good women and preachers, that we should let the punishment follow the crime.

I want to say that doctors all are men. We know human nature. We know that if there is anything about a man that is weak it is his inhibition—he can resist everything but temptation. We have to recognize the fact that most people do yield to temptation. If ten per cent of the population are syphilized and a very much larger proportion has had gonorrhoea, what percentage of the population has exposed itself without getting it? We have to face the facts. Men are not continent. They never have been. Yet I believe they may be before the age reaches them when they have to be.

So far as our duty as medical men is concerned, we must divorce it from our duty as individuals. We must allow the good people to preach continence and we shall hold up their hands and indorse that method; but as physicians we will commit a crime against ourselves if we permit the knowledge of the prevention of venereal disease to go unpublished.

THE PRESIDENT: I will call on Dr. J. M. Armstrong.

DR. JOHN M. ARMSTRONG: As chairman of a committee appointed by the Association of Commerce, I wish to say that we are endeavoring to start a venereal clinic in the city of St. Paul. We have made some progress and we hope to make more in a few days. All I wish to say at this time is that the committee, when it makes a report, shall hope to get the indorsement of the physicians of St. Paul. Our idea in this clinic is to treat venereal diseases. We will give prophylactic treatments and we will treat the individual who acquires the disease. We will make no distinction whatever. We will counsel people how to avoid venereal disease, and when they are diseased we will treat them.

THE PRESIDENT: Dr. E. W. Buckley.

DR. E. W. BUCKLEY: Dr. Irvine's paper covers two phases of this subject. There is one phase of

it, of course, on which there can be no disagreement at this time, that is the one dealing with necessary prophylaxis during war time. We may have many opinions on what is advisable to be done in peace times, and we either throw them all aside or we cover them up during war times. No one can deny that the government should use, and must use, every power that it possesses to keep its soldiers and sailors in perfect health, and we will second the efforts of the government. It is our duty to do so, as physicians, without allowing any scruples, either moral or professional, to interfere.

It seems to me, however, judging by the applause that several of the preceding speakers received, that you either agreed with them or you admired their courage—I wasn't sure which. But if you agreed with them I think you are somewhat inconsistent, because just preceding the reading of that paper a communication was received and read by the Secretary from a very estimable body of women asking your indorsement of another semi-political moral question which, it seems to me, is very intimately associated with the one we are discussing at present, and it is unnecessary for me to say how very unanimously that question was dropped and unceremoniously (to say the least) laid on the table; and until we give up serving beer with our lunches it was very logical to take such action. It seems to me those questions are very closely connected; the use of intoxicating liquors to the point of intoxication, and the contracting of venereal diseases; I am very sorry that the able defender of prophylaxis did not enlarge a little on prophylaxis of the alcoholic habit. I would have listened to that with considerable interest although I have passed the age where it affects me very much.

Leaving aside the war question, I have just a few words to say on general education of the youth of the land.

We are justified, in the privacy of our offices, in giving advice regarding prophylaxis and the treatment of venereal diseases because, as a preceding speaker said, the punishment of getting the disease seldom seems to prevent the risk of getting it again. But if we attempt a general education of the public at this time (I say, this time; I mean this age when this subject will be distasteful from the moral and religious point of view), I think we will be handicapped in our progress.

No one questions the desirability of abolishing venereal diseases. Everyone doubts the possibility of preventing the danger of contracting such diseases. The churches have thundered against it for thousands of years; Christianity sets its face solidly against it; yet it flourishes and is disseminated. I think the medical profession should go slow, or they may defeat their own efforts, before educating the youth of the land in prevention of venereal diseases, because you are getting on dangerous ground from the standpoint of the moral and religious teachers and will immediately incur their hostility. We should

keep within our professional lines. What they are, the time given for discussion here is too short to enter into.

I think the establishment of a venereal clinic is a very wise course. I think that is the time when the patient who applies for relief and education is in the best mood to take all the teaching that may be given him. Even though he may be drunk, as many of them are when they contract venereal disease, he may sober up in time the next morning to take advantage of the doctor's prophylaxis, advocated so ably by the preceding speakers.

THE PRESIDENT: Dr. Sneve.

DR. HALDOR SNEVE: President and Gentlemen. This is the first time, perhaps, in the history of the medical profession that efforts have been made to control venereal disease by attacking the man. In all the previous efforts of nations who have got to this problem ever since—perhaps back of—all written history, it is the woman who has been attacked. They have put red dresses on the women, they have cut their ears off, they have killed them, but they have never been able to stop prostitution. Biologically, men are here to perpetuate their kind. This element is merely a part of the grand and wonderful scheme of the Creator to secure the propagation of the species.

Now the question of curtailing venereal diseases is a very live one in time of war, because it does affect materially the physical part of the soldier and, as Dr. Irvine pointed out in his paper, it has taken, I think, five hundred thousand training days out of the army we have, already,—a very important thing. This problem, however, I do not think can be solved along the old lines, at any rate it won't be solved for a great many years. The real and only new thing in this subject is **prophylaxis**.

I think that we, as physicians, have to do with only one side of the question, that is the purely practical, material side of reducing the evils that come from intercourse between the sexes. We can't, by making enforced report of men with this trouble, I think, do anything toward alleviating the evil any more than we could stop prostitution by segregating the female offenders and having medical examination of them. Nearly all the old civilized nations of the world have had these laws. They have required that a physician examine them and certify that they are healthy. They found that such measures never stop the dissemination of venereal diseases. It is impossible except in some violently and flagrantly developed cases, to give a certificate of health to a woman, as you gynecologists know, and it is very difficult to give it in the case of men. This question can be taken up from the moral and sanitary side.

With the moral side we are not directly concerned as physicians, but we are all concerned as citizens. We all want to see continence. As physicians we want to stamp out venereal diseases from the world the same as we are trying now to stamp out tuber-

culosis. What is the plain duty of physicians as physicians? The plain duty is in the prevention and treatment of venereal diseases. How to do it is a very difficult question. The prevention of these diseases, as the Germans found out, was by the dissemination of knowledge as to prevention of gonorrhea and syphilis by use of washings, and the results were eminently successful.

As for the other function of the physician, every physician is really a teacher (that is what the name means). The physician has been lax in his duty to his patient in not telling him of the danger of the dissemination of the disease to the innocent wife and children and to other partners of his conduct. I think that physicians ought to publish widely every measure for the prevention of venereal diseases. I think that an educational campaign is a very essential part of it. I think that besides treating a patient you should educate him, as far as possible, to the danger following these diseases; and I think that the establishment of clinics may perhaps help, but I am very doubtful as to their practical working out. I think perhaps it may help a great many improvident ones who will also get, with the relief, the education. In that way you will perhaps greatly diminish the disease. I believe, with Dr. Freeman, that the true position for the physician to take is to teach prophylaxis. I believe that really is the best effort that physicians can put forth. As far as treatment is concerned, we perhaps don't add enough educational prescription regarding the danger and suffering that it entails on the human race.

I think we all ought to assist in the efforts of the State Board of Health, but I fear very much that the practical result will be very small indeed except so far as the educational part of the program is concerned.

As far as I am concerned, I think that treatment, prophylaxis, and education, are the things for us, as physicians, to take hold of with both hands.

THE PRESIDENT: Our Society has been distinctly honored this evening by having with us so many military surgeons, and I am sure that we will all profit by hearing from some of them on this important subject. I will therefore take the liberty of first calling on Colonel Greenleaf.

COLONEL HENRY S. GREENLEAF, Fort Snelling: Having been warned, Mr. President, that I might be called upon to say something to you this evening upon this subject, I gathered one or two notes that I think, especially after hearing the preceding discussion, may be of paramount importance, and very encouraging, probably, to the original speaker.

I heard a great deal said tonight on the moral and professional side of this question, and one of the questions on the moral side impresses me as an important feature. Public opinion permits, and must know (or else it is grossly ignorant) that a terrific percentage of individuals with whom they must associate have been, and possibly are, and even know-

ingly are infected with venereal troubles; and public opinion permits these individuals to associate with them, to come to their tables, to be in their house, to associate with their daughters, and to marry into their families, despite the ravages that these diseases bring about; and still they keep their mouths shut and permit the thing to go on. And when you come down to analyze the whole situation it amounts to the fact that the crime of the infected, as a result of yielding to temptation is the crime of being found out, the crime of discovery. For this reason the youth, if it is the male, when he is diseased goes to his physician, and the first thing he demands of his physician is that the thing must be secret not only from the public but from the sanitary authorities; officially, he must bury his secret. On the other hand, he may even brag, and often does, of having the trouble. His manhood is quite vindicated. So that in civil life I often find, and I have known from having been in it, that the real issue is dodged by keeping it secret, keeping it under cover from official light.

In the army we have been forced to face the thing squarely. It is our business to have effective men, and as the duty of the soldier is an active duty, it is just as plain that a soldier so diseased cannot fight, he cannot march, he must yield. He must come before the medical adviser. He will even try to counsel the officer to keep it secret, although in his company he will make no secret and will make no effort to disguise his habits. I have no sympathy with attempts made to cover it up in the surgeon's office, where such matters can be brought to official attention for proper control.

As I see it, it is absolutely and strictly a medical man's affair. The moralist, the church man, the deacon, have their place in controlling morals, but the medical man must face the medical side of it from his standpoint, and must treat an infectious disease in such a way as to control it in a community, even as smallpox or tuberculosis is controlled.

You will probably be astonished when I read you a few of the statistics that have been gathered in the army by Colonel Vedder; 20 per cent of the recruits that are enlisted into the service are syphilitic. That is saying nothing in regard to gonorrhoea; 39 per cent of all soldiers who are found to be infected with tuberculosis are syphilitic—yield the Wassermann reaction—showing what a tremendous causal effect it has, possibly, in undermining the constitution and producing that disease; and all of this only applies to syphilis.

When we tackled this thing in the army we found that the ravages of venereal disease were so important that we must look it squarely in the face. We examine every man of them twice a month, and every man who is noticeably diseased is brought under treatment. Sometimes they are found diseased and have not resorted to the prophylactic measures

such as we provide for them, which are ineffective enough; nevertheless they yield good results, withal. Much of our failure is the failure on the part of the men to receive the treatment. He takes it often enough not to prevent disease but to avoid the penalty and publicity which we try to put upon him if he transgresses in order to make him take the treatment. We restrict him to the post and not infrequently we put him, in a conspicuous uniform, to picking daisies on the parade, rather than to spread his troubles in other fields.

In enforcing these measures to the utmost we have seen already at Fort Snelling a marked improvement in the control of this trouble; and, mind you, we are only tackling it from one angle. We are only tackling it from our side. We have absolutely no control, no method of getting at your side, at the side outside of the post, at the liquor dealers, brothels, etc.

I am in accord with your speakers who rank this important liquor question with the question of venereal diseases.

I had the pleasure of a visit from Dr. Irvine when he came back from his successful work and I told him with some pride, on his questioning me, what our results had been, when to my astonishment he said, "Rotten!" Then I was a skeptic, for I felt my results were unusually good. I remarked to him, "Where are you getting so much better results," not knowing what work he had been doing. He told me that at Camp Kearney the results accomplished were such-and-such, and I mentally placed Dr. Irvine among the enthusiasts who make their reports fit their subjects; and, happening to have received one of the weekly reports from the Surgeon General on that particular day, for the week ending March 29, 1918. I said, "That is funny. Where is Camp Kearney?" He said, "In California." "Oh," I said, "California is one of those places like Missouri. You have to show me." I came from there. It is a perennially warm climate, the grass is ever green, conditions are ideal, and California is proverbial. I know a little of the South. So I took down my report and the number of admissions at Camp Kearney for that particular week was 34. I asked how many people he had. He said that they have on the average of 23,000. Thirty-four out of twenty-three thousand, of course, was a fairly large number. He said, "To show you, look up the next week, and the next one." And now it is my purpose, if you will permit me the few extra minutes, to give you these figures. I think they will astonish you as they have astonished me.

I took four Posts. I took Fort Snelling; Camp Kearney because that is the place Dr. Irvine spoke of; Camp Dodge because it is near to St. Paul; and Camp Cody because it is where your men are. These figures of admissions as they run for the weeks in the months indicated are:



April	During the week
Fort Snelling .....	5
Camp Kearney .....	1
Camp Dodge .....	63
Camp Cody .....	2
Fort Snelling .....	4
Camp Kearney .....	1
Camp Dodge .....	99
Camp Cody .....	4

I might say that Cody has an average number of something like 23 to 25 thousand men; that Kearney is running from 25 to 26 and 28 thousand men; that Fort Snelling is running two thousand men; and that Camp Dodge is running on the average of 23 thousand. I don't know the exact numbers for they are not published. But considering the relative numbers in the camps—one out of twenty-six thousand, and ninety-nine out of twenty-three thousand, and four out of 25 or 26 thousand at Cody, you will find the discrepancies are somewhat remarkable:

March	
Fort Snelling .....	8
Kearney .....	15
Dodge .....	37
Cody .....	7
Fort Snelling .....	7
Kearney .....	2
Dodge .....	51
Cody .....	5
Fort Snelling .....	5
Kearney .....	2
Dodge .....	121
Cody .....	2
Fort Snelling .....	12
Kearney .....	6
Dodge .....	111
Cody .....	7
February	
Fort Snelling .....	4
Kearney .....	5
Dodge .....	27
Cody .....	14
Fort Snelling .....	3
Kearney .....	6
Dodge .....	25
Cody .....	12

It runs along in exactly these proportions. Now I am going to read you what it was before Dr. Irvine went to Kearney. November 9th, admission of 502 venereal cases during the week, with 23,903 men. There must have been, during that week, a draft. (Laughter). Now, gentlemen, that is all very funny, but that means that 502 out of whatever that draft number was had the disease and had it so badly that they had to come on sick report.

That means a great many more than 502 venereal infections coming from a promiscuous assortment of youths from civil communities. Those were admissions. That doesn't begin to touch the number of cases that probably existed. In October, there were 12 admissions in Kearney with a strength of 12,473, then again the 502 cases from 23,903 on November 9th. By November 28th, as a result of Dr. Irvine's activities, there were only 13 admissions from 24,549, with the improvements that followed as indicated by the figures first given.

A word or two as to the explanation for some of this. The explanation for Kearney is the result of Dr. Irvine's methods and the public health enforcement of those methods in controlling that disease—nothing less. Cody's small number is partly due to control and partly due to the fact that they are out on a sand spit and it isn't easy to get it. This is an important factor.

I have overstepped my time but I have just this much to say in regard to a matter that goes hand in hand with the subject. You have heard of the canteen question for many years. I have always been an advocate for the sale of beer in the canteen, under the impression that it was wrong to deprive the soldier of his beer, that he would do better to have his light beers and his minor amusements on the Post rather than go down town to dives to get them. I had been on a Post for a long time where prohibition was enforced rigorously. Then somebody came through with this half beer ("short beer," they call it), in which the dealer puts out a two per cent beer for just long enough to cover his trail, then four per cent, then six; and within a month the guardhouse is full, the hospital full of venereal diseases; the lid is off. The next thing there are two fights at the club. One man loses his way home on a tennis court—an officer. When the private lockers were cut out of the club, beer prohibited from canteen and neither the officer nor the man allowed to get it on the Post, drinking becomes conspicuous by its absence. At the present time I am a strong advocate for the canteen law. It is a fact that if liquor is about and handy, a man will take it; just as soon as he has to put himself to the trouble of a trip to get a drink, insidiously he ceases to use it. The chances are he will spend five out of seven nights without a drink, instead of seven nights indulging. So it is with the other matter; its prevalence varies largely with the conveniences for getting it.

In conclusion, I am of the opinion that the object of this discussion tonight should have nothing to do with ways and means, because they have been worked out. They have been proved. They have been found to be successful. Instead of its being a question of methods that should be discussed tonight, it should be a question of whether or not, or how, you shall co-operate to enforce the method that has been proved to be the correct method, and how you are going to conduct yourselves in falling in line

with the measures that the United States health authorities and the several states (your own one among them) have adopted, because they have proved successful when carried out.

"It is an ill wind that blows no one any good," and I have no doubt that, as a result of this war and these methods that are being followed, the public and yourselves are going to be brought face to face with this measure. Learn to face it as a sanitary measure, and, as a result, venereal disease is going to be conquered, as the German will be, by attrition.

**THE CHAIRMAN:** The paper is now open for general discussion. We will be glad to hear from anyone. Captain Yarnell of the army.

**CAPTAIN OSCAR YARNELL:** I have been very much interested in Dr. Irvine's paper and in the discussion of the paper. It is a great question as to what the results will be. It is unproven. We don't know just the method that will be necessary to control the situation. We know in the past all methods have been failures, and we think that in the army the only method to control the situation is by force. We must control our men. We must have them use prophylaxis and prevent them from coming in contact with possible exposure to venereal diseases.

The problem that Dr. Irvine presents is a civilian problem. We can help only in that we can keep our men from exposing civilians, but we cannot prevent civilians from exposing our men.

I think Captain Lyon can probably give you some points that would be interesting.

**CAPTAIN E. C. LYON:** Gentlemen, I want to say a word for prophylaxis. I have been an advocate of prophylaxis since I have been in the army, and I was before I entered the army. I preached prophylaxis in civil life.

One of the speakers spoke of this as not being an opportune time to educate the public. Personally I think it is the one ideal time. There will be somewhere around, we understand, three million men in the army. They are going to be taught prophylaxis. They are going to be made to take prophylaxis. If the civilian population is prepared for the ideas that these men have when they return home, it is going to make our problem so much the easier.

The troubles that we have over here at the Overland building are from what you might call a floating population. The men come and go constantly because it is a school. When they have completed the course new men come in. That necessitates my talking to the men very frequently. I talk to them about prophylaxis, the requirements of the army for it, and the necessity of their taking it. All the boys that I talk to are very eager to hear it, and their eagerness and lack of knowledge are sometimes really pathetic. They don't know what to do to properly care for themselves. I make a point of teaching prophylaxis strictly and absolutely, leaving out the moral side and all other issues.

I get the new men together by roster. The roll call is made and I have the men brought down from the

new men incoming. I tell them just what prophylaxis is. I call a spade a spade, and I don't mince matters. I tell them when and how and where it should be used, I read them the special regulation No. 29, and explain what it means if they don't take it, and I let them ask questions. I find they learn more by asking questions. They bring up points more than I knew about before. Occasionally I speak about the efficiency of our service. It is very necessary for them to be in good health in order to render efficient service. My main point to these new men is prophylaxis.

One word in regard to our statistics of prophylaxis. Our statistics date only from March 4th when our large detachment of troops came to the Overland building,—when I arrived myself. There were a few men there before but no number of any size. Since March 4th up to today 347 have reported for prophylactic treatment; 327 of these took prophylaxis within two hours after their time of exposure. I lay great stress on that when I talk to the men because the special regulations require them to report at once for prophylactic treatment. Our first new case of venereal disease occurred on April 6th. I mean by that, the first case of venereal disease contracted by men while at our post. We had venereal cases come from other posts but they had the disease when they left the other post and had it when they came here. We have had since the fourth of March to date four cases of gonorrhoea and none of syphilis. The percentage of men taking prophylaxis is around seven per cent of our population. Approximately seven per cent of the men we have had during those two months have taken prophylactic treatment.

Now there is one other side to that, which I want to mention: The number of men who do not take prophylactic treatment and who do contract the disease. The figures I just gave you refer to our prophylactic cases. I am sorry that I stated those as I did: 347 took prophylactic treatment; 327 took it within two hours. There were four cases of gonorrhoea and one of syphilis. We had one case of gonorrhoea, a man who did not take prophylaxis. He was absent for a week and when he returned he had gonorrhoea.

**DR. BRACKEN:** How many men are represented by the figures you gave?

**CAPTAIN LYON:** 347 took the treatment.

**DR. BRACKEN:** How many men have you out there who have come and gone?

**CAPTAIN LYON:** I could not give you the actual number, sir, that have come and gone.

**CAPTAIN YARNELL:** Since the 4th of March there have been approximately 3,000.

**DR. BRACKEN:** I knew that four for your population would be a very small percentage. I wanted to bring out that point.

**CAPTAIN YARNELL:** It would be approximately 2,500, I would say, Dr. Bracken.

**CAPTAIN LYON:** Our population would average about 2,500. Of course a good many of those men have gone and new ones come in. All of our de-

tachments when they come in have a physical inspection, that is a venereal inspection. All, when they go out, have a venereal inspection. They also are inspected twice monthly as required by the regulations.

I am most heartily in favor of prophylaxis, and of preaching prophylaxis, and of educating the public to prophylaxis, because to me it seems to be the practical and scientific way of handling the trouble.

**THE PRESIDENT:** We have with us this evening Lieutenant Olson. It appears that the lieutenant has left. He was here earlier in the evening.

I will call on Lieutenant Beckwith, representing the Surgeon General's office. May we hear from you, Lieutenant Beckwith?

**LIEUTENANT E. R. BECKWITH:** If I attempted to cover the subject along the lines of my official duties, we would be here for the next two hours. I won't attempt to do that. I am the missing link in the problem that you have heard discussed tonight. You have heard it discussed from the military and the civilian side. I speak for both. When we got into this little game a new department was created in the medical side of the army in the Surgeon General's office, a new division of the sanitary corps. There are some men in the sanitary corps who are detailed to civilian work as well as military work, and I am one of them. Law enforcement is our particular duty, and I am concerned with the reducing of this particular problem in seventeen states. I wish to give you a simple statement of facts and figures of what I have seen.

I remember the story of a man raised outside of New England who had heard about the art and the culture and the beauty and the literature, etc., of Boston, and thought it must be a wonderful place, until he went to Boston, when the first thing he noticed was the dirty, narrow streets, etc. Then he said, "I always did think Boston was too good to be true."

I haven't any theories to tell you. I don't pretend and I don't believe that we have entirely solved the problem of preventing venereal diseases. We have certainly known of this problem for six thousand years or, if we accept the code of Hammurabi, twelve thousand years, but we have never gotten anywhere yet. It is quite possible that when this war is over we shall find we are back where we started. But I can speak to you of what we have accomplished for as long as the war goes on. We have certainly done enough for that.

Getting down to facts, when you referred to the twenty per cent syphilitics you were giving regular army figures for some years ago?

**COLONEL GREENLEAF:** That was for recruits.

**LIEUTENANT BECKWITH:** This thing is a civilian problem and properly put before you civilians, and these figures give the reasons. Colonel Greenleaf gave you twenty per cent of the regular army as syphilitics. I want to say it is the officers of the regular army who have made and are continuing to

make our new army. It is the old regular army that is the basis for these figures. I hope this statement will not be misconstrued. What I mean is this: The old army paid thirteen dollars a month for its men and it got thirteen-dollar men. That twenty per cent may be disregarded for our present purposes.

When the draft took a cross section of our civilians, it took what might be presumed to be the best right along with the worst of them. As a matter of fact, it took more of the best. Under this new law came men of the best, under the stress of our need, and yet for the first three weeks that those drafted men came in they brought a venereal (not only syphilitic) percentage of 38.8, and for five weeks they brought 41 and a fraction per cent, and for nine weeks 21.2 per cent.

On your Camp Dodge figures; I happened to visit Camp Dodge two or three weeks ago. The largest part of those figures were transfers from outside. There were fourteen infections in the month of March originating at the camp. The others were transferred there chiefly from Columbus barracks. I went into those figures with Colonel Shutt. As a matter of fact, Camp Dodge is good so far as its local conditions are concerned. On the point of proportion—they gave 1,347 treatments, showing prophylaxis efficiency of 99 per cent. I firmly believe that the efficiency of that prophylaxis rests on the fact that there is a prophylaxis station in the city, the camp being eleven miles away.

I do not mean to be impertinent. I feel this especially as I am your guest. But two of the speakers spoke with force. They spoke out of evidently a wide experience, but both of them took a wrong attitude. The first one spoke of prophylaxis. Well and good. I just gave you a 99 per cent efficiency record for prophylaxis. He disregarded Dr. Irvine, or ignored him, or passed him by, with a statement that he perhaps did not mean: that prophylaxis was the only means to be relied on. But how about the men who either have now or have had the disease in the active stage? Prophylaxis won't reach them.

Talk about education. Fine! Nothing matters but the truth. But are we going to put this war off until we educate our people? Our present responsibility is the little game that is going on at the present time. Of course education is fine. Isn't it a fact that these venereal diseases are the very last diseases that your very noble profession has not conquered? How did the medical profession overcome typhoid fever? How did you keep people from drinking infected water? You did it by legislation. Of course legislation has not put a stop to the malady. But the crimes of violence are still going on, yet you would not attempt to get along without a law against them.

The venereal rate in our whole army, nearly two million men, is better than it ever was in the regular army of two hundred thousand, and yet we started with that enormous percentage. At the same time we have abolished seventy-five segregated districts

within easy striking distance of camps. You can go back of those figures if you want to. I have no time to discuss segregation. I can only give you the facts. When we find these places we hit them in the head. If you had one around here it would be in trouble tomorrow. I don't know about the theory, but the venereal rate has gone down because the venereal opportunity has been reduced.

I do want to say that Dr. Irvine brings to you a program that has no theory in it. All of your speakers theorized continuously. That is the duty of the scientific man—to work out inductive theories. I speak to you officially. I wouldn't dare speak as I do if I were not here officially. I would bring to your attention the experience that we have had over a large part of this country. I bring to you the statement that the method that Dr. Irvine outlined to you has been tried, is being tried officially, is recognized, and promulgated by every official health agency in this country. Every official health agency has followed that particular plan. It has the approval of the Surgeon General of the Army, the Surgeon General of the Navy, the United States Public Health Service, and the American Medical Association—unless I am mistaken about the last; I know about the three officials above. As to how it works, I can say that it works. Education is fine. It will be all right for us to go on with that for the next forty years, but right now we must remember that we have a little scrap on our hands.

It is the civilian population that we have to consider because the men come from civilian life. The labor problem, the loss from what is known as turnover of labor, and inefficiency are increased by reason of the ravages of these diseases. Ask any employer of labor and most of these will put it at least fifty per cent. It is a civilian problem.

There never has been a doctor, who is honest (and 99.9 per cent of the doctors are honest), who is afraid to face facts. It is your job to educate the people and prevent the spread of these diseases. For God's sake, let's quit arguing and reasoning about it. The method has been adopted. There is good in it. No one is fool enough to say that these official bodies would adopt it if it wasn't good. We will have to give it all we have got and if we don't succeed, then will be the time to kick about it.

THE PRESIDENT: Anyone else wish to be heard on the subject? Dr. Bracken is with us. We should like to hear a few words from him.

DR. H. M. BRACKEN: I will take but a minute of your time. Before the present war I was not in sympathy with any movement by the State Board of Health looking to an attempt to control venereal diseases; I felt that we would be called upon to take the problem up from the moral point of view, and I believed we would fail. The war has placed before us a very definite problem and we should take advantage of this opportunity.

Nearly all of the discussion this evening has been with reference to the man. This is reasonable when

we are dealing with the war problem, but does it occur to you that we have something to do with our civilian population along these lines? We have been told that all men are bad and that they will stay bad. Let us admit this at present rather than delay the argument. There are women and children, and it is our duty to protect them.

It is admitted that a considerable percentage of those who suffer from venereal diseases are unfortunates who have contracted the disease innocently. We have heard a great deal tonight about prophylaxis, but there are other activities for health officials, viz., to see that those who have these diseases do not spread them to others. This means following up the treatment of the infected until they are no longer infectious.

Reference has been made to the reporting of these cases. The chief function of reporting is to make it possible to keep track of these infectious individuals and see to it that they are kept under treatment until they are no longer infectious. If physicians give their aid, there is no reason why this should not be done, with our present knowledge of these diseases. Why should we allow these people, who voluntarily become infected (let us admit that fact), to infect the innocent and spread these diseases as they are now doing?

We, as physicians, may leave the moral question for others to deal with, confining our work to the active control of these diseases. Some of you say there are no moral boys now. Fifty years ago there were; the morals of this country were of a higher standard than those of many European countries. It is an unfortunate fact that the morals of this country as related to venereal diseases are not of as high a standard as they were fifty years ago.

Now if we cannot take advantage of the war conditions, if we cannot come out of this war a better people, if we cannot raise our standards as related to the control of venereal diseases, then we are going to lose some of the benefits of this war.

THE PRESIDENT: Before asking Dr. Irvine to close I will again offer anyone the floor. (Pause). Dr. Irvine.

DR. H. G. IRVINE (closing the discussion): I am very glad that many points not brought up in the paper were covered by the discussion, for as stated at the beginning, this paper was not intended to cover the subject in general, nor to in any way present the entire plan of venereal disease control.

This question of regulation, or attempted regulation, of prostitution, as against suppression of prostitution, has been one of the things that we have had constantly to meet, and I am sorry to say that, in attempting to carry on this work in the civilian communities, in co-operation with the Surgeon General's office and the War Department, we have frequently had experience with physicians who made misstatements because they were uninformed, or misinformed. I don't believe that there is a man here who is in favor of an attempt at regulating

prostitution who will continue so to think when he knows the facts. I am certain that every man who advocates allowing so-called segregated districts is not yet conversant with the facts in the case. One has only to go into this thing and read the actual figures about it to see what it has meant. Doing away with the "red light district," and the "open house," cuts down the volume of exposures, and any time you cut down the volume of exposures to communicable disease you are bound to have some effect on the number of infections. That is exactly what takes place when you close these districts. A woman in a licensed house may see twenty men a night. A prostitute who is not under police protection will not see so many. She may see two or three, or three or four, and in either case no system of medical examination or inspection will keep them free from disease. You have reduced the exposures. That is going to have some effect.

As to the argument that doing away with a "district" only scatters the evil. I am sure you will find, if such is the case, one of two things, either your police department has not attempted to follow and arrest these people wherever found, or if the police are doing their duty they are not being backed up by the courts. I mean by that, that the courts either dismiss entirely or punish only by fines. It has been demonstrated by careful investigation in many places that where the police are vigilant and the courts give jail sentences, there is little or no complaint of scattering. (See report of the Committee of Fourteen of New York). I can give you some figures from army statistics around San Francisco. As you perhaps know, there was until a comparatively short time ago a district in San Francisco, I refer to the notorious "Barbary Coast"—a thing so rotten and depraved as to make any civilized community ashamed. A lot of very good citizens thought it was a mistake to put this out of business because they had been told, even by physicians, that that was the only way, that such a place was necessary, and that it might better be licensed. They didn't realize that while they had this district they also had plenty of outside places, this was largely because attention was centered on the district and not because other places were lacking. Investigation has shown that in every city where they had a district, they also had all the clandestine places, all the rooming houses, and so on, that they had after closing up this district, but only after closing the center was attention attracted to the outside places. When the "Barbary Coast" was closed in San Francisco the police judges, and the police department to a certain extent, were not in sympathy. They allowed it to scatter and to go on as before, practically every arrest was allowed a \$5.00 bail, which was promptly forfeited, or if they came into court, it was only for a dismissal. This was the condition in October before an effort was made to put the program into force. In that month about 400 cases went through the courts.

In a group of seven or eight thousand army men coming into San Francisco there were about nine hundred prophylactic treatments and there were something over two hundred infections. Now, within thirty days' time of the day upon which we got the police judges to agree to give jail sentences, and an active "morals squad" was at work, and examination and isolation was enforced with all infected individuals, prophylactic treatments were reduced to six hundred in a larger group of men and the infections cut in two. This was done quickly. There had not been time for very much effect from the educational or control standpoint in those men. The law enforcement was the only thing radically changed. In the same city in February there were only eighty-five women prostitutes arrested. You may say the police department was at fault in the smaller number of arrests, but I want to tell you that the "morals squad" was very active, that there was a very efficient provost guard on the street in uniform, and in addition there were skilled investigators under the Department of Justice, and yet only eighty-five women were arrested. Infections in this group of soldiers had been reduced to fifty, and prophylactic treatments cut down to about three hundred. At the same time the number of men had increased to about 17,000. That is very suggestive. It doesn't prove things, but it is very suggestive of what the work will do.

I think that the figures that Colonel Greenleaf gave on Camp Kearney demonstrate the success of this program—the co-operation of the civil and military authorities, the putting out of business of open houses of prostitution, the securing of decent detention homes where some system of education can be offered. In the old method the offenders were put in jail for a few days, allowed to remain diseased, and then allowed to go on with their old life. A definite constructive thing is now being attempted.

I don't think anyone is willing to go on record as saying this is a theory, that we can't do it. I think I can agree heartily with Lieutenant Beckwith that it won't work if you sit back and say it can't be done. We have had this thing with us thousands of years, that is very true, and you may say for this reason we are going to continue to have it with us,—but there have been a lot of new things done since this war that we didn't imagine could be done. Who would have thought a submarine could travel across the ocean, until the Deutschland demonstrated it could? Gentlemen, I want to tell you that times change; that things we could not do before, we can do now if we try.

In the matter of prophylaxis, I want to say this subject is a complex affair; an attack, no matter how strong, from one angle is not going to get far. We must support the moral side, we must preach continence, we must use prophylaxis where available. This whole thing is going to go as far as the public opinion of the community will support it. I don't believe that the public preaching of prophylaxis, that

the advocating of it only, will receive the support of the community at the present time, and I don't believe it is safe to advocate it publicly. I believe it ought to be done through the clinics. I believe the support of the people in civil life will accomplish a great deal. There is, therefore, the question of how this ought to be advocated. I think that Lieut. Beckwith suggested the proposition that you can't go beyond a certain point. I think it should be a definite purpose of dispensaries to educate. I don't believe it would be a good thing to put this in the newspapers, or to advocate a prophylactic package. That thing was tried in the navy and discarded. They don't ordinarily discard things where they have a chance to try them unless they have a reason. In the army and navy the men are under absolute control and have to do as they are ordered. When they find a thing doesn't work, we can believe it doesn't. They have a much better opportunity to try it than we have. I think we ought to advocate prophylaxis to the individual as we come in contact with him. Anything that the public will not stand for we can't get far with.

I would like to explain, with regard to the Camp Kearney figures, the 520 admissions in one week. I think most of the men in the army realize that whenever an order comes for a transfer from one camp to another, it has been the program to send out the worst ones, and transfer them. This particular group that they received down there was the result of such a transfer from Camp Lewis. Those in the work in California don't accept the responsibility for that number. There were in November approximately six hundred and fifty venereal disease cases in the camp. When I was in the camp in March on a visit, there were less than one hundred cases out of twenty-five thousand men. Colonel Greenleaf has given you an idea of the admissions.

I hope that this Society, as a Society and as individuals, will feel that it is their duty at this time, if at no other, to do the things which the government is asking you to do; that is, co-operate in carrying on this plan. This plan has not been developed haphazard. It has been worked out by a group of men who have investigated this thing both at home and abroad. Men like Pusey don't come out and advocate a thing like this without thinking about it. Two or three years ago you who know him, would have thought that Dr. Pusey would be perhaps the last man on earth to get into such a thing. Dr. Pusey at the present time is one of the most enthusiastic advocates of this in the country. I had occasion to talk with him a month or so ago in Washington, and he was tickled to death with the experience in some of the camps; he said that in spite of the general skepticism, this program had worked out better than they ever imagined it could work.

## FRACTURES OF THE TIBIA.\*

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According to the most available statistics, fractures of the leg constitute from 5 to 10 per cent. of all fractures. In an analysis of 2,800 fracture cases that have been treated among the employees of the Northern Pacific Railway during the last 12 years, 15 per cent. were fractures of the leg. In 12 per cent. there was a fracture of the tibia, and of these fractures of the tibia 15 per cent. were compounded at the time of injury.

These patients were for the most part employed in the more hazardous occupations incident to railway operation. It is difficult to determine accurately the nature of the force causing the injury. Falls from moving trains and gasoline car derailments were the most frequent causes. The patient usually is unable to say whether he was struck by some object or whether the force of his fall caused the injury. The compound fractures were most frequently caused by the impact of some heavy object. The crushing force in some instances caused very severe shattering of bone and extensive destruction of soft parts.

Infection in the compound fracture has not been severe except in rare instances. Even when the ends of the bone protruded and were soiled by cinders, the sepsis has not been as severe as would be expected. Tetanus has not occurred in any of these cases. Only one case of tetanus has been treated in our own institution in the last 12 years. In ordinary practice many more cases would undoubtedly have occurred. The soil on the railway right-of-way must be comparatively free from tetanus germs.

The patients were usually young adult men in good physical condition. Healing in these individuals was prompt. There were but few pathological fractures.

Complications such as delirium tremens and pneumonia were rare, even when concomitant injuries were present.

The problem is: to secure a functional result, both in the bone as a support, and to the adja-

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cent joints; to reduce to a minimum the loss of time; to obtain an anatomical result that is as good as can possibly be secured, considering the nature of the injury. The anatomical result, while the last consideration, must not be overlooked. With the general use of the X-ray it is unsafe to discharge a patient until he has seen the X-ray pictures of the injured bone. If the pictures are shown and explained early, he can be given the option of open operation and then no blame can be attached to the surgeon. Every deformity, though demonstrated only with the X-ray, has a definite money value and the employer will likely be called upon to pay.

The first-aid treatment in closed fractures consists in the application of splints that will immobilize the leg and adjacent joints, with due regard for the swelling that will follow. If reduction cannot be attained easily it is unwise to make extended effort until proper facilities are at hand. If reduction can be secured and a permanent dressing can be applied before swelling has occurred, it minimizes the difficulties. The special interest and advance that has been made in the first-aid treatment of all kinds of wounds has done much to prevent the development of infection in compound fractures. Under the old régime these injuries were given altogether too much treatment. It has been found that more infection was carried into the wound than could possibly be removed. Ordinary cleanliness, the use of tincture of iodine and sterile dressings are all that will be of service to the patient.

Diagnosis.—A proper diagnosis cannot be made without the use of the X-ray or the general anesthetic. The X-ray should make possible an accurate diagnosis without discomfort to the patient and before the anesthetic is given. It is impossible to make out accurately the extent and nature of the lines of fracture, fissures in the bone, and partially detached fragments, without the X-ray. Except in the occasional case, where there is little or no displacement, the anesthetic should be given. A safe rule to follow is to give an anesthetic to every fracture patient. A surgeon is much safer when his treatment is questioned if he can say that an anesthetic was given.

Fractures of the upper end of the tibia are more difficult to diagnose than to treat. There

may be no crepitus and the loss of function incomplete. Fractures of the tubercle, or even a very considerable fissuring of the head of the bone, may be overlooked if the X-ray is not used or if the roentgenograms are indistinct. Injuries to the spine of the tibia can be properly diagnosed only by X-ray.

The weakest and most frequent site of injury to the shaft is at the junction of the middle and lower thirds. This, as well as the entire crest of the bone, is easily palpated and a fracture can be ordinarily diagnosed by running the finger along its prominent ridge. The condition of the fibula must be determined, as a concomitant fracture of this bone complicates the treatment. Fractures of the lower end of the tibia and involving the ankle do not come within the scope of this paper.

Treatment.—In a very considerable percentage of fractures of the tibia there is no displacement. A transverse fracture may be incomplete, or a fissuring of the bone may be quite extensive, without disarrangement of any of the fragments. In these cases immobilization of the leg with the knee and ankle will give a good result. We have seen no difficulty in treating fractures of the upper end of the bone. Fractures of the tubercle may necessitate operation if immobilization with strapping does not maintain position.

If there is any considerable displacement of the fragments, and particularly if the ends of the fragments are irregular, it is often very difficult, or impossible, to secure good apposition without incision. It is useless to apply force in attempting to reduce these fractures. Traction and gentle manipulation will accomplish more. It often happens that there is a spike of bone projecting posteriorly from one fragment. The soft parts of the calf become impaled upon this and cannot be liberated without open incision.

Most of these irregularly transverse fractures are best treated by open operation. When these are opened and reduced these irregular tongues of bone fit accurately into the corresponding mortise and effectually prevent displacement. The wound may be closed and plaster applied without danger. This is a very simple and easy way to solve the difficulty. It has the advantages of any open operation, namely, removal of clot, accurate diagnosis, and reduction. It re-

lieves the necessity of the added trauma and complications incident to the application of any internal splint.

The metal plate is a very useful and easy way to hold fragments in position. Our experience has been uniformly good as far as end results are concerned. The plate with screws may be removed from the tibia under local anesthetic, after it has served its purpose, and with but little inconvenience to the patient. If removed early, the bone absorption around the screws will be limited.

The bone graft as a holding splint, so ingeniously applied by Albee, involves a technique that to the average surgeon is difficult. Any error in judgment or technique may cause serious trouble. The autogenous bone graft is indispensable in cases of non-union or where a bone defect must be bridged. Bone grafts have not been used as extensively as plates, but when they are, and are subjected to the same abuse as the plate, they will come in for their share of blame for bad results in fractures.

In compound fractures, much depends upon first-aid and the treatment immediately thereafter. A small opening in the skin may heal kindly and the case may be treated as a closed fracture if the wound is given a proper opportunity to close. Any added trauma from instruments or from fragments of bone may severely complicate the case. The fragments should be placed in position as early as possible. Just when this should be done, and what appliance should be used to maintain position, are questions to be decided in the individual case.

Open plaster dressings with arched strap-iron stays over the wound are very useful. This immobilizes the bones and allows room for dressings. A three-sided fracture box extending above the knee, and with the floor removed for the heel, makes an admirable splint. It is convenient for dressings and inspection, and is comfortable for the patient.

A double inclined plane splint tends to limit extension of infection upward, and also gives a gravity extension to the leg. Traction by means of adhesive straps and weights is difficult to apply when the fracture is low.

The treatment of these wounds, according to the Carrell-Dakin method, is apparently a great

advance. It has been very satisfactory as a means of limiting infection.

At the end of the third week, unless healing is delayed, removable splints are applied, and massage and passive movement to the joints is commenced. Even before this, some movement can be given to the toes and to the metatarsals. It is much easier to keep the foot and the joints from becoming stiff than it is to cure them after the damage is done. The splints can be removed temporarily during the treatment, if the leg is properly supported.

We have recently exposed these joints to concentrated electric light. The same method was used as recommended by Crile in exposing wounds to light. There is a heat and hyperemia resulting from this treatment that is beneficial.

The splints are removed when the union is firm. This is determined not by the lapse of any specified time, but by examination.

#### DISCUSSION.

DR. HARRY P. RITCHIE, St. Paul: I was interested to note Dr. Ide's statement and his observation that the compounding of a fracture of the tibia was not necessarily a serious disaster. This coincides with our own experience. We have been able to control this situation satisfactorily by the generous use of iodine in three and a half per cent. solution, and in this great wave of popularity of the newer compounds we must not forget the efficiency of this agent. The situation has been controlled to such an extent that we have come to look upon the prognosis very favorably in cases of a transverse fracture on the one hand, or an oblique or spiral fracture on the other. A simple transverse fracture can be reduced comparatively readily and can be held in position by almost any kind of splint. It is quite evident that traction and extension in some form is necessary for the approximation of a spiral or transverse fracture. Usually, the popular method has been to apply a circular cast, at the same time applying extension to the heel. Those of you who have occupied the position of foreman at such an operation know how difficult it is to maintain even constant traction on the limb. I think a great many of the gross deformities have resulted from the fact that some time during the operation the extension has been changed or let up and we have thought the fracture was reduced when it was not. The application of a circular cast requires a lot of skill, with the idea of future swelling, and when the swelling disappears there is no chance for the parts to slide by, so that when the cast is removed in from five to six weeks we have a gross deformity. There is a great temptation to open these fractures and apply some foreign material to hold them in position. I



have a confession to make, namely, I have yet to apply a Lane plate, although my experience in removing them has been considerable. Those who have sought for Lane screws in fibrous and osseous tissue will agree with me that the failure of a Lane plate is a catastrophe.

In the last year or two we have been quite enthusiastic in the use of the Steinman pin. In our public work with Dr. Law and private work with Dr. Daugherty, we have used this pin on several cases. It is easily applied and gives no discomfort to the patient. It permits of constant extension for a long time, and what is best of all, the ease of an open splint, so that the fracture may be daily inspected, if it is compounded. It may be daily dressed; and in several cases, even those cases that have been infected, it has been demonstrated early that there is an overriding of the part when pulled into position and held by the Steinman pin. So from what experience I have had I am led to advise that the circular splint in the management of these fractures be absolutely discarded, that the open method of treatment and the introduction of foreign bodies be limited to exceptional cases, and to advise a trial of the Steinman pin and the gutter cast.

DR. E. S. MUIR, Winona: I have been extremely interested in this paper and also the discussion, because we in Winona had an epidemic this summer of fractured legs. There has been no time during the summer that we have not had seven or eight cases of fractures in the hospital. Most of them were compound fractures, and very many of them badly comminuted. The necessity arose in a percentage of these cases for the open treatment to maintain the fragments in the proper apposition. Our experience has been that with the use of Lane plates, carefully applied, without hand contacting of the wound, the results have been very gratifying. I think the condemnation of the Lane plate in the treatment of fractures has gone a little bit too far, because we all recognize the necessity in these cases of the fragments being held in proper apposition, and there is nothing that will do it as nicely in my estimation as a properly applied Lane plate, admitting, in a certain percentage of cases, we must go after our hardware. But this percentage is not so high as one is led to believe regarding the number that are removed. Many of these Lane plates have been applied in cases where under ordinary circumstances they are contraindicated, in open fractures. I have applied many of them in open fractures where nothing else would hold the parts in close apposition. Most of them have healed in and given no trouble whatever. In a few cases we have had to remove them.

One other point that I want to add my endorsement to is the dressing of these fractures open so that they may be observed. You can apply a posterior plaster splint made on the table, with the plaster applied back and forth lengthwise on top of a many tail binder, or a piece of muslin stripped, so that when you pick it up you can apply it so rapidly

that the plaster has not time to harden. You place it on the back part of the limb in position and tie the tails across and leave them until the plaster becomes hard, then take a scissor and cut off two and leave one, and you have a splint that accurately fits the limb. It can be removed in three minutes by untying two or three tails that were left. It permits of constant inspection and, at the same time, close apposition to the individual leg. The trouble with the average splint that is made in the shop is that it will not fit everybody's leg, and all legs are different. If you can make your own splint at the time it is a great convenience and it fits much better than the ordinary one.

DR. A. J. BRADEN, Duluth: In a considerable experience with fractures of the leg I have evolved a system which is very simple and gives me satisfactory results. In the first place, I never apply a circular plaster of Paris splint on a recently fractured leg. If the case is one of simple fracture, I usually apply the pillow splint. I take a large pillow with a stout unbleached cover, bend that around the limb, and then take pieces of sheet wadding, and folding, place them about the leg to bring elastic pressure in any place it may be needed, and fastening the pillow, cover with large safety pins. I can take out one or two pins and inspect the condition of the fracture at any time; I can make any adjustment that seems to me necessary, fasten up the pins again, and it only takes a few minutes of time. It does not take long to put it up. You do not need elaborate apparatus or anything of that sort. This is usually left with frequent inspection for six or eight days to twelve or fourteen, at that time I would apply either a circular or moulded splint of plaster of Paris.

If we wait until the swelling has disappeared and the fragments are held in place by the inflammatory exudate surrounding the fracture, it is easier to keep the fragments in proper position while the dressings are being applied. If the fracture is compounded, I think the suggestion of Dr. Ide is excellent. I would apply a circular plaster of Paris cast above and below the fracture. With the fracture thoroughly reduced and under strong extension apply three pieces of strap iron. Curve outwardly at point of fracture, and secure in place with additional plaster bandages. A compound fracture put up in this way can be dressed and handled as necessary without danger of being displaced.

Another thing I always aim at, and that is to prevent pressure of the bed clothing on the foot and getting it out of position. While the patient is entitled to just as good an anatomical result as it is possible to get, I would call attention to the fact that one thing we should guard against is the rotation of the leg below the fracture.

If the foot is kept in proper position and axial deviation prevented, a good functional result may be secured even if there is considerable deformity.

DR. M. S. HENDERSON, Rochester: I would like to ask Dr. Ide if in this series of cases he has had any cases of nonunion?

DR. A. A. LAW, Minneapolis: I would certainly hold a brief in favor of the Steinman as an agent in extension. There are compound and comminuted fractures involving both bones of the lower third of the leg, where it is physically impossible to put on an apparatus which will permit of adequate extension; when the fracture is markedly oblique, extension is very necessary to overcome overriding and deformity. When the fracture is compound and close to the ankle joint, you must have something which will permit of proper extension and yet will still give access to the wound for dressings. The Steinman pin can be thrust through the os calcis under slight nitrous oxide anesthesia, in ten seconds; it will not only insure good control of the fragments but will as well permit of the proper use of the posterior moulded plaster splint. This gutter splint should be applied from above the knee, with the knee in slight flexion, bringing it down under the sole, and also up on both sides of the foot to control eversion or inversion.

When the Steinman pin is used it is not necessary to invade a region where the vitality is lowered by trauma or infection, but go below the injury and through the os calcis as I have indicated. We have had no cases of infection following the use of these pins. In certain fractures of the femur, either high like the subtrochanteric, or low as in the supracondylar, the pin thrust through the condyles is a distinct aid to treatment as it insures extension yet permits of the use of other dressings as well, viz., the Hodgden splint and the double inclined plane. As to the use of the band suggested by Parham of New Orleans, in long oblique or spiral fractures which cannot be controlled without an open operation, it is of great value. When there is interposition of muscle or fascia between the fragments in these fractures it is next to impossible to retain the fragments in position using the ordinary splints. In these cases I would commend to your consideration the so-called Parham band, which is simply applied, and does not require the drilling of the bone nor the use of screws. It as well leaves less hardware in the tissues.

DR. ARTHUR W. IDE, Brainerd (closing the discussion): With regard to the Parham band, I like it for fractures of the femur and the humerus. I have never used it in fractures of the tibia; the attachment there is firm and the bone is irregular in outline. I would not consider it favorably for this bone. It is a very fine device, especially in oblique fractures, and also in comminuted fractures, in that it will allow of a firmer replacement of the comminutions.

In regard to the question asked by Dr. Henderson relative to nonunion, we have had no cases of absolute nonunion in this series. We have had quite a number of cases of delayed union, sometimes extending over a considerable length of time, but we have always managed to get union in some way or another when we had the full co-operation of the patient.

I was much interested in what Dr. Ritchie and Dr. Muir had to say about the Lane plate. I realize fully that the Lane plate is in rather bad repute at the present time. Anyone who has had experience with the plate realizes that there is danger in using it, but, it seems to me, in fractures of the tibia it can be used, although I am not advocating its use there. In a fracture of the forearm I would hesitate to put on a Lane plate, but in a fracture of the femur I do not object to the use of the plate. If the plate has to be removed there is no serious drawback. The plate can be put on in a fairly superficial position where it can be easily gotten at and removed under local anesthesia with but little discomfort to the patient, and it does not prolong the disability. While there is absorption around the screws, still that absorption, as I said in my paper, will be limited if the plate is removed early.

In regard to the circular cast, I think none of us would put a circular cast on a fractured leg where there was possibility of any swelling. Some other means must be advised. We must not restrict the circulation. We have all seen what happens if a circular cast is put on too early.

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#### DIFFERENTIAL DIAGNOSIS BETWEEN ANTERIOR POLIOMYELITIS, EPI- DEMIC CEREBRO-SPINAL MEN- INGITIS, AND TUBERCULOUS MENINGITIS.\*

C. C. PRATT, M. D.,  
*Mankato, Minn.*

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The main object in bringing this subject up for discussion is to emphasize two points. First; The ease with which spinal punctures can be done and the valuable information obtained from an examination of the fluid. Second: The urgent need of correct diagnosis at the earliest possible moment.

Early diagnosis is of the utmost value in controlling the spread of a disease to the surrounding community, and prompt, definite reports to the state epidemiologists are infinitely more valuable than delayed or vague ones.

To the individual patient, a prompt diagnosis may mean life or death as illustrated by a case which came to autopsy some time ago. This was an infection with meningococcus of epidemic cerebro-spinal meningitis in which Flexner's serum was injected into the canal

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\*Read before the Southern Minnesota Medical Association, Fairbault, Minn., July 24, 1917

without any apparent results, though the case was known to be correctly diagnosed. On opening the cord membranes, that portion of the cord for two inches below and an inch above the site of injection was found to be apparently normal, but the fluid had not been diffused up and down the canal because the disease had progressed so far that the fibrin had formed an impossible barrier. If this case had been treated earlier, the whole cord might have been saved in the same condition as that portion reached by the serum injected.

I shall confine myself to the comparison of the fluids in the three diseases, poliomyelitis, tuberculous meningitis and epidemic cerebro-spinal meningitis.

If one is not equipped to study the fluids as soon as withdrawn, the three laboratories of the State Board of Health at Minneapolis, Duluth or Mankato have a supply of sterile containers put up especially for this purpose. I have had some slips prepared stating in concise form the main points concerning the three fluids and will be glad to give them to any one who wants them.

Lumbar puncture in 90 per cent or more of cases yields a definite result. In general, it may be stated that, irrespective of the severity of the symptoms, lumbar puncture yields in cases of poliomyelitis a fluid, usually clear, but showing either morphological or chemical changes or both.

These changes in the cerebro-spinal fluid, especially during periods of epidemic, should be regarded as presumptive evidences of poliomyelitic infection.

The usually clear fluid is sterile and sometimes a slight fibrin web forms in it. In exceptional cases the fluid may be cloudy or even bloody. The presence of blood generally indicates a faulty technique.

The number of cells is definitely increased. The normal fluid contains from five to ten cells per c. m. m. while in poliomyelitis the number of cells is increased from ten to twenty up to one hundred or more.

In the early stages, before paralysis has made its appearance, the chief type of cell found is the polymorphonuclear. Sometimes they form 80 to 90 per cent of the cells present. After the appearance of paralysis, the cells found are chiefly lymphocytes and from 75 to 100 per

cent of the cells present are of the mononuclear type. There is also the presence of large mononuclear cells of an endothelial type regarded by DuBois and Neal as rather characteristic of poliomyelitis. There are also phagocytic cells present.

We should remember that even a slight admixture of blood may account for a certain number of polynuclear leucocytes. The cells rapidly disappear from the cerebro-spinal fluid so that after the first two weeks the count is either normal or nearly so.

The fluid usually gives a very definite reaction for globulin, which is, however, not as pronounced as that found in the various forms of meningitis (Pandy).

During the first week about one-half of the fluids show an increase of globulin which increases, generally, up to the third week when it decreases.

If the fluid reduces Fehling's it means nothing, but if it fails to do so it is a point against poliomyelitis.

In tuberculous meningitis, which may resemble poliomyelitis closely, the fluid is usually markedly increased, thirty to one hundred and twenty c. c., and is usually under decided pressure. On standing, a clear fibrin web usually forms, and this is much more marked than the slight web sometimes in poliomyelitis. This contains a great many cells and if transferred to a slide and stained, tubercle bacilli can usually be found if time enough is spent in searching. The cells present are lymphocytes, which form about 95 per cent of those counted. The reaction for albumen and globulin is much more marked than that seen in poliomyelitis. In about 25 per cent of the cases, Fehling's Sol. is not reduced. Guinea pig inoculation shows tuberculosis in about four weeks.

In cerebro-spinal meningitis the pressure of the fluid is definitely increased, and also the amount, very much as in tuberculous meningitis. The fluid is turbid or cloudy, or may be this change has progressed so far that the fluid is semi-solid. The cells present are polymorphonuclears, up to 98 per cent. The organisms are meningococci, Gram-negative intracellular diplococci, which readily grow on fresh Löffler's blood serum, aerobically. Albumin and globulin reactions are as in tuberculous meningitis, and Fehling's may or may not be reduced.

# Minnesota Medicine

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June, 1918

No. 6

## EDITORIAL

### AN IMPERATIVE APPEAL FOR MEDICAL OFFICERS.

An urgent and imperative appeal has been issued by the Surgeon General of the United States Army for doctors for the Medical Reserve Corps.

There are now somewhat over 15,000 officers of the Medical Corps on active duty and the Medical Department has reached the limit of medical officers at the present time available for assignment. With these facts before the medical profession of this country, we believe that every doctor who is physically qualified for service between the age of 21 and 55 years,

will come forward now and apply for a commission in the Medical Reserve Corps.

The Surgeon General says: "So far the United States has been involved only in the preparatory phase of this war. We are now about to enter upon the active or fighting phase, which will make enormous demands upon the resources of the country." The conservation of these resources, especially that of man power, depends entirely upon an adequate medical service.

Drafts of men will continually follow drafts, each of which will require its proportionate number of medical officers, and there are at this time on the available list of the Medical Reserve Corps an insufficient number to meet the demands of these drafts.

The real necessity for the complete mobilization of the entire profession is imperative. It is not a question of a few hundred men volunteering for service, but of the mobilization of the profession for the conservation of the resources of this country. Let every doctor who reads this editorial and appeal from the Surgeon General, which appeal is based upon dire necessity, act promptly and present his application for a commission in the Medical Reserve Corps at the nearest Medical Examining Board. If you are not informed of the location of your Board, the Editor of this journal will advise you.

### THE CARDIAC SCHOOL AT FORT RILEY.

We are indebted to Lieut. R. Edwin Morris, M. O. T. C., Fort Riley, Kansas, for the following very interesting information concerning the splendid work being carried on at the Cardiac School at Fort Riley:

The beginning of the Cardio-vascular Service in the United States Army goes back to the early part of last July, when the late Dr. Janeway, under the direction of the Surgeon General, gathered together groups of cardiac specialists, and detailed them to the various camps and cantonments. Certain ones were attached to the Division Headquarters, and examined referred cases from the various organizations therein, while others were organized into cardio-vascular boards, whose duties were to examine the referred cases from the various increments of the incoming draft. On their reports, the recruits were accepted or rejected.

This method proved highly satisfactory. But in order to systematize and simplify the work, and also to provide a larger number of men available for recruiting service, it was determined to conduct this course of instruction at the Medical Officers Training Camp, training the student officers in the technic of examinations and the interpretation of their findings, so that they might become more proficient examiners, if needed in the next draft.

This course of instruction is given by two different methods. Lectures are given to the various student companies, and in addition, each week, student officers are detailed for a course of instruction in internal medicine, devoting their mornings to instruction in tuberculosis, and their afternoons to cardio-vascular diseases. Here a most intense course is arranged. It is supplemented by lectures and followed with a constant clinic, the material for which comes from the examination of recruits; not only the enlisted personnel, but the student officers themselves undergo a rigid physical examination, and cases presenting cardiac lesions are referred for a more intense cardiac examination. This furnishes more material than can possibly be used (over 500 cases in two months).

As the students develop, they work in groups under direction of the older members of the section, and examine cases, making their report on blank forms. Their detail being completed, if they show ability, they are retained for another week or permanently assigned. The older men of the section are used for instructors. The greatest trouble has been in keeping ahead of the calls on the department for experienced men to be sent to some distant station.

The amount of clinical material is wonderful, and the variety and type of cardiac lesion is endless. The remarkable factor is the number of definite organic lesions that come with perfect compensation. At the same time it is of the highest interest to note the cases with definite lesions that have slipped by, through one means or another, and who under the intense strain of training, break down and are referred in extreme stages of decompensation. So that the clinic presents the type of cardiac lesion seen in every-day life, from the earliest to the

more intense, and not the type of the old chronic as are seen in the various hospital wards of the larger cities.

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### **THE ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION THIS MONTH IN CHICAGO.**

As published in our last issue, the Sixty-Ninth Annual Session of the American Medical Association will be held in Chicago this month, June 10-14. The program appears in full in the Journal of the American Medical Association of May 11. By referring to that issue our readers can see at once the high degree of excellence of the papers promised. On the evening of Wednesday, June 12, there will be a military meeting at which representatives of the Medical Corps of our allied nations, together with other distinguished medical guests, will speak on medical war problems. On Thursday evening, June 13, a general popular patriotic war meeting will be held in the Auditorium Theater, when distinguished citizens of Chicago will present the appeal of the United States in the present war from the viewpoint of loyal citizenship. In addition, several special features of general interest are promised. The list of hotels designated as general and section headquarters has already been published in our May issue. "*Minnesota Medicine*" hopes that a full attendance will represent this state at the meeting.

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### **THE SOUTHERN MINNESOTA MEDICAL SOCIETY MEETING THIS MONTH AT WINONA.**

The Southern Minnesota Medical Association holds its summer meeting June 24 and 25 at Winona. A most interesting program is promised and is printed in full elsewhere in this issue. Special attention is directed to the afternoon session of June 25 which will be held on the steamer "Minnesota" through the courtesy of Drs. W. J. and C. H. Mayo. The steamer will leave the dock at 1 P. M. and will return at 5:30 P. M. A pleasant trip on the Mississippi is assured and a cordial invitation is extended the doctors to bring their wives. The program at this afternoon session will be a patriotic one bearing on the war. Dr. C. H. Mayo will speak, and there will be addresses by two

representatives from the War Department at Washington. On the evening of June 24, there will be a banquet at the Hotel Winona at 7 P. M. This will be followed by an excellent scientific program. At the forenoon session of June 25, seven interesting papers will be presented. The Winona County Medical Society will entertain the visiting physicians at luncheon at 12 o'clock following the forenoon session. The program committee hopes that all who expect to attend the meeting will give their reservation cards prompt attention. It is hoped that a full attendance will reward the worthy efforts of the committee and assure the success of the meeting.

#### **MINNEAPOLIS CLINICAL WEEK.**

The Minneapolis Clinical Week is to be a permanent organization and will be repeated at least once each year. The Hennepin County Library, headquarters, will be in charge of an expert librarian and stenographer who will have charge of an information bureau for the convenience of visiting physicians, directing them to clinics they may desire to see. This bureau will have a classified directory of physicians and hospitals and will extend every effort to make profitable the visits of physicians from out of the city.

#### **RELATING TO DEPENDENT FAMILIES OF PHYSICIANS WHO ARE CALLED INTO SERVICE.**

A special committee appointed by the Hennepin County Medical Society has been trying to work out a plan for the aid of dependents of physicians who are called into service and whose income is not sufficient to take care of their families. This committee consists of fifteen members of the Hennepin County Medical Society. The plan, while not entirely completed, embodies the following tentative activities:

1. Careful investigation is to be made to ascertain the number who may require aid.
2. The remaining members of the Society will be called upon to subscribe to a fund to be distributed as required.
3. The President of the Hennepin County Medical Society was instructed to call a spe-

cial meeting for the consideration of these matters on Monday, May 27, 1918, 8 P. M.

#### **TEACHING FELLOWSHIPS IN PEDIATRICS.**

There are open at this time two teaching fellowships in pediatrics in the Graduate School of the University of Minnesota. The salary for the first year is \$500; for the second year, \$750, and for the third year, \$1,000. For the three years the degree of Doctor of Science or of Doctor of Philosophy is granted. The work includes practical and research work in pediatrics, with the intention of preparing men for practice in the specialty of pediatrics, for teaching, and research work.

#### **A NEW REVIEW ON WAR SURGERY.**

There has recently been prepared in the Office of the Surgeon General a new pamphlet Review of War Surgery and Medicine (March, 1918, Vol. I, No. 1). According to the editorial note this review is to appear monthly and to be devoted to abstracts of war medical literature. This little pamphlet will furnish the medical personnel of the Army abstracts of original papers of importance, necessary information in a short compass, and prompt publication of reports which otherwise might not gain circulation.

In this first volume there is a splendid review of Surgery in the Zone of Advance prepared from data written by Major George de Tarnowsky, based upon his personal observations at the French army front. It is the best description that has yet appeared in American literature of the war.

This is followed by a most readable and instructive review of the most recent data on gas gangrene, trench foot and the general principles guiding the treatment of wounds of war.

Copies of this review may be obtained by addressing the Superintendent of Documents, Government Printing Office, Washington, D. C., enclosing ten cents in stamps.

This review should be in the hands of every officer of the Medical Corps and should be of interest to the entire medical profession not in the service. The reviews are very well written and make most interesting and profitable reading.

**THE SUPREME COURT DECISION ON THE CORPORATE RIGHTS OF THE AMERICAN MEDICAL ASSOCIATION.**

In 1910 the state's attorney of Cook county (Chicago) was petitioned to institute "quo warranto" proceedings against the American Medical Association on the grounds that the Association's affairs were being conducted illegally in that its officers were elected at annual sessions held outside of the state of Illinois. The state's attorney refused to take action in the matter, and later, the attorney general of the state, who was appealed to, also refused to act. January 5, 1911, mandamus proceedings were begun in the Circuit Court of Cook county, Illinois, to compel the state's attorney to initiate the quo warranto action which he had declined to institute. Until December 20, 1915, the issue was between the parties asking for the "mandamus" and the state's attorney of Cook county, Illinois; the point at issue being the technical one as to whether the state's attorney was compelled to act or had discretionary authority in the matter. The case went through the lower courts and finally was carried to the Supreme Court of Illinois, which in December, 1915, refused to hear arguments on the merits of the cause as it related to the American Medical Association, but ordered the Circuit Court to take up the original quo warranto proceedings designed to raise the question of whether or not Illinois corporations "not for profit" are compelled to hold their elections and conduct their business within the confines of the state. Up to this point the American Medical Association was not technically interested in the controversy; now, however, it became a party in the action. Quo warranto proceedings against the members of the Board of Trustees were instituted in the Circuit Court of Cook county, Illinois, which after trial rendered a decision favorable to the Association. The case was then carried to the Appellate Court of Illinois, which confirmed the decision of the Circuit Court. An appeal was finally made to the Supreme Court of Illinois, which on April 16, 1918, rendered its decision, settling the question. This decision is entirely satisfactory so far as the Association is concerned. One paragraph of the opinion reads:

It seems reasonably to follow that if a corporation not organized for pecuniary profit may hold meetings

at stated times outside of the State of Illinois, composed of delegates selected by the constituent associations, for the transaction of business of the corporation, it is not unlawful to authorize and provide for the election by said house of delegates of trustees of the corporation. The American Medical Association was organized solely for the purpose of the advancement of medical science. Its purpose was to improve methods for the treatment and prevention of diseases of the human race. Its usefulness for these purposes would be seriously interfered with, if not absolutely destroyed, if it could not provide for the election of trustees from the most efficient men in the association throughout the United States, by delegates selected by the constituent associations from the various states in the Union. Such authority to the house of delegates is conferred by the by-laws and is not in conflict with or prohibited by the constitution or laws of Illinois relating to corporations not for pecuniary profit.

The decision is important not only to the American Medical Association, but also to all organizations incorporated under the law of Illinois—in fact of any state—governing corporations "not for profit."

**PHYSICIANS LICENSED TO PRACTICE IN MINNESOTA AT THE APRIL, 1918, EXAMINATION.**  
By Examination.

- Anderson, Edward Dyer - U. of Minn., 1918
- Caldwell, Kenneth Simms - U. of Minn., 1918
- Colby, Woodard L. - - - U. of Minn., 1918
- Gamble, Joseph William - U. of Minn., 1918
- Hall, William Winthrop - U. of Minn., 1918
- Kalin, Oscar Theodore - - - - Rush, 1916
- Kooiker, Herman J. - - - U. of Minn., 1918
- Larson, G. Arthur - - - U. of Minn., 1917
- Lundquist, Elmer Ferdinand U. of Minn., 1918
- McCarthy, Donald - - - U. of Minn., 1918
- McKittrick, Leland S. - - - Harvard, 1918
- Rivers, Andrew B. - - - - Creighton, 1917
- Snell, Albert Markley - - U. of Minn., 1918
- Stangl, Fred H. - - - - - - Rush, 1918
- Swendsen, Carl G. - - - U. of Minn., 1918
- Sybilrud, Hjalmar Waldemar - - - -  
U. of Minn., 1918

**Through Reciprocity.**

- Anderson, Lionel A. - - Washington U., 1916
- Atkinson, Norman Edward - - - - -  
Ky. Sch. of Med., 1898
- Goodson, Catherine Marguerite - - -  
So. Homeo. Med. Col., Md., 1902
- Mackoy, Frank William - U. of Illinois, 1905
- Niles, Charles Milton - - - - -  
Chicago Homeo. Med. Col., 1900

## PHYSICIANS FOR THE ARMY AND NAVY, AND NECESSARY LEGISLATION.

At a meeting of all State Committees of the General Medical Board of the Council of National Defense, held in Washington, May 4th and 5th, the various committees were asked to make a census of all physicians in their respective states. When this has been done, twice the quota of the particular state is to be selected and asked to enlist. Medical men who decline commissions are to be called on personally by their State Committee for an explanation. If this explanation is not satisfactory, their names will be referred to the Washington Board, which will again make direct appeals to them.

The members were requested to use their influence with their congressional delegations to do everything possible to pass the bill now before Congress, giving greater power to the medical branch of the service by increasing the ranks of higher officials in both the Army and the Navy. This measure is needed in order to give medical men in the service the requisite authority to have the measures carried out that they know are absolutely necessary, and which they are now unable to insist upon because of this want of rank. The aggrandizement of the medical profession is not the object of this bill. It is a life saving measure pure and simple for the benefit of the noble young men now fighting for us.

## OF GENERAL INTEREST

### MINNESOTA'S HONOR ROLL.

In addition to the list published in our last issue, the following physicians are also representing Minnesota in the service of the United States and its Allies in the War for Humanity and Democracy:

Lt. H. W. Arndt, Paynesville, Washington, D. C.

Dr. Baldwin Borreson, Warren.

Dr. John J. Catlin, Buffalo, C. O. Camp Hospital No. 12, France.

Dr. Alphonse Cyr, Barnesville.

Lt. D. S. Fleischhauer, Wabasha, Camp Travis, Texas.

Lt. F. P. Frisch, Kimball.

Lt. Cleon J. Gentzkow, Minneiska.

Maj. R. T. Glycer, Brooten, Reg. Inf. 343d F. A. N. A., Camp Travis, Texas.

Lt. Com. C. E. Henry, Minneapolis, U. S. N. R. F., U. S. S. Solace, c/o P. M., New York, N. Y.

Capt. J. A. Hielseher, Mankato, Francee.

Capt. H. L. Lamb, Sauk Center, Camp Zachary Taylor.

Maj. A. G. Liedloff, Mankato, Camp Cody, Deming, N. M.

Lt. John Litehfield, Minneapolis, U. S. N. R. F., U. S. S. Solace, c/o P. M., New York, N. Y.

Lt. Hiram J. Lloyd, Mankato, Camp Cody, Deming, N. M.

Capt. P. E. Pilon, Paynesville, Francee.

Lt. L. W. Pollock, Rochester, Fort Riley, Kan.

Dr. Chelsea C. Pratt, Mankato, Camp Wheeler, Macon, Ga.

Capt. Geo. D. Riee, St. Cloud, Francee.

Lt. (j. g.) A. J. Riegel, Minneapolis, U. S. N. R. F., U. S. S. Solace, c/o P. M., New York, N. Y.

Dr. J. B. Robertson, Cottonwood.

Lt. j. g.) Williams P. Robertson, Minneapolis, U. S. N. R. F., U. S. S. Solace, c/o P. M., New York, N. Y.

Capt. G. F. Schmidt, Pipestone, Camp Travis, Texas.

Dr. R. E. Spinks, Middle River.

Lt. Felix Traxler, Le Sueur, Fort Riley, Kan.

Lt. Com. C. C. Tyrrell, Minneapolis, U. S. N. R. F., U. S. S. Solace, c/o P. M., New York, N. Y.

Dr. George W. Bliss of Valley Springs, S. D., died of pneumonia April 29, 1918. He was a graduate of Hamline University College of Medicine, class of '94.

Lieut. John S. Abbott, attached to the 18th F. A., B. E. F., previously reported as missing in action, is now held a prisoner, according to the latest word received, at Villingen in the Black Forest, Germany.

Dr. Wm. Wakefield, of Lake Benton, Minn., was instantly killed when struck by a train on Sunday evening, April 28. Dr. Wakefield was born at Cornish, N. H., July 29, 1845. He graduated from the University of Michigan, Ann Arbor, in 1882. After practicing one year in New Ulm, he moved to Lake Benton, where he lived, a beloved citizen, engaged in the active practice of his profession until his death.

The death of Dr. H. William Smith, Med. '97, University of Minnesota, is reported to have occurred in Los Angeles, Cal., in March, at the age of 55 years.



Dr. Edwin L. Goss, who for nearly twenty years has been a practicing physician in Carlington, N. D., left April 21 to serve his country with the medical corps, with the rank of lieutenant, and is now in active duty at Camp Dodge, Des Moines, Iowa.

Dr. Paul J. Preston writes from Italy thanking the management of "Minnesota Medicine" for sending the Journal to him.

Major L. B. Wilson, Director of the Division of Pathology, Mayo Clinic, Director of Field Army Medical Museum, is in France.

Lieutenant L. W. Pollock, of the Division of Medicine, Mayo Clinic, has been assigned to service at Fort Riley, Kansas.

The Librarians of the Hennepin and Ramsey County Medical Societies will meet in the near future to arrange the distribution of the Exchanges of "Minnesota Medicine" in accordance with action taken by the Publication Committee.

Dr. E. W. Buckley, St. Paul, Medical Director of the Knights of Columbus, will leave for France June 1st, to supervise the opening of K. C. "huts" in the American Army camps in France, England, Ireland, and Italy.

Dr. James E. Carman, of Detroit, has been seriously ill with an attack of pleurisy terminating in an empyema which was operated upon May 3d.

Dr. A. V. Fankboner, has moved from Motley, Minn., to Brainerd, where he will be associated with Dr. Thabes.

Dr. W. V. Lindsay, formerly in practice in Winona, has recently been home on a short furlough after three months' preparation in Camp Meade, Md.

Maj. J. S. White, formerly of St. Paul, now stationed at Camp Funston, Kan., was in St. Paul in April on a short furlough. Major White hopes to be ordered overseas shortly.

Four Minneapolis physicians who have been attending a naval medical training school at Washington, D. C., left for active sea duty under orders. They were Dr. C. E. Henry, Dr. C. C. Tyrrell, Dr. John Litchfield, and Dr. A. J. Riegel. The physicians are all members of Hospital Unit No. 10, with Surgeon Henry as lieutenant commander.

Fifty physicians representing the state medical societies of the nation with an enrollment of 150,000 practicing physicians and surgeons, met April 30, at the headquarters of the American Medical Society to plan to meet the call of the army and navy for the immediate enrollment of 5,000 doctors in the medical reserve corps. A total of 21,851 physicians have enlisted already. Dr. Thomas McDavitt, of St. Paul, Minn., of the Board of Trustees of the American Medical Association, presided at the meeting.

Dr. T. C. Davis, of Warroad, Minn., has moved to Glenwood.

Dr. E. F. Green, of the State Reformatory of St. Cloud, died April 23, at Walker, of pulmonary tuberculosis. He was a recognized authority in this state on the Binet-Simon system.

The following physicians from Minnesota attended the meeting of the medical section of the National Council of Defense at Washington, D. C., May 4th and 5th: Dr. W. H. Magie, Duluth; Dr. W. L. Palmer, Albert Lea; Dr. H. M. Workman, Tracy; Dr. J. W. Little, Minneapolis; Dr. Thos. McDavitt, St. Paul; Dr. H. P. Ritchie, St. Paul, and Dr. H. L. Taylor, St. Paul.

The Alpha Omega Alpha (Medical Scholarship Society) held its annual meeting at the University of Minnesota on May 24th. An address was given by Dr. Charles Lyman Greene, of St. Paul, on "The Heart of the Soldier."

Capt. Paul F. Brown, M. R. S., Reg. Surg., 361 Infantry, Camp Lewis, Wash., writes that he has enjoyed receiving "Minnesota Medicine" and that it is a journal "to be proud of."

Dr. Alphonse Cyr, of Barnesville, Minn., who has been in active practice there for about twelve years, left in April to report for duty in the service of the United States. When war was declared last spring, Dr. Cyr promptly offered his services to the government and was accepted, but was not called into active service until April of this year.

The Upper Mississippi Medical Society met in Wadena on May 7th. Those who took part in the program were: Dr. Samuel E. Sweitzer of Minneapolis, Dr. Charles H. Pierce of Wadena, Dr. Joseph Nicholson of Brainerd, Dr. W. W. Will of Bertha, and Dr. William Beach of the state sanatorium at Walker.

The death of Dr. R. H. Devine, of Wahpeton, N. D., occurred on May 4th, after an illness of three days. Dr. Devine was born in Wheeling, W. Va., in 1863, and was a graduate of Jefferson Medical College, Philadelphia. His death is greatly regretted in his community where he was well known and highly respected.

Dr. A. F. Strickler, of Sleepy Eye, who was recently called into service, is now stationed at Fort Riley, Kan.

Dr. Felix Traxler, of Le Sueur, Minn., who has been called to service in the medical department in which he was commissioned first lieutenant some time ago, is now in training at Fort Riley, Kan.

The following is the present address of Dr. Heagerty of Mazeppa, Minn.: Major Wm. B. Heagerty, Field Hospital No. 356, 314 Sanitary Train, 89th Division, Camp Funston, Kansas.

Dr. Charles H. Cole succeeds Dr. J. N. Elliot as Associate Medical Director for the Advisory Commission of the Minnesota Sanatorium for Consumptives, and will have charge of the medical affairs of Sunnyrest Sanatorium, Crookston, and the Oakland Park Sanatorium, Thief River Falls. Dr. Cole comes to Minnesota from the Sea View Sanatorium, N. Y., and is available for clinic work and consultations free of charge to any individual in Polk, Norman, Roseau, Marshall and Pennington counties.

The Fair Oaks Lodge Sanatorium built by Todd and Wadena counties at Wadena, Minn., has been completed and is now receiving patients from these two counties. The formal opening was held May 6, 1918. The opening was well attended. Remarks were made by Dr. J. J. McKinnon, President of the Sanatorium Commission; Dr. Robinson Bosworth, Executive Secretary of the Advisory Commission; and Dr. H. E. LeCates, Association Medical Director of the Advisory Commission, who will have charge of the medical service at this institution.

Free dispensary service with visiting nurse work has been instituted in Todd and Wadena counties to assist in locating those who have tuberculosis and who should be admitted to the institution.

Mrs. Gertrude N. Talbot, of Buffalo, N. Y., is the Superintendent.

## REPORTS AND ANNOUNCEMENTS OF SOCIETIES

### THE SOUTHERN MINNESOTA MEDICAL ASSOCIATION'S SUMMER MEETING AT WINONA, MINN., JUNE 24 and 25, 1918.

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EVENING SESSION.  
Monday, June 24th, 1918.

—————  
Banquet,  
Hotel Winona,  
7:00 P. M.

### SCIENTIFIC PROGRAM. Masonic Temple.

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1. Orthopedics.  
Dr. Lyneoln J. Porter, Chicago, Ill. (Lantern slides).  
Discussion:  
Dr. A. J. Gillette, St. Paul, Minn.  
Dr. M. S. Henderson, Rochester, Minn.
  2. The Treatment of Menorrhagia With Radium.  
Dr. Leda J. Stacy, Rochester, Minn.  
Discussion:  
Dr. E. Starr Judd, Rochester, Minn.  
Dr. A. W. Abbott, Minneapolis, Minn.
  3. Rectal Surgery Under Local Anesthesia (Lantern slides).  
Dr. R. E. Farr, Minneapolis, Minn.  
Discussion:  
Dr. Earl R. Hare, Minneapolis, Minn.  
Dr. L. E. Daugherty, St. Paul, Minn.
  4. Problems of Infection.  
Dr. C. H. Mayo, Rochester, Minn.  
Discussion:  
Dr. E. C. Rosenow, Rochester, Minn.  
Dr. A. G. Long, Mankato, Minn.

—————  
FORENOON SESSION.  
June 25, 1918.

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5. The Clinical Aspect of Prostate Hypertrophy.  
Dr. Ernest Z. Wanous, Minneapolis, Minn.

## Discussion:

Dr. W. F. Braasch, Rochester, Minn.

Dr. Frank Wright, Minneapolis, Minn.

6. Obstetric Forceps, Indications and Contra-Indications.

Dr. Andrew J. Kaess, Fargo, N. D.

## Discussion:

Dr. H. W. Condit, Minneapolis, Minn.

Dr. R. N. Andrews, Mankato, Minn.

7. The Relation of Food to Some Anaphylactic Phenomena.

Dr. F. W. Schlutz, Minneapolis, Minn.

## Discussion:

Dr. W. P. Larson, Minneapolis, Minn.

Dr. W. R. Ramsey, St. Paul, Minn.

8. The Relationship Between Tonsillar Infection and Recurrent Vomiting. (Lantern slides).

Dr. Rood Taylor, Rochester, Minn.

## Discussion:

Dr. J. P. Sedgwick, Minneapolis, Minn.

Dr. E. J. Huenekens, Minneapolis, Minn.

9. Problems of the Small Hospitals.

Dr. D. B. Pritchard, Winona, Minn.

## Discussion:

Dr. R. C. Hunt, Fairmont, Minn.

Dr. W. L. Palmer, Albert Lea, Minn.

10. The Electrocardiograph in the Diagnosis of Heart Diseases.

Dr. Olga S. Hanson, Minneapolis, Minn.

## Discussion:

Dr. J. P. Cross, Minneapolis, Minn.

Dr. E. T. F. Richards, St. Paul, Minn.

11. Tumors of the Spinal Cord, Clinical Features and Treatment.

Dr. W. G. Sheldon, Rochester, Minn.

## Discussion:

Dr. Chas. R. Ball, St. Paul, Minn.

Dr. A. W. Adson, Rochester, Minn.

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**AFTERNOON SESSION.**

1:00-5:30 P. M.

June 25, 1918.

Excursion down Mississippi on Steamer Minnesota, by courtesy of Doctors W. J. and C. H. Mayo.

Medical Reserve Corps, U. S. Army: Dr. C. H. Mayo, Rochester, Minn.

The Eskimo, Habitat, Mode of Living and Diseases: Dr. F. H. Gambell, Thief River Falls, Minn.

**Officers of the Southern Minnesota Medical Association.**

M. S. Henderson, President, Rochester, Minn.

A. E. Sohmer, 1st Vice President, Mankato, Minn.

P. F. Holm, 2nd Vice President, Wells, Minn.

H. T. McGuigan, Secretary, Red Wing, Minn.

G. F. Merritt, Treasurer, St. Peter, Minn.

**Program Committee.**

Aaron F. Schmitt, Chairman, Mankato, Minn.

E. Starr Judd, Rochester, Minn.

J. P. Sedgwick, Minneapolis, Minn.

**Executive Committee.**

H. Z. Giffin, Chairman, Rochester, Minn.

M. H. Cremer, Red Wing, Minn.

A. B. Stewart, Owatonna, Minn.

**Committee on Nominations and New Members.**

E. S. Muir, Chairman, Winona, Minn.

H. B. Grimes, Madelia, Minn.

S. B. Haessly, Faribault, Minn.

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**Committee on Arrangements For Winona Meeting.**

W. F. C. Heise, Chairman, Winona, Minn.

G. J. Tweedy, Winona, Minn.

James L. Lynch, Winona, Minn.

**Committee on Necrology.**

J. H. Adair, Chairman, Owatonna, Minn.

H. O. Williams, Lake Crystal, Minn.

Geo. Stevens, Byron, Minn.

**Honorary Members.**

James B. Herrick, Chicago, Ill.

Ludwig Hektoen, Chicago, Ill.

Frank Billings, Chicago, Ill.

Robert H. Babcock, Chicago, Ill.

Dean Lewis, Chicago, Ill.

Oliver S. Ormsby, Chicago, Ill.

Bertram W. Sippy, Chicago, Ill.

Allen B. Kanavel, Chicago, Ill.

Harry M. McClanahan, Omaha, Neb.

James S. Goetz, Omaha, Neb.

Arthur D. Dunn, Omaha, Neb.

E. J. Davis, Ontario, Cal.

Sidney Kuh, Chicago, Ill.

C. E. Ruth, Des Moines, Ia.

Charles H. Lemon, Milwaukee, Wis.

Geo. W. Crile, Cleveland, Ohio.

Albert J. Ochsner, Chicago, Ill.

C. W. Hopkins, Chicago, Ill.

Isaac A. Abt, Chicago, Ill.

B. F. Lounsbury, Chicago, Ill.  
 Col. Henry Greenleaf, U. S. M. C., Fort Snelling, Minn.

### Announcements.

Physicians are requested to bring their wives. The Winona County Medical Society will entertain visiting physicians at luncheon, Tuesday, at 12:00 o'clock M., at the Arlington Club.

The Steamer Minnesota, during the afternoon session will depart from the docks at 1:00 P. M. and will return at 5:30 P. M.

Application for membership may be made at the Secretary's desk.

Please give reservation card your prompt attention.

Constitution limits all papers to fifteen minutes, discussion to five minutes.

The President reserves the right to change the order of papers, as the interests of the session may demand.

### SOUTH DAKOTA STATE MEDICAL ASSOCIATION.

The thirty-seventh annual session of the South Dakota State Medical Association was held at the Elks Hall, Mitchell, S. D., May 21st, 22d and 23d.

#### PROGRAM.

Wednesday, May 22nd, 9:30 A. M.

1. President's Address.  
 Dr. H. J. G. Koobs, Scotland, S. D.
2. Injuries of Central Nervous System.  
 Dr. F. E. Clough, Lead, S. D.  
 Discussion opened by Dr. F. V. Willhite, Yankton, S. D.
3. Kidney Injuries.  
 Dr. G. G. Cottam, Sioux Falls, S. D.  
 Discussion opened by Dr. R. L. Murdy, Aberdeen, S. D.
4. Infant Mortality.  
 Dr. F. C. Rodda, Minneapolis, Minn.  
 Discussion general.
5. Mechanical Derangements of the Knee Joint.  
 Dr. Melvin S. Henderson, Mayo Clinic, Rochester, Minn.  
 Discussion general.

Wednesday, May 22nd, 2:00 P. M.

6. Address.  
 Hon. Peter Norbeck, Governor South Dakota, Pierre.
7. Medical Reserve Corps.  
 Dr. Henry J. Jump, Major M. R. C., Surgeon General's Office, Washington, D. C.
8. Military Surgery.  
 Dr. E. S. Judd, Major M. R. C., Rochester, Minn.
9. Medical Advisory Boards in Selective Drafts.  
 Dr. F. A. Spafford, Lieutenant M. R. C., Flandreau, S. D.
10. Experiences in France.  
 Dr. R. D. Wilson, Captain C. A. M. C., Aberdeen, S. D.

Thursday, May 23rd, 9:30 A. M.

11. The Problem of Stammering and Its Solution.  
 Dr. E. L. Kenyon, Chicago, Ill.  
 Discussion general.
  12. Acute Suppurative Otitis Media and Its Treatment.  
 Dr. L. N. Grosvenor, Huron, S. D.  
 Discussion opened by Dr. R. D. Alway, Aberdeen, S. D.
  13. Suspension Laryngoscopy.  
 Dr. J. D. Lewis, Minneapolis, Minn.  
 Discussion opened by Dr. J. G. Parsons, Sioux Falls, S. D.
  14. The Use of the Conjunctival Flap in Eye Injuries.  
 Dr. F. I. Putnam, Sioux Falls, S. D.  
 Discussion opened by Dr. J. A. Hohf, Yankton, S. D.
- Thursday, May 23rd, 2:00 P. M.
15. Local Anaesthesia (illustrated).  
 Dr. R. E. Farr, Minneapolis, Minn.
  16. Why the Professional Anaesthetist?  
 Dr. R. M. Walters, Sioux City, Iowa.  
 Discussion general on the above two papers.
  17. Public Health Problems and Their Relation to the General Practitioner.  
 Dr. Louis Holtz, Aberdeen, S. D.

Discussion opened by Dr. Mortimer Herzberg, Vermillion, and Dr. Park B. Jenkins, Waubay.

18. The Control of Venereal Diseases.

Dr. C. E. McCauley, Aberdeen, S. D.

Discussion opened by Dr. J. D. Whiteside, Aberdeen, S. D.

Report of Medical Defense Committee.

Report on South Dakota Tuberculosis Sanitarium.

MINNESOTA ACADEMY OF MEDICINE.

The regular meeting of the Academy, which usually is held on the second Wednesday of the month, was held on April 3, a week earlier. This was done so as not to interfere with the meetings of Clinic Week, or, rather, that the meeting of the Academy might not be disturbed by the diverted interest of its members, many of whom would be occupied with the other meeting. The attendance was small. No papers were read, but an unusually large number of case reports, specimens, and clinical cases were presented.

Dr. Hammes presented a case of myasthenia gravis, the interesting features of which were the early onset of the disease (coming on at the age of ten), a double ptosis, immobility of the right eye, and only a limited movement of the left eye. There was also some difficulty in swallowing. The electric examination gave a myasthenic reaction. He also showed a brain tumor obtained at necropsy of a patient whose clinical history he related.

Dr. Bacon brought to the meeting a young man on whom a resection of the rectum and anus had been made more than a year before. The operation was performed to relieve an obstructing growth, since when the patient has been able to move the bowels with ease and regularity through the artificial opening made in the left iliac region.

Dr. Sweetser reported a case of extrauterine gestation that fulminated within a period of fifteen or sixteen days after intercourse. The patient was a healthy woman twenty years of age. She gave the following history: In July, 1916, she married, but was separated from her husband after eight months. Her menstrual periods were regular and normal, the last flow occurring on February 11, this year. On February 24 she had sexual relations with a sweetheart about to leave for a military training camp. On March 11th, menstruation took place in the morning and was accompanied with the usual discomforts. At three o'clock in the afternoon she felt ill enough to go home, but this was not an uncommon thing for her to do at such times. The following morning she was seized with a sudden and severe pain in the abdomen; at ten o'clock she vomited. The pain continuing, she called in Dr. Deziel. To his question, If she might be pregnant? she answered that she did

not think so. This reply convinced him that she might, whereupon he made a diagnosis of ectopic gestation, a discernment few would feel like making with so little to go by. At any rate he was right, for she was taken to the hospital and operated on the same afternoon and the ruptured tube removed. At the time of the operation she was pale, the pulse was 120, and plenty of free blood was found in the abdominal cavity. The uterus was slightly enlarged. There were no adhesions. The right oviduct was normal, as was the left, except for the enlarged and ruptured area wherein was implanted the fertilized ovum. This was located about an inch from the uterus, and in size is, as may be seen in the specimen, about as large as a small hazelnut. The blood in the peritoneal cavity was not removed. Recovery was prompt and the patient left the hospital in twelve days.

Dr. Arnold Schwyzer had several pathological specimens of goitre, gastric ulcer, and carcinomata which were briefly described and their essential points of interest brought out by means of pictures and X-ray plates.

Dr. Hamilton exhibited two brain tumors and a tumor of the cord. Case I—tumor of the spinal cord. The patient was a girl twenty-eight years of age. One year ago she first showed signs of what later proved to be a well-developed dementia praecox. In July, 1917, while still in fair mental condition, she consulted a doctor on account of pain in the lower dorsal region of the back. The pain increased in severity, kept her awake at night, was worse on movement, stabbing in character, and seemed to radiate in a definite line, at first in the right thigh and later in the right abdomen. She grew steadily weaker and eventually lost power of motion in the right lower extremity. One month later, the left leg also became weak, and, when seen in December, she was scarcely able to move. There was marked loss of all forms of sensation up to the eleventh thoracic segment. Furthermore, there was involuntary urination and defecation; there was motor and sensory paralysis of the legs; absent lower and present upper abdominal reflexes; double ankle and patellar clonus; and double Babinski. The knee-jerks were much increased. The spinal fluid showed cell count 2, Nonne negative, colloidal gold negative, Wassermann negative (both spinal fluid and blood). Though the symptoms indicated a spinal tumor, no operation was performed, partly through refusal of the mother to allow it, and partly because of the patient's mental condition and the presence of bed-sores. A necropsy revealed a tumor, extramedullary and subdural, lying on the right side of the cord, and extending far enough vertically to involve about three segments. The tumor is probably a sarcoma, though the microscopic examination has not yet been completed.

Case II—tumor of the brain. The patient was a man twenty-nine years of age, single. Twenty years ago he developed tuberculous myelitis, which healed after a long period of time. In the spring of 1916, he began to stagger in his gait, and his feet would

catch in walking. In the fall of 1917, he had occasional attacks of vomiting accompanied with headache. Six weeks ago he developed more severe headaches, and his vomiting became projectile in character; there was diminution of vision, choked discs, and marked asthenia and ataxia of the right upper and lower extremities. A tumor of the right cerebellum was thought probable and the patient operated on. He died shortly afterward. Only a part of the brain was removed at autopsy. It showed a cyst extending well down into the cerebellar hemisphere.

Case III—tumor of the brain. The patient was a boy nine years of age. In May, 1917, he began to have headaches, was troubled with vomiting, constipation, epigastric pain, and fever. For a month he was confined to his bed, and was unable to walk, or keep his food down. He afterward recovered and seemed entirely normal until last December, when he received a blow on the head. There was no unconsciousness or dizziness following the blow, but his parents state that he became worse soon afterward. Of late he has vomited considerably, has lost weight, and has become too weak to walk. The following clinical signs were found upon examination: Pupils normal; lateral nystagmus with slow component to the right. A watch was heard in the right ear at five inches, and in the left at fifteen inches. The heart-rate was slowed. Von Pirquet test was negative, and there was no other evidence of tuberculosis. Examination of the spinal fluid resulted as follows: Nonne, cell count, colloidal gold and Wassermann all negative. A diagnosis of tumor of the right cerebellar hemisphere was made, but within a few hours of the examination the child developed convulsions and died. At the post-mortem examination a large tumor was found protruding from the outer surface of the right cerebellar hemisphere. The tumor is probably a glioma, since toward its center is found a cavity such as commonly occurs in the center of a gliomatous tumor in this region.

Dr. Armstrong allowed the members to handle and ponder over a petrified bone, said to be the radius of some extinct animal. Apparently some sort of injury had been sustained before the creature died, but inasmuch as this occurred, so Dr. Armstrong said, fifteen or twenty millions of years ago, it was hard to decide just what the lesion might be.

Drs. Ramsey, Farr, Benjamin, Cross, and others contributed from one to five cases each, many of which will be reported in detail later.

Altogether, the meeting was interesting and profitable. There were twenty-four members present.

F. E. LEAVITT,  
Secretary.

#### THE MINNESOTA PATHOLOGICAL SOCIETY.

A meeting of the Minnesota Pathological Society was held on Tuesday evening, April 16, 1918, at eight o'clock. The program was as follows:

Dr. A. J. Chesley and Dr. W. P. Greene compared the epidemics of poliomyelitis and cerebrospinal men-

ingitis, showing the seasonal variations and dissemination of the two diseases. They pointed out some of the points favoring the idea that poliomyelitis is contagious and spread by carriers. Some of the symptoms and points of diagnosis were brought out.

Dr. Margaret Warwick presented some interesting findings based on a study of the cases of endocarditis which had been studied at autopsy in the Institute of Pathology. She studied the cases with particular reference to the glomerular changes which are supposed to be characteristic of "Focal embolic glomerulonephritis" and caused by the streptococcus viridans. She found this in only four cases, which would be less than 2 per cent in this series.

F. L. ADAIR.

#### THE BLUE EARTH COUNTY MEDICAL SOCIETY.

The regular meeting of the Blue Earth County Medical Society was held on Monday evening, April 29th, at 7:30, at the offices of Drs. Holbrook, Sohmer, Osborn and Benham.

Program: Paper, "Fracture Sprains," Dr. A. E. Sohmer. Discussion by Dr. C. J. Holman.

Report on work seen in various clinics: Dr. J. S. Holbrook, Dr. J. W. Andrews.

LIDA OSBORN,  
Secretary.

## PROGRESS IN MEDICINE AND SURGERY

**SOME POINTS RESPECTING THE LOCALIZATION OF SYPHILIS ON THE AORTA:** Oskar Klotz (Amer. Jour. Med. Sc., Jan., 1918) comments upon the predilection of the syphilitic virus for localizing in distinct districts in the aorta—the most frequent site being the first part of the aorta. The reason for this he attributes to the irregular distribution of the lymphatics along the aorta. These lymphatic channels communicate with the neighboring lymph glands, and by injection experiments he proves that the most intricate system of channels are those in closest relation to the neighboring lymph glands.

The lymphatic channels of the aortic wall lie for the most part in the adventitia, in close relation to, and following the course of the nutrient blood vessels which are found in this structure.

Experimentally, bacteria were inoculated into the loose tissue of the mediastinum of rabbits. Streptococcus viridans was used. The infection followed the fine channels passing about the aorta as well as the structures at the hilus of the lung.

Equally in man, in severe pneumonia coming to autopsy, an almost constant infection of the glands of the anterior mediastinum was noted; and the pneumococcus may be isolated from the tissues of the outer portion of the aortic wall.

The writer concludes that:

1. There are certain regions along the course of the aorta in which the arrangement of the lymphatics

is more complex and their number far greater than in other portions.

2. The aortic wall is itself richly supplied with nutrient vessels (the *vaso vasorum*), each of which has a liberal lymphatic drainage following its course.

3. These lymphatics are in direct association with the larger lymphatic system which surrounds the aorta as a whole, and which has two large drainage beds, one in the thorax and one in the abdomen. It is in relation to these drainage beds that the syphilitic virus comes to be distributed to the particular segments of the aorta.

C. N. HENSEL.

**CHRONIC INDURATION OF THE PENIS:** Hertzler (*Jour. Mo. State Med. Association*, Jan., 1917. *Practical Medical Series*, 1917, Vol. 9, page 108, *Skin and Venereal Diseases*) gives a good description of this affection which is characterized by a slowly progressive formation of fibrous tissue in the dorsum of the penis. Six cases are reported. The lesion begins usually near the root and advances toward the glans, but may begin near the glans and extend proximally. It usually spreads out flatwise over the dorsum, but may extend deeply into the septum. It is painless and non-inflammatory and after reaching a certain size it does not progress. It may cause some burning, but its chief significance lies in the fact that it causes impotence because of the exaggerated curve of the penis during erection, due to the mechanical interference of the scar tissue.

Though the disease was known in France since La Peyronie first described it, in other countries it was not recognized until a much later date. Ricord nearly a century later described the disease and attempted to define its etiology. He suggested three causes: inflammation, syphilis and trauma; and two years later made a separate classification of those cases which could not be placed in any of these categories. This class, it may be said, is, according to the present viewpoint, the only one, which, strictly speaking, represents this disease. Those due to either inflammation, trauma or venereal diseases should not be included in the group under discussion.

Of the etiology of this restricted group but little is definitely known. The prevailing theory is that it bears some relation to rheumatism and gout. Kirley was the first to suggest such a relationship. He noted this affection in a gouty patient who had nodules in the palmar fascia and tendon sheaths. Diabetes is present in a large number of cases. Stein recently called attention to the association of this disease with Dupuytren's contraction. The association of Dupuytren's contraction with gout had previously been noted by Paget and Hedges and occurred in one of the author's cases.

The clinical manifestations of plastic induration of the penis are exceedingly characteristic. It begins usually in men past 40 years of age. Usually a burning or a recurvation during erection first causes the patient to present himself for examination. Examination first shows an induration usually near the sym-

physis. Sometimes several nodules begin simultaneously which afterwards become confluent. Rarely does the first manifestation begin near the glans. The induration continues until it gains a length of several centimeters or more and a breadth of half as much. Sometimes, however, the extension is deeper. A cross section of the indurated area in such cases represents a T form. Those which were said to have caused occlusion of the urethra did not belong to this disease, but were due to some inflammatory trouble.

The tumor is attached to the capsule of the corpus cavernosum, but the skin always remains free from it. The corpora cavernosa are usually not directly invaded, but in one of the author's cases these bodies contained processes of the lesion.

On inspection nothing can be discerned when the organ is flaccid. During erection there is a sharp upward curve so that the glans approaches or strongly imbeds itself in the abdominal wall. In some instances the deviation is said to have been lateral as well as upwards. On palpation the induration is readily perceived. The feel is a dense elastic one exactly like that of keloid. Subjectively the disturbances are not great. Some spontaneous smarting or burning has been complained of. This is heightened during erection, sometimes to actual pain.

The chief disturbance caused by the disease is that of impotency due to purely mechanical factors, less often to the actual pain present. In a few cases, cartilage, calcareous infiltration, or actual bone formation has been noted. In most of the instances noted, the induration was composed of dense fibrous bundles with sparse, spindle-formed nuclei. In their structure they closely resemble Dupuytren's contraction, the clinical relation of which has already been mentioned. In structure this tissue resembles keloids as closely as it does in its physical characters.

The duration of onset varies between four months and one and one-half years. In one of the author's cases it was well marked after three months. Considering the histologic structure the progress is relatively rapid, here again bearing resemblance to keloids.

The disease is so characteristic that little difficulty should be experienced in recognizing it. The slow onset, the peculiar feel and the potential limitation it causes in the functions of the organ establish the diagnosis. But two plans of treatment deserve consideration: Roentgen ray and operation. Judging from the results obtained by the ray in keloids and the histologic resemblance of the disease to the keloids, benefit from the ray was to be hoped for. These hopes have not been realized.

In the author's two cases who were operated on, anatomic cure with functional improvement resulted, though one can hardly speak of a cure in either case. The patient who received one treatment by Roentgen ray was not improved. This is not to be wondered at, since Bernasconi's case required eighteen treatments in order to complete a cure. From the foregoing it is evident that any line of treatment is unsatisfactory.

C. D. FREEMAN.

## BOOK REVIEWS

*SURGICAL NURSING IN WAR.* (By ELIZABETH R. BUNDY, M. D., Member of the Medical Staff, Women's Hospital, Philadelphia; formerly Adjunct Professor of, and Demonstrator of, Anatomy, Women's Medical College, Philadelphia; formerly Superintendent of Connecticut Training School for Nurses, New Haven, etc. Published by P. Blakiston's Son and Co., Philadelphia. Price \$0.75.)

"Surgical Nursing in War" is a very well prepared book. The author has put into concise form practically all of the new methods used in this war. Sufficient detail is given to make them readily understood. Several chapters are devoted to injuries of the spine, chest, and abdomen; also to head wounds, shell shock, bone and joint injuries, etc. Mechanical appliances are described and illustrated. The subject of infection is taken up fully, and the newer antiseptics used are described, including the famous Carrel technique. Attention is given to the newer treatments for burns. Nothing seems to have been omitted.

It is a splendid book for nurses who are already engaged in, or planning to do, war nursing.

RUTH M. MARTIN, R. N.

*THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY.* (By W. A. NEWMAN DORLAND, M. D. A new and complete Dictionary of terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Veterinary Science, Nursing, Biology, and kindred branches; with new and elaborate tables. Ninth Edition Revised and Enlarged. Large octavo of 1,179 pages with 331 illustrations, 119 in colors. Containing over 2,000 new terms. Published by W. B. Saunders Company, Philadelphia and London. 1917. Price, Flexible Leather, \$5.00 net; thumb index, \$5.50 net.)

The present edition of the American Illustrated Medical Dictionary has been revised and many new words added in Physiology, Pathology, Chemistry, as well as in the Clinical and laboratory branches. The volume contains over 2,000 new terms and has increased in size more than 40 pages. The volume at present answers every requirement in medical lexicography.

PAUL D. BERRISFORD.

*THE MEDICAL CLINICS OF NORTH AMERICA.* (By various authors. New York Number. Vol. I, No. 3, November, 1917. Published Bi-monthly by W. B. Saunders Company, Philadelphia and London.)

All the articles in this issue are good.

Of particular excellence is that by Dr. R. I. Cole on the Treatment of Lobar Pneumonia. He gives the results of Serum Treatment in cases caused by Pneumococci, Group 1, which comprise about one-third of

all cases. The detection of Type 1 should be made early and the serum given early.

Other articles which merit special mention are those of Dr. Warren Coleman on "The Typhoid Diet," and Dr. Homer F. Swift on "Rheumatic Fever."

C. J. MEADE.

*A CLINICAL MANUAL OF MENTAL DISEASES.* (By FRANCIS X. DERCUM, M. D., Ph. D., Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia. Second Edition Revised. Octavo of 497 pages. Published by W. B. Saunders Company, Philadelphia and London, 1917. Price, \$3.50.)

This book of Dr. Dercum's on Mental Diseases seems to fill just the niche for which the author intended it. Primarily it is a book for the general practitioner. The classification of the various mental diseases is clear and distinct. The presentation of the important subject of dementia precox includes the more recent views of its etiology and pathology. The handling of the somatic states shows that the author is a neurologist as well as a psychiatrist. The whole subject of mental disease, that which is of endogenous origin as well as that of exogenous origin, is clearly and comprehensively presented. It is presented from a clinical standpoint rather than a psychological one and thus, this subject, too often hazy and obscure, is made tangible and intelligible to every physician.

CHARLES R. BALL.

*THERAPEUTICS. PREVENTIVE MEDICINE.* Practical Medical Series, Vol. VIII, 1917. (By BERNARD FANTUS, M. S., M. D., Associate Professor of Medicine, Subdepartment of Therapeutics, Rush Medical College, Chicago, Ill., and WM. A. EVANS, M. S., M. D., LL. D., Ph. D., Professor of Preventive Medicine, Northwestern University Medical School. Published by The Year Book Publishers, 608 S. Dearborn Street, Chicago, Ill. Price, \$1.50.)

This small volume is one of a series of ten, published at monthly intervals. It is designed to present to the general practitioner the recent advances in the various departments of medicine, and comprises a selected and classified digest of the literature for the year 1917.

Therapeutics and therapeutic technic are so widely diversified at present that it is well worth one's while to take this volume in hand as a matter of general enlightenment.

So, too, with the Preventative Medicine section, which gives a working knowledge of the recent and best on a subject which is rapidly advancing in public as well as professional interest.

The volume can be recommended not only as an intelligent review, but as a satisfactory ready reference to the subjects treated.

H. M. LUFKIN.



*INFANT FEEDING.* (By CLIFFORD G. GRULEE, A. M., M. D., Assistant Professor of Pediatrics at Rush Medical College; Attending Pediatrician to Prebyterian Hospital, Chicago. Third Edition Thoroughly Revised. Octavo of 326 pages, illustrated. Published by W. B. Saunders Company, Philadelphia and London, 1917. Price \$3.25.)

This book can be recommended to both practitioners and students, as it has the rare characteristic of being at the same time scientific, practical and concise.

The chapters in physiology and metabolism are well worth reading.

Probably more space could be allotted to milk mixtures, albumin milk being just passed over when a chapter could easily be given to it. The classification of gastro-intestinal diseases is that of Finkelstein, except that the field of weight disturbances is narrowed; probably without improvement to the classification.

T. L. BIRNBERG.

*INTERNATIONAL CLINICS.* (Edited by H. R. M. LANDIS, M. D., Philadelphia, U. S. A., with the collaboration of CHAS. H. MAYO, M. D., of Rochester, SIR WM. OSLER, M. D., of Oxford, etc. A Quarterly of illustrated clinical Lectures and especially prepared original articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, etc., and other topics of interest to students and practitioners, by leading members of the medical profession throughout the world. Vol. I, Twenty-eighth Series, 1918. Published by J. B. Lippencott Company, Philadelphia and London. Price, \$2.50.)

In this volume, L. F. Bishop, M. D., gives a very interesting clinical lecture on the value of history-taking in cardiac disease and discusses a few cases most painstakingly.

John B. Haws, 2nd., M. D., has an article on "A Clinic for the Treatment of Non-pulmonary Tuberculosis in Out-Patient and Dispensary practice." Here he describes the methods used in the clinic at the Massachusetts General Hospital and some of the cases there treated. The lesson to be learned is one of more treatment of the patient suffering from tuberculosis in the forms suggested, and less surgery of the lesion. The results the author gets by ordinary hygienic-dietetic-tuberculin methods are very satisfactory to him and far less disfiguring than the formerly more common scars.

F. P. Weber, M. D., has a lengthy article on some pathological conditions of the finger nails.

Surgical articles are also included. One in particular is worthy of note, namely: "The Secondary Suture of Infected Wounds after their Chemical Sterilization with Dichloramine-T" by W. E. Lee, M. D. In this article some conditions are described which responded to such treatment, particularly one of a carbuncle of the back extending from one scapula to the other which was opened by a crucial incision eight and one-half inches long by three inches deep. The history of the case is unusual.

The usual articles on war-surgery are given.

The whole volume is up to its usual standard and is worthy of general interest. After twenty-seven years of successful production these Clinics now have a host of friends deservedly.

C. E. SMITH, JR.

*MEDICAL BACTERIOLOGY.* (By JOHN A. RODDY, M. D., Assoc. in Hygiene and Bacteriology, Jefferson Medical College; Chief Assistant, Department of Clinical Medicine, Jefferson Hospital; Professor of Hygiene and Bacteriology, Philadelphia college of Pharmacy. Sometime Serologist to the Philadelphia General Hospital. First Lieutenant Medical Section O. R. C., U. S. A. Published by P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia, Pa. Price \$2.50.)

This small volume contains a very large amount of information in a condensed form. Perhaps too condensed to make the reading always easy and clear. The facts are there but it is not the kind of a book one would turn to readily—consequently, the author's stated purpose of writing for beginners, as well as medical practitioners and pharmacists, seems imperfectly realized.

A very good chapter is that on Diagnosis, in which the various methods are described for collecting material for diagnosis, for instance the method of obtaining the spirochetæ pallida from the venereal sore. Also the chapter on the Wassermann and other complement fixation tests is very complete and well written.

One could wish that the final chapter on Immunity had been left out, as here the author merely "hits the high spots" and discusses opsonins, the side chain theory, and anaphylaxis, without any comment on the present value of these different theories.

C. N. HENSEL.

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# Minnesota Medicine

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## ORIGINAL ARTICLES

### GASTRIC CRISES AND RELATED ABDOMINAL PAIN.\*

E. L. TUOHY, B. A., M. D.,  
*Duluth, Minn.*

At a previous meeting of this society, the writer in collaboration with Dr. N. L. Linne-  
man, presented a report and classification of  
some 280 cases of lues. This report will take  
up a more limited group (45 in all). Some  
cases presented in the original report are here  
included. All of these cases have been encoun-  
tered in the course of an intensive routine ex-  
amination of patients whose chief complaint  
was severe intermittent abdominal pain. In  
many of these, the symptom-complex strongly  
suggested intra-abdominal surgical disease. All  
but two had repeated positive Wassermanns or  
changes in the spinal fluid characteristic of spe-  
cific disease.<sup>1</sup>

The degree of pain, intensity, duration, and  
position, has naturally varied greatly. This  
may bring into question my right to call them  
all "Gastric Crises." This will depend upon  
how narrow an interpretation is put upon that  
term. The title of this paper is misleading if  
we restrict the use of the term to that type seen  
most characteristically in 30 to 40 per cent of  
well developed tabetics. No one any longer  
questions the etiological role played by lues in

\*Read before the annual meeting of the Minnesota  
State Medical Association, October 11 and 12, 1917, St.  
Paul, Minn.

<sup>1</sup>This group might be made much larger were it not  
that only those cases are included that remained un-  
der observation long enough so that anti-specific treat-  
ment has added additional weight to the diagnosis of  
lues. In view of the growing skepticism accorded  
Wassermann studies in general, it should be strongly  
insisted upon that the therapeutic test for lues is just  
as good now as it was in pre-Wassermann days.

the development of tabes. It is well known  
that many years intervene between the original  
infection and the full development of the dis-  
ease syndrome. Osler mentions an instance of  
occasional lightning pain which preceded the  
full development of Rombergism, pupillary  
changes and absence of the knee jerk, by fully  
ten years. Newer forms of treatment have  
shown us the way to at least greatly alleviate  
many of the awful and disastrous sequelae of  
lues. Not a few people doomed to hopeless in-  
validism have been returned to usefulness by  
persistent and judicious treatment. Some cases  
proceed to a fatal issue with luetic disease with  
alarming swiftness. I recall a young man, aged  
26, who in the short space of eighteen months  
after the development of a chancre had gone so  
far with his nerve lesion as to have a double-  
sided subluxation of the hip joint. The rule,  
however, is for the disease to proceed very  
slowly. A perusal of the data of this paper is  
respectfully suggested, with the idea in mind  
that abdominal pain may be one of the signs  
indicative of luetic virus in the body. Whether  
any of them will go on and ultimately develop  
the full signs of tabes is beside the question. I  
wish it to be definitely understood also that no  
attempt at this time is to be made to explain  
the pathology represented. Whether the con-  
dition in all cases is a true luetic lesion of the  
central nervous system or a toxic influence cen-  
trally or peripherally manifested must be some-  
thing difficult to dogmatically enunciate or  
clinically prove. It will not be attempted. It  
will be seen that the earlier cases have lesser  
degrees of pain and longer intervals of freedom,  
gradually only developing the associated diag-  
nostic criteria, such as Rombergism, girle  
sensations. One of the striking lessons to be  
learned is the amount of surgery that has been

done or advised on these patients. The diagnostic and therapeutic responsibility is unmistakable, and if old tabetics can often be greatly helped, we should stand a chance of doing much more for these, at the same time accomplishing something prophylactically.

A discussion of the mechanism by which true crises are produced is similarly interesting, but inconclusive. It is surprising how indefinite the literature is on this point, or how guardedly men well qualified to give an opinion are in expressing their opinions. The pathway of sensation in any intra-abdominal pain must be essentially complicated. It is assumed by many that the so-called "girdle" sensation is an expression of true "root pain," following upon a diffuse lesion of the posterior fibres of the cord. Using this as an illustration of the general indefiniteness of the pathological physiology involved, it can be stated that the pain in herpes zoster, which is definitely known to be the result of pathology in the posterior nerve roots, is clinically quite different from crises. The mechanism of pain registration in hollow viscus organs can well merit attention. Meltzer's crossed enervation theory is ingenious; the role played by spasm in the colic of gallbladder disease or ureteral stone, receives confirmation by the researches of Carlson and his school (studies growing out of their original work on "hunger pain"). I have on occasion witnessed a man with gastric crises under the fluoroscope with a stomach filling. The organ was in a state approaching tetany at the height of his pain. Lyon<sup>2</sup> reported instances of gastric crises due to spinal lues, in whom the passage of a small duodenal tube into the stomach allowed the contained air to escape and thus relieved tension, promptly terminating the attacks. This is in keeping with Bevan's reported instance of severe ureteral colic, terminated by a kidney drainage without removal of the stone, to again recur when the drainage became temporarily blocked.

Since it is the writer's desire to emphasize particularly those cases in which violent abdominal pain was their most striking symptom, only six true tabetics are included. These are presented chiefly to show, (1) the length of

time they had symptoms, (2) associated lesions they presented, (3) variability and intensity of their pain and distribution, (4) their surgical interest.

A large number of irregular cases have not been included in this report at all. (1) Because, while they had more or less abdominal discomfort, it was not their dominant symptom, or the patient did not remain under observation long enough to furnish reliable data; (2) those having a good deal of abdominal pain, but having enough additional pathology, often surgical in character, to confuse the issue, and to make less reliable conclusions known to benefit from a combined surgical and antispecific therapy.

In order to avoid a detailed individual discussion of these cases, each of which often presents a problem of its own, an attempt will be made to classify them in groups. Whether by chance or not, these sub-groups seem to bear out the reputation lues has for copying true organic diseases. Not that these gallbladder symptoms, for example, copy in all details that of true gallbladder disease, but, carelessly taken histories or hurried examinations may, and often do, confuse them. We can usually safely say that with conscientious examinations, proper serum studies, a judgment of the patient's reflexes, pupils, areas of sensation, etc., confusion will rarely be necessary for very long. A differentiation in the way of sex and age, and length of time they have had symptoms, offers some additional information, and this will be tabulated. In all there were 30 females and 15 males.

I. Stomach Group—Some simulating ulcer; others giving the findings of a so-called "neurosis:"

a—Ulcer .....	6
b—Neurosis .....	2
	—
Total.....	8
Females 5; males 3.	
Average age .....	30 years
Average duration of symptoms. .	3.96 "

Illustrative Case: (a) Male, aged 32, admitted lues five years previously. Vigorous anti-specific treatment for 1½ years. He then left his attendant, who had given him very good treatment, and sought relief elsewhere for an indefinite abdominal disturbance with *epigastric pain*. Ulcer was suspected, and

<sup>2</sup>Gastric Crises of Spinal Syphilis—Meeting A. M. A., New York, June 7, 1917.

he was explored by a surgeon of national reputation, and in the absence of any signs of ulcer, the appendix removed. He was some better for a short time. Six months later, planning marriage, he had several Wassermanns taken, two of which were made at the State University under the best of control, and all were found negative. On this basis he married. Four months later, very severe headaches brought him to me for further advice, and two blood Wassermanns were negative, one after the provocative use of mercury, and it was my conclusion that his basilar headache was probably of neurasthenic origin. Within two weeks, however, he began to vomit profusely, and a spinal puncture was done, yielding a four plus Wassermann of the spinal fluid, a positive globulin, and 184 cells over 3 in the spinal fluid count. On this basis vigorous anti-specific treatment was instituted, with a return to health, which has been maintained since, although intensive treatment has been necessary to keep him well.

## II. Gall Bladder Type:

a—Giving symptoms suggesting stone . . .	12
b—Giving symptoms suggesting cholecystitis (without stone) . . . . .	6
	—
Total . . . . .	18

Males 2; females 16.

(Note great predominance in females).

a {	Average age . . . . .	38	years
	Average duration of symptoms . . . . .	5	"
b {	Average age . . . . .	35.5	"
	Average duration of symptoms . . . . .	1.8	"

Illustrative Cases: (a) Female, aged 38, divorced. A very long history of abdominal pain following upon four pelvic operations that had been performed four years previously, and a gastroenterostomy done for relief of stomach symptoms one year previously. It is probable that the surgeon in operating had in mind the gall bladder, but finding this apparently healthy, for some reason did a gastroenterostomy. When she came under my care she had in addition to recurring attacks, severe abdominal pain centered over the right upper quadrant, severe nocturnal headaches, a moderate anaemia, and a general sense of extreme weariness and total loss of interest in life. Four Wassermanns of the blood were all four plus. Vigorous anti-specific treatment has returned her to health. Whereas she had severe abdominal pain at intervals of every four or five weeks, she has had none now for over a year.

It should be stated here that close observation of one of these patients in an attack reveals several striking differences between these attacks of pain and true gall bladder disease, either that of stone or caused by inflammation. The patient localizes his pain in the G. B. region, but there is usually no definite tender-

ness; the pain radiation is not so distinct nor onset so sudden. As a rule, the patient will complain of a general discomfort, which is not affected by position—in fact he is apt to be up and walking around—and the pain is likely to persist longer, gradually fading away much as it came on. In addition to these points of difference, there is never associated the signs of inflammatory disturbance so characteristic of true gall bladder disease.

(b) Female, aged 40. Had had recurring attacks of vomiting with "bilious" headaches. Three physicians had advised her definitely to have the gall bladder removed, stating that the attacks were not severe enough for stone but that the stomach symptoms were typical of gall bladder disease and that a chronically inflamed gall bladder would probably be found. On examination I found peculiar scars in the region of the left knee, and she stated that she had been treated for a rheumatism of the left knee 17 years previously. Three blood Wassermanns in succession were four plus, and the patient in a period of three months has made a very striking improvement. Not only has she lost her so-called "indigestion," but she now recalls that she is better in many other ways, including pain in the left leg at night, and tendency to headache (usually more severe at night), and a freedom from a general tendency to aches in the shoulders and back which she had grown so accustomed to that she didn't even mention it at the first consultation.

## III. Duodenal Group—Simulating ulcer or pyloric obstruction:

a—Pyloric obstruction . . . . .	3
b—Simulating ulcer without obstructive signs . . . . .	2
	—
Total . . . . .	5

Females 3; males 2.

Average age . . . . . 35.4 years  
Average duration of symptoms . . . . . 5.65 "

In explanation of this group, organic pathology was demonstrated in only 1, and this roentgenologically. Two women had marked delay in emptying time of the stomach, with absolutely negative stomach contour, and with a normal duodenal cap easily visualized and showing no defects. Both of these made striking improvement under treatment, and this improvement has remained after two and one-half years. At the same time, it is important to note that even after that time both of these patients retained nearly as much barium residue after six hours as they did when first examined, despite great improvement in their general ap-

pearance and digestive capacity. It can be stated that while a six-hour residue is as a rule evidence of intra-abdominal disease it certainly is not incompatible with reasonable digestion and excellent health.

Illustrative Cases: (a) Female, aged 32, giving a history of 3 months of bloating after eating, marked constipation, and a loss of fifteen pounds in weight. A series of four Wassermanns of the blood at weekly intervals all showed four plus. At the end of six hours only half the barium had left the stomach. In view of the blood findings nothing was done except to put her on anti-specific treatment, with immediate and permanent gain. She did better on the old-fashioned combination of Potassium Iodid and Bichloride of Mercury than when an attempt was made with the usual injections of the Salicylates in oil.

(b) Patient, male, aged 27, simulates better true duodenal ulcer. He had been ill one year with an intermittent distress, two or three weeks at a time, with three-hour pain and distress, more especially in the afternoon, and being routinely awakened after midnight by distress in the stomach, which was relieved by the taking of food or soda. The roentgenological evidence showed hyperperistalsis, the stomach empty in six hours, the duodenal cap showing normal contour. Two blood Wassermanns were positive. He improved promptly under injections of Mercury Salicylate. Two months later his wife came for examination, having headaches and general malaise, and she also showed a positive Wassermann.

IV. Miscellaneous Abdominal Group:

a—Appendix .....	3
b—Symptoms of ureteral colic, "a true kidney crisis" .....	1
c—Evidence of colitis.....	2
—	
Total.....	6
Average age .....	31.5 years
Average duration of symptoms..	1.62 "

Illustrative Cases: (a) Female, aged 21. Had had an operation on the ovary and appendix five years previously. Recurring attacks of pain, paroxysmal in character, every three or four months since the operation. During the past two years they have greatly increased in intensity and have taken on a broader scope, including severe cramps in the stomach, accompanied by headaches of the migraine type. Repeated positive Wassermanns drew our attention to the possibility of lues of the congenital type. Much improvement has followed persistent and intensive anti-specific treatment.

(b) Male, aged 25. Severe, right-sided abdominal colic, strongly suggesting ureteral stone. No changes in the urine. X-ray findings negative. Four Wassermanns of the blood in all at weekly intervals were made, all showing four plus. He had lost 45 pounds within five months, and was returned absolutely to

health and his accustomed vigor within three months by anti-specific treatment alone.

(c) Female, aged 44, who came on account of left-sided abdominal pain, which she stated was exactly like a neighbor's, who had a similar pain on the right side and for whom gall stones had been successfully removed. Her diagnosis therefore was gall stones on the left side in her own case. Mucus had been noted in her stools, and she complained of much flatulence, associated with constipation. Two, four plus Wassermanns, were reported. She remained under general observation about six months, and had had no more attacks of pain following two courses of mercury rubs.

(d) A more general pain was encountered in a female aged 33, a teacher—nervous, sleepless, passing much slime, and cramps in both sides of the abdomen. Despite the fact that this woman was intensely nervous, shy and repellant, the daughter of a clergyman in a small town in Iowa, the evidence of persistent positive Wassermanns was utilized in dictating her treatment. She gained 20 pounds in weight, and "could never recall when she had been quite so well, even since a child."

V. Tabes:

a—Typical Syndrome of tabes.....	5
b—Definite tabes with evidence of lues elsewhere in the body.....	1
—	
Total.....	6

Males 4; females 2.

Average age ..... 46 years  
 Average duration of symptoms...7.3 "  
 (The longest, 13 years; shortest, 1 year).

As mentioned earlier in the paper, this very limited number of cases of tabes are entered here only for their casual interest. For one thing, the average duration of symptoms is given as over seven years. This means from the time the patient first felt himself unwell. No doubt, as a rule, signs could be elicited even prior to such event. The milder forms of disturbance here reported would seem to indicate the presence of luetic toxin in the body for a shorter time, whereas those severe abdominal colics, suggesting gall bladder disease, average up over five years, and the true, well developed tabetics, over seven. This is as we might expect. One tabetic is included because in addition to intense gastric crises, Argyle-Robinson pupil, and absent knee-jerk, he had an aortic aneurysm. Two more are included because their gall bladders had been operated upon, and in one instance numerous stones were found. The abdominal wound showed very poor heal-

ing evidently in convalescence because severe abdominal hernia resulted. Billings had made the original diagnosis of tabes. One year later an equally prominent man in surgery overruled him, and as might be expected when high authority speaks, both were right. The patient kept his abdominal colic, however. He has taken four to six Neo-salvarsans intravenously yearly, and 3 courses of mercury injections yearly, and is far better now than he was eight years ago.

It will thus be seen that these cases on the whole do not represent the same demonstrable organic pathology. In a few, who were operated upon for some manifest condition, such as a pelvic disorder, the results of this surgical work were such as not to have much influence or bearing upon the outcome. The anti-specific treatment was the deciding factor in giving the patient improvement.

Very little will be said at this time regarding treatment. No treatment for luetic crises can be of any permanent avail except anti-specific treatment. Whether these cases should have the same intensive treatment as that given to early luetics is an open question. No doubt many of them need it and improve amazingly. On the other hand, there are a few who are greatly damaged thereby, and much individual care must be shown. One great difficulty is to know whether or not to let these patients know what they have, and what you are treating them for.

Speaking generally, it profits us greatly to ask the question again and again: what would we do if we had no anti-specific remedies for lues? It is certain that a great many patients would not go on and die. There must be the same immunizing forces to safeguard the patient against lues as against any other chronic infection. Too little is usually done in the way of looking out for the general hygienic surroundings of the patient. Great benefit often follows the riddance of various accessory annoyances, such as bad teeth, bad digestion, constipation, mental anxiety, and overwork. This may account at times for the great benefit that follows on rather simple treatment. I would urge a word of caution, however, that this is not always the case. Anything that will lessen the liability of development of late tabes or

paresis is worth while. If the awful mental and physical destruction can be avoided in the few, it is justified to intensively treat the many.

#### DISCUSSION.

DR. CHARLES R. BALL, St. Paul: Mr. President and Members of the Society: As I listened to Dr. Tuohy's paper and the presentation of his carefully selected cases, I was impressed with the grasp which he has obtained of this subject. Ever since I began taking particular interest in the subject of syphilis, the thought has been borne in on me more and more of the immense advantage in dealing with your patients, which a grasp and understanding of this subject gives you over your colleagues who do not have this grasp. I must congratulate Dr. Tuohy on his recognition of this fact and the way in which he has developed it in his own work.

In his cases of visceral syphilis which he has grouped under the symptomatology, his experience has been larger than mine. I have not paid so much attention to this type of cases because my work has been largely with cases of nervous syphilis. This is a good opportunity, however, to discuss the subject of gastric crises.

Of course, this term "crisis" is not used in the sense in which we ordinarily use the term "crisis" when we refer to the crisis in typhoid fever or in pneumonia, we use it in the sense that these symptoms come on in definite attacks,—that there are certain times when they develop their intensity, and there is not anything especially different in an attack of gastric crisis so far as the pathology and the etiology is concerned from laryngeal crisis or sneezing crisis or attacks of lightning pains. The difference is entirely in the location of the lesion in the spinal cord. They all belong to the same type.

It is very important to keep in mind in nervous syphilis, especially of the tabetic type, that gastric crisis, or lightning pains, may be isolated symptoms, and may precede any other symptoms by years. So we may have an attack of gastric crisis or of vague abdominal pains, which are hard to understand, long before there are any other definite symptoms of nervous syphilis manifested.

Naturally, then, in differential diagnosis, gastric pain and disturbance of luetic origin are often confused with migraine, gall stone colic, and abdominal pain from other causes.

I have observed attacks of migraine, gall stone colic, and renal colic which resemble very closely a true gastric crisis.

At the present time I have a patient who was operated on a year ago for gall stones because of attacks of severe abdominal pain. At the operation something like 100 stones were removed from the gall bladder. The presence of these stones at the time seemed to confirm the diagnosis of gall stone colic but since the operation the painful crisis has continued just the same.

This patient has a well developed tabo-paresis.

I believe we all realize the difficulty in differential diagnosis in the painful crisis of abdominal origin. Unless we are very sure that we know the source of the attacks I would like to urge the importance of a spinal fluid examination in which all the reactions are made. Where gastric crises are isolated symptoms, and they frequently are, it is only in this way that a positive differential diagnosis can be made.

DR. J. W. ANDREWS, Mankato: I do not rise to discuss these papers for the purpose of giving any new thought, but because I am deeply interested in the subject, and my mind naturally runs in reference to cases which I have had which simulate some of the cases which have been mentioned here. If I misunderstood Dr. Tuohy I want to be corrected, but I understood him to say that he did not rely upon the Wassermann independent of symptoms, that if the symptoms did not bear out the positive or negative Wassermann, as the case might be, that he did not rely upon the Wassermann. Is that true? Are we getting back to that, that we must use mercury or iodide of potassium for a few weeks in order to determine whether we have a case of syphilis or not? Is that the status of the profession today?

I heard one physician say this morning that when he attended a medical society he wanted to hear something about common cases, cases that he had in his practice, and here is an opportunity. Every physician present has case after case of gastric crisis. He does not know the cause, maybe, he does not know quite how to diagnose it, but he has the cases, and it is of the utmost importance that he makes a clean-cut diagnosis and not say, "We will open and see what is the matter." There is too much of that, "Make a diagnosis after the abdomen is opened." And I will tell you, gentlemen, the man that does that does not usually make one unless it is very easily made, after it is opened. The time to make the diagnosis is before.

I knew one patient that had repeated gastric crises. The reason was hyperchlorhydria. There was so much acid in the stomach that it caused severe pain, simulating gall-stone colic, and consequently the patient was operated upon and no gall stones were found; there was nothing the matter with the gall bladder. A later and better diagnosis developed the real cause of the trouble.

I am not going to take the time to discuss this further, but I would like to have this point cleared up; is the situation of the profession today in regard to syphilis like it is in regard to tuberculosis? That is to say, these signs, these evidences, these tests for tuberculosis have come to nothing? We know that they are of but very little value. How about the Wassermann? Are we beginning to lose confidence in that?

DR. N. L. LINNEMAN, Duluth: This paper has been so thoroughly discussed that I feel that I have not anything to add. One thing I would like to bring out which I think has been omitted, namely, the

character of the pain in the gastric crises. If you will examine the patient over the region of the gall bladder you will find that in gastric crises there really is no pain on pressure where in gall bladder colic you will find these people to be especially tender.

The thing I particularly wish to speak of is, what are you going to do to prevent late syphilis?

Dr. Ramsey just read a paper and the heading of it was, Some of the Fallacies in Pediatrics, which impressed me very much, because we also have fallacies in the treatment of syphilis. The general practitioner as a rule does not treat this disease properly. It is not that he could not do so if he just took a little more pains, but he is a busy man and simply neglects this important part of medicine.

We have another class of men, unfortunately, who pose as Syphilographers, and make syphilis their specialty, who are absolutely dishonest, which is a very unfortunate situation. For instance, a person will go to them who has syphilis, and will be guaranteed a cure for seventy-five or one hundred dollars.

This treatment usually consists of one or two doses of Neo-salvarsan and some pills, or perhaps a dozen of intra-muscular injections. By this time the symptoms temporarily have disappeared, the patient pays his money and goes about his way, thinking that he is cured.

This person may have missed the opportunity of being cured, because he was misled.

Dr. Fordyce thinks the success in treating this disease depends entirely upon the first six months of treatment. He means by this if it were treated properly the first six months the disease would be under control and by following up the treatment after that a cure could be effected. What cases are apt to develop nervous syphilis?

Some physician in the army, whose name I cannot recall just now, made spinal punctures in a large series of syphilis during the secondary stage. He found that a certain per cent of these had a positive Wassermann of the spinal fluid at that time, and he argued that those were probably the cases who develop nervous syphilis later. Whether that is true or not there must be something in the early involvement of the spinal cord.

The Wassermann test, as Dr. Tuohy has said, has been a great aid in our work.

There is no question that quite a percentage of nervous syphilis will show a negative Wassermann when the spinal fluid will be positive. If these cases are not followed up thoroughly they are apt to be confused with transverse myelitis and multiple sclerosis, for which there should be no excuse, if the proper examination is made.

I know of several of these cases that have been treated for syphilis and of course without results.

DR. E. L. TUOHY (closing the discussion): The argument and the recital of clinical cases will of course appear in the paper when it is published, and it is manifestly impossible to give more than the most sketchy statement here.



The fundamental idea I want to bring out is that there are a great many instances in which syphilitic toxine in some manner or other, the pathology of which must remain obscure, is giving symptoms of intra-abdominal disease.

Certain of these are being subjected to abdominal operations and otherwise mistreated. Dr. Nuzum in a report from the Cook County Hospital, Chicago, reported a thousand cases of tabes, of which eighty-seven had had abdominal operations. It is true that some patients do have more than one sickness at the same time. There are not a few instances on record of gall stones in tabetics. Some of the cases in my report illustrate this well.

Cholecystitis is a clinical entity which in its milder grades is most difficult to identify, and concerning which there can be much difference of opinion. Concerning those which on removal show demonstrable pathology, even of the milder grades, there can be no great difference of opinion, but it is of interest to remark that this is the "open season" for gall bladders. A very safe rule is to be guarded in estimating the pathology present, in any instance where the clinical signs and physical findings do not well conform to the reasonable standard set by experience. It is in these atypical cases that you should keep well in mind the possibility of crisis.

The Wassermann is more reliable than any tuberculin test, and yet of course it has many limitations, like all other laboratory procedures. Too much reliance is probably placed at times upon an isolated report, either positive or negative. Numerous investigators have shown that the same blood may be positive and negative within very short intervals. The use of provocatives is now well understood. If I, as an internist, could not have the opportunity of making thorough examinations in every other way as well, and to follow up and repeat the Wassermann again and again, I would rather not have it made at all. Some of these cases have had as many as eight to ten Wassermanns made.

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## FRACTURES OF THE SKULL.\*

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Fractures of the skull vary in character and gravity according to various circumstances. Thus, the situation of the fracture is of importance, the chief point being whether it involves the vault or the base. The fracture may be a slight, simple fissure or a very extensive comminuted fracture; it may be complete or only one table may be injured; the broken pieces may or may not be depressed. The character

of the instrument which inflicts the injury is also of great importance.

The effects of injuries which are sufficiently severe to produce a fracture of the skull are not limited to the bone itself. When we speak of fracture of the skull, we include injuries to the brain under the same heading, as they are practically inseparable. Various complications may ensue; among the most important are concussion, laceration and compression of the brain; septic complications, such as cellulitis of the scalp, leptomeningitis, cerebral abscess; hernia cerebri; paralysis of motion, sensation or special sense, subsequent mental derangements, persistent headaches or traumatic epilepsy.

The inner table is always more extensively broken up and more detached than the external, so that the amount of injury evident externally does not fully indicate the amount of damage in the deeper parts. The impending type of fracture produces more extensive separation of the inner table, which fact can be illustrated by the break on the convex surface of a green stick.

In a punctured fracture a small hole in the external table is all that is noticeable from the outside, but the inner table is usually considerably detached and the fragments project against the dura mater, and may even perforate it, in which case their sharp edges may project into the brain itself. It is important to remember that, however insignificant the external wound appears, there is certain to be considerable and serious damage to the inner table, which must be remedied. In these cases also, the instrument itself is very likely to puncture the dura mater and lead to hemorrhage from the vessels in it, or even from those on the surface of the brain.

The classification of cranial fractures into simple and compound fractures has a direct bearing on the diagnosis, prognosis and treatment.

In compound fractures of the base, we are able to accomplish little in the way of prevention of infection. In compound fractures of the vault, we are in a position to combat infection to a material extent.

Fracture of the base is much more frequently associated with fracture of the vault than is

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commonly supposed. Dr. Besley in a recent article in the *Journal of the American Medical Association* says: "In my analysis of seventy-four cases at autopsy, there were sixty-five of the base, sixty-three of the vault and an association of both types in fifty-four cases, or 72.9 per cent. In one thousand clinical cases an association was recognized in only 33 per cent, showing the difficulties of diagnosis of the exact location of the line of fracture."

The signs of general intracranial pressure produced by bleeding or edema are usually present, as manifested by unconsciousness, slow pulse, embarrassed respiration, high blood pressure, choked disk and vomiting. These signs are more or less apparent and marked, depending on the amount of hemorrhage and edema. In fracture of the base, a wet, edematous, swollen brain is the most frequent and may be the only apparent cause of death. After death from an edematous brain, the edema usually rapidly disappears. Therefore, if a postmortem is not made immediately after death, a normal appearing brain may be found. The focal signs are entirely dependent on the area of brain that may be involved from laceration, pressure or from blood clot. Signs of compression or focal signs of cortical injury strongly indicate fracture of the skull, but may occur independent of bone injury, being caused by hemorrhage or laceration of brain tissue. In fractures of the skull the prognosis is much more favorable when the dura ruptures than when the dura remains intact, as this permits of the escape of blood and cerebrospinal fluid, thereby providing a safety vent which prevents excessive intracranial pressure. In concussion, the unconsciousness develops at once and tends to decrease with time. In hemorrhage, the unconsciousness gradually increases with time. Therefore, a deferred or gradually developing unconsciousness, or a free interval of consciousness subsequent to a primary period of unconsciousness again followed by deep unconsciousness indicates a progressive active hemorrhage and pressure. This results most frequently from injury to the middle meningeal artery, and this artery is rarely involved without an associated fracture.

Hemorrhage may be the only evidence of a fractured base. After any head injury, imme-

diately inquiry should be made for bleeding from the ear, mouth or nose.

In bleeding from the ear, it is necessary to be sure that the blood does not originate from the auditory canal. If there be but little blood in the canal, it may have been caused merely by a ruptured tympanic membrane, which can occur without a fractured base. More profuse or persistent bleeding, however, points with great probability to a bone injury, which indicates a fractured base, unless the external auditory passage has itself been severely wounded.

Hemorrhage from the nose and mouth is only significant when the injury has not directly involved the face. If such an injury can be excluded, it points to a fissure in the ethmoid, sphenoid, or anterior part of the basilar process of the occipital bone. Exceptionally, the blood might come from the Eustachian tube.

Diagnostic importance is attached to subcutaneous effusions of blood as well as to its immediate escape externally. Their situation and their mode of onset are both significant. They usually appear in the region of the orbit and mastoid process. It requires some few hours for the blood to reach the superficial tissues; occasionally it takes a few days.

The advisability of making a spinal puncture in all cases of suspected skull fractures comes into question. When blood is found in the spinal fluid, it is highly presumptive evidence of the existence of a fracture. The procedure, however, is by no means free from danger, especially in those cases in which there is a marked increased intracranial pressure. The danger is that with the relief of pressure within the spinal canal, the medulla and pons may be forced into the foramen magnum and constricted sufficiently to cause immediate death. This danger, however, is not so great in traumatic injury cases as in brain tumor cases. If a positive diagnosis is not arrived at from other evidence, a spinal puncture should be made. In this connection I wish to say that in the less severe degrees of intracranial pressure resulting from injury, repeated spinal punctures at times give marked relief from stupor, headache and delirium by reducing the increased intracranial pressure.

Unless the X-ray is used, many fractures of the skull will not be diagnosed. The X-ray has frequently demonstrated this lesion where there were no symptoms, and it is important to recognize fracture on account of remote sequela, etc.

Every X-ray examination should cover the frontal, parieto-temporal, occipital and basilar regions, whether there are objective symptoms pointing to these regions or not.

Percussion of the skull is an aid in diagnosing fracture of the vault as it often brings out a cracked-pot sound. To secure the best results, the head should be shaved; if the patient is conscious, he should sit up and keep the mouth closed; if unconscious, the head should be supported at the occiput. Hematoma and edema of the scalp will interfere with this test.

The treatment of mild cases of linear fracture and the treatment of concussion should be practically the same. In all cases the treatment of the accompanying shock should receive first attention.

In all cases of fracture of the skull the patient should be given absolute rest in bed in a quiet darkened room. All relatives and visitors should be excluded and if the patient is very restless and delirious, small doses of morphine should be given hypodermically. If the patient has just eaten a meal or is an alcoholic, a gastric lavage is indicated. The bowels should be emptied by enemas followed by saline catharsis.

The head should be kept low and an ice-bag applied to lessen the circulation and to diminish the cerebral edema, thereby lowering the intracranial pressure.

In all lacerated wounds of the scalp, it is important to shave well beyond the margins of the wound and cleanse it very thoroughly; after which, it should be sutured very loosely and drain provided. Unless these precautions are taken, there is great danger of a meningitis developing.

If there is hemorrhage from the nose and mouth, these cavities should be swabbed with a weak solution of silver nitrate. They should never be irrigated, as septic material may be carried into the wound. Blowing of the nose should be avoided, as it forces secretions and infections through the fissure, even considerable

quantities of air have been forced into the cranial cavity.

If blood or cerebrospinal fluid escapes from the ear, the meatus should be carefully wiped out with iodine and a pledget of sterile gauze or cotton should be placed in the external auditory canal. The ears should not be plugged tightly with gauze or cotton, as this will only dam the fluids back instead of allowing their free and prompt escape. Aural bleeding is of importance, both as a diagnostic and prognostic sign. Crandon and Wilson found that in cases of hemorrhage from one ear there was a mortality of 39 per cent, while when it occurred from both ears the mortality was 66 per cent.

In fractures of the skull with a lacerated scalp wound together with a fissure of the vault, do not omit to open up the wound in the direction in which the slit in the bone extends; it may be that a little farther it changes its character, and if it be found that it runs towards the base, the knowledge is certainly worth the enlargement of the wound.

If the fissure is narrow, the bleeding has ceased, and no characteristic cerebral symptoms are evident, complete the cleansing of the wound, and bring the edges together with a few points of suture, but do not close it completely. Always reserve the prognosis, especially if the patient is still suffering from concussion.

Fissures of the outer table must always cause us to suspect the existence of others, more extensive and more dangerous, of the inner table. Therefore, if the impact has been very violent, if the crack in the bone is rather wide and the edges are not level, if blood continues to flow from it, if hair or dirt is caught in it, do not hesitate to open up the seat of fracture in order to explore and cleanse it. This should be the treatment for every complicated fracture; when dealing with the skull it is more definitely indicated than anywhere else.

Remove broken pieces of bone, and explore the inner table of bone and the dura along the course of fracture, so as not to overlook any depressed pieces of the inner plate or any blood clots.

It is important in removing detached fragments, to take care not to tilt them, otherwise their sharp edges may lacerate the dura mater;

they should be drawn out very gently, and nearly parallel to the surface of the skull.

If the dura mater is intact and normal in appearance, nothing more is required and the wound may be partly closed, provided the intracranial pressure is not excessively high.

In another case, under the scales and fragments of bone, the dura may be found torn and the brain exposed, or even contused and lacerated, and perhaps broken-down brain tissues mixed with clots and osseous debris escape through the wound. In this event, cleanse the cavity gently and finish as before, refraining from closing the wound completely.

In default of these measures the patient will be exposed to the onset of meningoencephalitis, or to various late and very serious troubles, of which Jacksonian epilepsy is a type.

In the treatment of depressed fracture, it may be laid down as a rule that the depressed fragments should be elevated or removed, any detached portions of bone taken away, and all hemorrhage arrested, without waiting for cerebral symptoms to supervene. Hence, operation is advisable in all cases of depressed fracture, whether the fracture be simple or compound; and the sooner the operation is performed after the patient has recovered from shock the better. Before deciding to operate, we must be positive that we are dealing with a depression from a depressed fracture, as we may have an induration of the scalp simulating a depressed fracture. We also have natural depressions of the skull which together with a swollen scalp may be difficult to differentiate from a depressed fracture.

A case is reported of a patient who fell from a height, and the surgeon wished to explore over a depression; but the patient recovered consciousness and explained, with just apprehension, that the depression had been present since infancy.

When unconsciousness passes off, giving place to a condition of mental dullness, all the limbs can be moved at will; there is no irregularity of the face, speech is slow but correct; there are no focal symptoms; there may be found on the vault or side of the skull a painful spot or fissure; then there is nothing to be done. The practice is, no external wound, no symptoms, no operation.

On the other hand, there must be no hesitation when symptoms of cerebral compression are associated with a local cranial sign.

Until recently the usual treatment of fracture, whether of the vault or base, was palliative, about the only exception being that in depressed fractures of the vault, the depressed bone was raised or removed.

Undoubtedly many cases of mild fracture of the skull are overlooked because of the comparative absence of symptoms and signs. In these mild cases of fracture and in the cases of simple concussion the palliative treatment is successful. In the cases of fracture, whether at the base or vault, in which there are definite signs of paralysis of the extremities or cranial nerves, and increased intracranial pressure, palliative treatment is not sufficient.

If the patient is in a condition of shock following the accident with a pulse of 120 or more, all effort should be directed toward overcoming this shock. After the patient has recovered from the shock, examination should be directed toward determining whether or not there is a marked increase in the intracranial pressure. The most reliable sign of increased intracranial pressure is found in the fundus, the so-called "choked disc," which can only be discovered by the use of the ophthalmoscope. Following injury it requires time for the early stages of "choked disc" to develop, six hours being considered as the minimum.

When there is a "choked disc" with other symptoms of increased intracranial pressure or localizing symptoms, following an injury to the head, it means that it is due to an intracranial hemorrhage or to an edematous swollen brain. In these cases whether or not a fracture has occurred, an early subtemporal decompression with evacuation of blood clot if present must be made to save the patient from death by compression and impaction of the medulla into the foramen magnum. If operation is delayed until the medulla is impacted the mortality will be very high.

In a recent article, Sharpe says: "Any operative procedure for the relief of the intracranial pressure should be undertaken while the pulse rate is descending, at 60 or below, for once it has reached its lowest level of medullary compression, the danger of a medullary edema is

great. If it does occur, the pulse rate begins to rise rapidly, and I have yet to see a patient recover, whether or not operation is performed, once the pulse rate has descended to its lowest level and then begun to rise rapidly. The danger of the operation while the pulse rate is descending is far less than the danger of the possible onset of the signs of a medullary edema, the mortality being then practically 100 per cent."

An early decompression will not only save life, but will prevent a large percentage of post-traumatic conditions so frequently following fracture of the skull, as headaches, marked depression, irritableness, dizziness, epilepsy, etc., conditions due in the majority of cases to the resulting, unrelieved, increased intracranial pressure prolonged over a more or less extended period and frequently resulting in chronic edematous swollen brains. If the patient requires a decompression and has a depressed fracture or evidence of a blood clot together with an infected scalp wound on one side of the head, do a decompression on the uninfected side first, and then elevate the depressed fracture or remove the blood clot from the infected side after the infection has cleared up.

It is well to remember that in some cases there is no correlation between the seat of the fracture and the peripheral symptoms observed; the fracture is on the right side of the vault; it is also on the right side that a hemiplegia is discovered. The mechanism of contrecoup explains these facts. On the side opposite to that which received the impact and which bears the signs of injury, there is an effusion of blood or an area of cerebral contusion. In these cases it will be necessary to explore over the cerebral areas indicated by the paralytic or convulsive symptoms.

In right-handed individuals the decompression should be made on the right side unless there are localized signs of pressure over the left cerebral cortex.

In applying the dressings after decompressive operations let us not forget one of the cardinal principles in the treatment of fractures of the long bones, namely, avoid the use of dressings which will not allow for the swelling which is sure to follow the injury.

Barnes and Slocum recommend doing repeated spinal puncture in case of severe head injury, and injecting 60 grains of urotropin intraspinously.

In 1909, Crowe showed experimentally on dogs that urotropin markedly retarded and acted beneficially in cases of experimentally produced meningitis in dogs. In an article written in 1912, Crowe reports thirty-five cases of compound fracture of the base of the skull in which urotropin was given as a routine measure without a single instance of a complicating meningitis. In contradistinction to this, there occurred during the preceding period and in the same number of patients, nine cases of meningeal infection.

Crowe recommends that in compound fractures urotropin should be given in very large doses well diluted with water both by mouth and rectum; as much as 30 grains in 15 ounces of water may be given by mouth and the same amount by rectum, making an initial dose of 60 grains. After the first dose about 100 grains well diluted with water should be given every twenty-four hours until the danger of infection is past.

In fractures of the petrous portion of the temporal bone, non-infection of the tympanic cavity is of great importance. When there is infection present in the middle ear at the time of fracture, the prognosis is more serious because of the danger of direct infection of the meninges and brain.

In this type of a case, when an extradural hematoma is present, decompression with removal of the hematoma is indicated for the purpose of lessening the danger of infection.

The mortality of fracture of the skull will always be high, as some of the cases have so extensive injuries to the brain that death is inevitable whatever the treatment.

In conclusion, I wish to emphasize that in addition to the usual treatment of shock, control of hemorrhage, prevention of infection, raising of depressed bone and removal of bone spicula, it is most important to early recognize and by decompression relieve a high intracranial pressure, and evacuate blood clots. This is a life-saving procedure, in addition to which it will prevent many post-traumatic complications as

headaches, paralysis, epilepsy, cyst formation, etc.

Permit me to again emphasize that in treating head injuries, we must remember that the fracture or bone injury is not the important point. But that the damage done the brain tissues by laceration, compression from depressed bone, hemorrhage and edema, are the causes of the immediate symptoms, death, and the post-traumatic conditions.

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### LITHIASIS WITH BILATERAL RENAL INVOLVEMENT.\*

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The various conditions in which lithiasis with bilateral renal involvement is present may be as follows:

1. Bilateral nephrolithiasis, including stone in the ureter on one or both sides.
2. Lithiasis in one kidney and disease in the other.
3. Lithiasis in a solitary kidney.
4. Lithiasis in a fused kidney.

#### BILATERAL NEPHROLITHIASIS.

On reviewing the records of the Mayo Clinic from January 1, 1910 to October 1, 1917, it was found that 62 patients had been operated on, for bilateral nephrolithiasis. During the same time 504 patients with unilateral lithiasis were operated on, making a percentage of 12.3 of bilateral lithiasis occurring in the operative cases.

#### GENERAL STATISTICS.

In the series of 62 patients operated on there were 40 males and 22 females, which is in keeping with the relative occurrence of sex as noted in cases of unilateral lithiasis. The average age

of the patients was 40 years, and the average duration of symptoms was 9 years.

#### LOCALIZATION OF PAIN.

The pain was localized definitely to both sides in only 14 cases, to one side in 26 cases, and in 14 cases to one side recently, with a previous history of more or less definite pain on the other side. Renal pain was absent in 8 cases. The large number in which the pain was entirely or predominatingly on one side (64.51 per cent) should emphasize the necessity of making a complete roentgenographic exposure on both sides in every case of the kidneys and ureters.

#### ESTIMATION OF RENAL FUNCTION.

This may, in a few cases, be of considerable aid to prognosis. Phenolsulphonephthalein is, for all practical purposes, as valuable as any functional test. When the return in two hours is only a trace or persistently very low, the prognosis is necessarily grave, and operation is usually not advisable unless there are urgent indications. We have, however, observed two patients in whom there was a persistent low phenolsulphonephthalein output, 5 and 8 per cent respectively, several years after operation. When the phenolsulphonephthalein return is moderately low, varying from 20 per cent to 40 per cent, I have frequently observed that it will later become much higher following operation. This is particularly true in the presence of marked infection relieved by drainage subsequent to lithotomy, and it may be inferred that toxic absorption as well as reflex irritation may be the cause of temporarily reducing the renal activity. A high return, 50 per cent or more, is of value when clinical symptoms, or the general appearance of the patient, are suggestive of renal insufficiency. Particularly is this true in the presence of marked renal infection with toxic absorption, which frequently causes symptoms simulating advanced renal insufficiency. A high phenolsulphonephthalein return would assure the existence of one good kidney at least. The combined functional test therefore is of practical value only with a normal or extremely low return where the clinical appearance is doubtful.

It may be desirable to determine the comparative degree of function remaining in the two

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kidneys. This is not always possible but frequently may be done, (1) by the size and character of the stone, (2) by cystoscopic inspection, and (3) by a differential functional test.

#### DIFFERENTIAL FUNCTIONAL TEST.

The irritation caused by stone in the kidney will usually interfere greatly with the accuracy of the estimate of renal function. It is difficult to explain the variable degree of reflex inhibition of secretion exerted by renal stone. One kidney containing a stone may have a phenolsulphonephthalein return of but 4 or 5 per cent in fifteen minutes, while another with a stone similar in size and position and with the same degree of infection, may have a normal return. As a rule, small stones of recent origin and without marked infection, will cause comparatively little functional disturbance. Low functional return in the presence of stone is usually succeeded by a normal phenolsulphonephthalein output after the stone has been removed. Renal functional tests can give only an estimate of the functional activity of the kidney at the time of the examination, and not what the kidney is capable of doing under normal conditions. Too much reliance cannot, therefore, be placed on the amount of normal tissue in the kidney, as shown by the phenolsulphonephthalein test. This was well illustrated in one of our recent cases with stone in the left renal pelvis in which the differential phenolsulphonephthalein estimate from the left kidney was 7 per cent in fifteen minutes. From this it might be inferred that considerable healthy tissue remained and a conservative operation would be indicated: At operation, however, a large abscess was found in one pole together with several soft areas in other portions, so that a nephrectomy was clearly necessary. In several other instances in which branched stones were present the phenolsulphonephthalein return was surprisingly good, and on surgical exploration the kidney was found to be so markedly diseased in areas that a nephrectomy was obviously indicated. On the other hand, if the phenolsulphonephthalein return is zero or only a trace, it may usually be inferred that the kidney is so largely destroyed that a nephrectomy is indicated. If, however, the phenolsulphonephthalein test is only com-

paratively low, the functional test is of uncertain value, and unless the other data obtained by physical, cystoscopic or roentgenoscopic examination are of definite value, surgical exploration only will determine whether or not the kidney can be saved.

#### INDICATIONS FOR OPERATION.

After it has been decided that an operation is advisable the question arises: Which of the two kidneys should be operated on first? Rules as follows may be made:

1. In the presence of recent acute pain, repeated and continuous hemorrhage or toxic absorption from advanced renal infection referred to one kidney, that kidney must necessarily be operated on first.

2. If conditions do not necessitate this operation the kidney with the better function should be operated on first in order to take advantage of the function remaining in the kidney on the other side during the acute stages following operation. This is particularly imperative when the stone is so situated that the drainage from the kidney with the better function may be obstructed. When the irritation, infection and danger of obstruction have been removed by the lithotomy, the other kidney may be operated on and removed if it seems advisable.

3. In cases in which the patient is in excellent physical condition, and the stones are of moderate size and advantageously situated, the renal function only slightly reduced and but little or no infection present, both stones may be removed at the same time.

#### PATIENTS NOT OPERATED ON.

There were 33 cases in which a very evident diagnosis of bilateral nephrolithiasis was made, and the patients were not operated on. No operation was advised, for various reasons, in 21 cases, and in 9 operation was advised but the patients did not return. Two patients were operated on for coincident malignancy in other parts of the body, and in one case the patient is awaiting operation.

Two patients had been previously advised of stones in both kidneys, but they had not had symptoms of any kind in recent years. There was little or no evidence of infection in the

urine and the renal function was but slightly impaired. Because of the previous history and evident tolerance of these patients it did not seem best to remove the stones. In the presence of large or multiple stones which are not causing acute pain suppuration or hemorrhage, the advisability of operation is questionable. The patient acquires a tolerance to the stones and will often have a better prognosis than if they are removed. If the stones are small and the function is not too greatly diminished, operation may be advisable in spite of the fact that there are no acute symptoms. If, however, there is considerable kidney destruction, the removal of large stones causes so much damage to the kidney tissue that death frequently results soon after operation. The possibility of stones recurring and then being situated so as to cause urinary obstruction, must also be considered.

#### PATIENTS OPERATED ON.

Both kidneys were operated on in 33 patients, and one only in 29 patients. Seven of the 29 patients were advised to have both kidneys operated on but they refused. In the remaining cases either the stone was so small that it was believed that it would be passed spontaneously, or the condition of the patient did not permit of operation. Five of this group passed the stone from the other side spontaneously. The destruction of renal tissue consequent to the search and removal of very small stones is so great that it is usually best to await further developments, providing the patient can be kept under observation. When it is found advisable to remove such stones, pyelography has proved of great aid in their identification and localization.

#### NEPHRECTOMY.

In 22 patients a nephrectomy of one kidney was found advisable because of the advanced destruction of the organ. In 7 of these patients a nephrectomy alone was made; in 15 it was found necessary to do either a pelviolithotomy or nephrolithotomy on the other kidney.

#### POSTOPERATIVE RESULTS.

There was no operative mortality, which would indicate that patients with bilateral nephrolithiasis, when properly selected, offer

no greater operative risk than with unilateral lithiasis. There were ten deaths reported subsequent to operation, all within less than a year, the majority presenting clinical evidence of renal insufficiency.

#### SUBSEQUENT EXAMINATION.

Twenty patients were examined at varying times following operation, and recurrences were found in 5. In correspondence with other patients, 3 gave a history of having passed stones from the kidney operated on, and 4 gave a history of severe pain, which we regarded as probably due to recurrence, thus making the total number of recurrences 12 (19.35 per cent). A previous review of patients with unilateral lithiasis showed a total recurrence of less than 10 per cent. It is evident therefore that the recurrence in bilateral nephrolithiasis is fully twice as great as with unilateral lithiasis.

In the 22 cases in which it was found necessary to do a nephrectomy because of calcareous pyonephrosis, six patients died within a year following operation. The prognosis therefore, in cases of advanced calcareous pyonephrosis on one side is very grave. Subsequent examinations were made in 5 of these patients, recurrence being noted in but 1. Later letters were received from 3 patients; all of whom appear to be fairly well.

#### UNILATERAL LITHIASIS WITH DISEASE IN THE OPPOSITE KIDNEY.

There were 15 cases of stone in one kidney and disease in the other. This group does not include a large number of cases in which an occasional pus-cell was found in the catheterized specimen from the opposite kidney. A few pus-cells are easily picked up by the ureteral catheter from the bladder-fluid and should have no practical significance provided other cystoscopic data are negative, and the function of the kidney is found to be normal. But with definite evidence of infection and disturbance in function in the other kidney the question may arise whether or not operation would be advisable.

Among the various conditions found in the opposite kidney, pyelonephritis to a moderate degree was found in 6 cases, pyonephrosis to such an extent that the kidney was functionless in 5, hydronephrosis in 3, and tumor in 1.



## STONE IN A SINGLE KIDNEY.

In 7 patients with only one kidney, a stone was removed. In 5 of these nephrectomy had been done elsewhere some time previously, in the other 2 there was no evidence of the existence of the opposite kidney, and there was no clinical evidence of previous renal disease so it may be inferred that the condition was congenital solitary kidney. In 3 of the 5 cases in which a nephrectomy had been done this was necessary because of pyonephrosis, in 1 because of hydronephrosis and in 1 because of acute pyelonephritis. The operations performed on the single kidney were nephrolithotomy 3, and pelviolithotomy 4. In one of the cases of nephrolithotomy the patient was operated on three times for recurring stone, extending over a period of six years. The patient died seven years after the first operation. One other patient was also operated on for repeated stone, but is now alive and well. This illustrates the great degree of tolerance which a single kidney may have for removal of recurring stone. One patient developed uremia one month after operation and died. One patient had a subsequent x-ray examination, which was negative. There was no subsequent data in the remaining three cases.

## HORSESHOE OR FUSED KIDNEY.

Five patients were operated on when lithiasis was found in a fused or horseshoe kidney—in 4 the lithiasis was confined to one-half of the kidney, and in 1 there was a stone in both sides of the kidney. In 2 patients with unilateral involvement, secondary infection had advanced so far that bisection of the kidney was necessary. In 2 a pelviolithotomy was performed. In the case of bilateral nephrolithiasis, heminephrectomy was necessary, and a stone was removed from the lower ureter by cystoscopic manipulation on the other. Three of these patients are alive from one to five years after operation.

## SUMMARY.

1. In 17.2 per cent. of the patients in this series there was bilateral involvement. The percentage of bilateral lithiasis was 12.3.

2. Bilateral as well as unilateral lithiasis occurred twice as often in the male as in the female.

3. Pain in bilateral nephrolithiasis was unilateral in 64 per cent and absent in 12.9 per cent of the cases.

4. Bilateral stones were found most frequently in the pelves and calices.

5. Combined renal functional tests were of practical value only when normal or extremely low.

6. To ascertain the comparative degree of function in the two kidneys, the functional test was of value only when it was zero or a trace, normal or excessive.

7. The functional test, x-ray examination and cystoscopic inspection may be insufficient to determine the degree of healthy renal tissue remaining, and exploration only can determine this.

8. Indications for operation: (a) The kidney with acute complications should be operated on first; (b) without acute complications the kidney with the better function should be operated on first; (c) occasionally simultaneous bilateral operation is advisable.

9. Patients may be inoperable because of renal insufficiency, secondary infection, kidney destruction or constitutional complications.

10. Patients with large bilateral stones causing no symptoms or complications are better off without operation.

11. The operative mortality in this series was zero; the total number of deaths after operation 10; these patients died less than a year following operation. The operative mortality with calcareous pyonephrosis is much greater than with other forms of bilateral lithiasis.

12. The recurrence in cases of bilateral nephrolithiasis was 20 per cent; in unilateral lithiasis, as previously reported, it was 10 per cent.

13. When there is stone in one kidney the most common forms of disease in the opposite kidney are: pyelonephritis, pyonephrosis and hydronephrosis.

14. With unilateral lithiasis the opposite kidney may be so badly diseased that a preliminary operation may be advisable on that kidney.

15. Stone secondary to pyelonephritis, when removed, prevents further renal destruction but is not of curative value.

16. When the nephritic element predominates, removal of the stone is not of much therapeutic value.

17. A single kidney has a great degree of tolerance for repeated operation for stone.

18. In a single kidney the phenolsulphonephthalein output usually remains high in spite of the presence of an uncomplicated stone which is probably due to compensatory hypertrophy.

19. Fused or horseshoe kidneys permit of repeated operation for lithiasis which may if necessary include hemi-nephrectomy.

#### DISCUSSION.

DR. H. P. RITCHIE, St. Paul: Mr. President and Gentlemen: When Doctor Braasch kindly asked me to discuss this paper, I looked over our series of cases. Although considerable, they do not approximate the great number of the Mayo Clinic. I was surprised to find so small a number of bilateral renal lithiasis. This was a surprise because we have, I thought, rather a large number. The reason is that each one is more individual; they required such elaborate methods of examination and such nice surgical judgment that we are inclined to remember them. They influence us in an ordinary case of stone in the kidney to make a most complete examination, because an operation on the kidney for stone or anything else without sufficient evidence we are sure at some time to pay the penalty. I think that in most of these cases the situation can be demonstrated by the tests of which Doctor Braasch has spoken. My experience in this work goes back to precystoscopic days. I can recall several tragedies which occurred which would not occur today. It is a remarkable thing that bilateral lithiasis can go on without bringing particular attention to the kidney.

A case I have in mind is now under observation. The patient came with abscess over the right hip but no bone lesion found. This was opened with improvement. She eventually developed recurring attacks of fever and chills, with signs of something high up in the abdominal cavity,—a subdiaphragmatic abscess. I aspirated the abscess. I followed my needle down into the kidney and found pus. I took out twenty-five stones.

Although several X-rays had been taken, none of them included the kidney. Later pictures showed stones in the other kidney. The progress after the first operation was so rapid that I attacked the left and removed a number of stones with the result that now there is every indication of her full recovery to health.

#### RESPONSIBILITIES OF THE MEDICAL PRACTITIONER TO THE STATE, PROFESSION, AND PATIENT, AS RELATED TO MALPRACTICE.\*

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Of the Professions, the Profession of Medicine and Surgery is the most noble and self-sacrificing. The duties and services of this profession are arduous and continually demand the exercise of the moral, mental and physical energies in the most careful, kind, diligent and faithful manner regardless of the social or economic status of the patient. The responsibilities and obligations are enormous, not to the practitioner alone, but also to the patient, the profession and the state. The responsibilities and obligations are imposed upon the practitioner by the state in the exercise of state licensure, upon the patient by the sacred, private relations necessarily existing between the patient and the practitioner, and upon the profession because of the highest and noblest interests the state has entrusted to the profession of medicine and surgery. The practitioner individually and collectively must maintain the tradition, the high ideals of his profession.

The practitioner must live a life of service and self-sacrifice to bring new hope, cheer, comfort and to relieve suffering and to prolong life. The profession of medicine and surgery has made great progress both as a science and as an art, and naturally and consistently the progressive growth of the profession has added new and greater responsibilities to those of us who have trained and dedicated ourselves to this life of service. Therefore, because of these obligations the conduct and practice of a physician is subject to review and commendation or condemnation by the patient, by the profession and by the state. The great changes in the social conditions are pregnant for good and evil for the average practitioner.

The bastard cults are misleading the ignorant and unsophisticated to false ideas and wrong conceptions as to the causes of disease and the

\*Read before the Annual Meeting of the Southern Minnesota Medical Association, Mankato, November 26 and 27, 1917.

underlying pathological processes, and the end results that may reasonably be expected following a serious disease, traumatic injury or a minor or major surgical procedure.

The layman is graduated by the School of "Shyster Attorneys" and ambulance chasers and apostles of various cults, so that he becomes an ardent disciple of vicious mistrust and is ever ready to be the tool for the commission of criminal felony fostered by the "Shyster Attorney," (not lawyer, the title "attorney" is as contemptible as is the title "doctor.") This is a day of damage suits involving railway corporations and industrial organizations. Public utilities and physicians, the custodians of life and health, come in for the greater part as the target of these damage suits. The physician is held to the strictest accountability for sins of omission and commission and even his purposes and motives are wilfully misinterpreted to meet successfully the felonious designs and purposes of the charlatan. If the physician's most delicate and difficult task is not performed to the entire satisfaction of the patient and his family but also to the entire neighborhood, he may very promptly be subject to a suit for malpractice. It is almost incredible that the men who above all others live a life of self-sacrifice, ministering to the sick and suffering of their respective communities, who freely give their services to the poor, day and night, rain or shine, sick or well, without money and without price, should be ever held under suspicion and the strictest surveillance, while for the least failure real or imaginary, they are liable to be set upon by the harpies of the law.

It is a well known fact that the charity patient or the man who never pays, nor expects to pay a bill for medical services, is the man who more frequently than any other seeks redress, if redress it be, at the hands of the law for unsuccessful treatment by the physician and surgeon. This is one of the many ways the "dead-beat" adopts to escape the payment of a medical bill; bringing suit he hopes to effect a compromise or to offset the physician's bill by a counter-claim. Therefore, we must be well guarded in the care and treatment of any patient irrespective of his financial or social condition.

Then there is another cause that prompts and encourages this spirit among laymen, and not infrequently leads to the institution of malpractice suits. It is an insult to the intelligence of the profession that jealousy between brother physicians should exist. This jealousy prompts some unfavorable comment upon the good or bad results in the practice of a brother practitioner. Gentlemen, this is wrong! And what is still worse, at times we hear of physicians encouraging these suits. "**Let my tongue cleave to the roof of my mouth, and my right hand forget her cunning in the hour when I shall appear as anybody's witness save the truths.**" (Ref. John A. Lewis, Int. Clinics, Vol. III, 12th Series, 1902.) On the other hand criminal ignorance, neglect, unfaithfulness, in consequence of which the usefulness, happiness and comfort of a human being is destroyed, should not go unpunished.

Patients must be made to understand how serious, difficult, and delicate a matter it is to treat even a simple fracture or dislocation, or a case of typhoid fever or a case of pneumonia or other serious disease, and how much more difficult to treat a serious and complicated fracture, how hard it is to make out the exact anatomical relations and positions in a bruised, swollen and distorted limb, whether the injury is a dislocation or a fracture, or both; and how difficult to return accurately to its normal position and to maintain in position after the injury has been treated. Laymen ought to be made to understand that a surgeon and physician is mortal and like other men, fallible. The wonder is, when we contemplate the difficult surroundings, that failure does not occur oftener than it does.

Nevertheless, we are obliged to treat the sick, wounded and injured, and good results are hoped for and expected by the sick and injured regardless of the nature of the injury or disease. Physicians and surgeons must possess and exercise good judgment. Physicians and surgeons must possess and exercise a surgical conscience. Physicians must not be negligent in any particular. Physicians must be protected against malpractice suits by carrying a reasonable amount of liability insurance that will defend and protect against a possible verdict.

Surgical and medical judgment is a growth and comes by experience. It means more than the knowledge to make a rough diagnosis, or the technical skill to perform certain operations. It implies a certain experience which enables one to weigh up the advantages or disadvantages of an operation or line of treatment in a particular patient.

**Case in Point.** St. Louis, Mo.: \$3,500 verdict.

Physician placed drainage tube into pleural cavity; pinned tube to skin; tube was lost; plaintiff asked for X-ray examination. Physician said rubber would not show; operated and failed to find tube. Plaintiff insisted on X-ray and located tube. Removed. Boy 13 years old; died. Physician found guilty of negligence; want of skill in placing and fixing tube, leaving tube too long in cavity. Whether these acts were the proximate cause of death was for the jury to determine. (Medical Record, March 24, 1917, page 501.)

The juror said: "The plaintiff is my friend and neighbor and I knew the doctor was insured and I knew the woman needed the money." Nevertheless protect yourself and family by carrying liability insurance of the right kind.

The knowledge of the risks and complications besetting any operation, nay more, the ability to foretell the benefits that may accrue, and the evils (if any), that may follow—such wisdom is not to be acquired from books alone, but rather from a certain matured experience, combined with much study and careful deliberation on individual cases.

When a surgeon suggests an operation, there is always a string of questions to be answered by him. "Is the operation dangerous?" "Will you guarantee a cure?" "Is there no other way I could try first?" These questions are not to be answered in an offhand manner. The unexpected is always happening, and we shall be wise to deliberate carefully and not be led to make statements which may be falsified or give rise to misunderstandings. A mother once said to the surgeon: "You do not tell me anything about my boy. Are there any doctors who will?" "Yes, there are lots of them ignorant enough to tell you all about it."

## The Development and Cultivation of a Surgical Conscience.

"It is a term hard to define. It manifests itself in the feeling of obligation and duty of the surgeon to his patient no matter who he is or what he is. A good surgical conscience must be based on justice, honesty and correct reasoning." (Ref. Wm. A. Brend, Practitioner, XCVII, 1916. Pages 323, 335.)

The question may be summarized as follows: (1) Do not neglect patients; (2) never warrant a result; (3) let it be understood that failure is possible; (4) if in doubt call for a consultant; (5) if in spite of your best efforts to avoid a suit, one comes, never compromise or pay hush-money, but fight to the last ditch.

Every physician should always stand ready to go to the assistance of his brother physician, with his time and money if necessary, in defending one of these suits for malpractice. If all patients were honest, and if all physicians and surgeons possessed good judgment and always exercised the reasonable degree of care, skill and diligence, there would be few or no malpractice suits.

### What Is Malpractice?

Malpractice is the bad professional treatment of disease, pregnancy, or bodily injury from reprehensible ignorance or carelessness, or with criminal intent.

### Civil Liability.

A physician, surgeon, dentist or other medical practitioner offering his services to the public as such, impliedly contracts that he possesses and will use in the treatment of his patients, a reasonable degree of skill and learning, and that he will exercise reasonable care and exert his BEST JUDGMENT to bring about a good result. A failure to perform this contract renders him liable for injuries caused to the patient thereby.

### Degree of Care Required—In General.

The standard by which the degree of care, skill and diligence required of physicians and surgeons is to be determined is not the highest order of qualifications obtainable. **It is the care, skill and diligence which are ordinarily possessed by the average of the members of the profession in good standing in similar localities,**

regard also being had to the state of medical science at the time.

### Physician Not An Insurer.

Unless it is so provided by an expressed contract, the physician or surgeon does not warrant that he will effect a cure or that he will restore the patient to the same condition in which he was before the necessity for treatment arose, or that the result of the treatment will be successful.

### Nature of Case Affecting Degree of Care.

What is reasonable care, skill and diligence depends largely upon the circumstances of the particular case and upon the duty to be performed, the degree requisite being in proportion to the nature of the case.

### Degree of Care in Rendering Gratuitous Services.

The same degree of care and skill and the same measure of duty are owed by the practitioner to the patient whom he is treating gratuitously as to one from whom he receives compensation.

### Duty to Make Proper Diagnosis.

The liability of the practitioner is not limited to injuries arising from improper or negligent treatment, but he is also liable when he fails through a want of the requisite degree of care, skill and diligence to detect the nature of the patient's complaint.

### Duty to Give Instructions.

It is incumbent upon a physician to give such instructions as are proper and necessary to enable the patient or his nurses and attendants to act intelligently in the further treatment of the case, and a failure to do so is negligence which will render him liable for injury resulting therefrom.

### Consequence of Injury.

The physician or surgeon is chargeable with knowledge of the probable consequences of an injury, or of neglect or unskillfulness in treatment. He is bound also to know the natural and probable results of the remedy which he employs.

### Condition of Patient As Affecting Liability.

The patient's condition at the time the physician takes charge of the case does not prevent a recovery of damages caused by the latter's malpractice, even though such condition may be a contributing cause of the injury which results to the patient. In assessing damages the effects of the malpractice and those of independent causes must be distinguished.

### Errors of Judgment.

A physician or surgeon or dentist possessing the requisite qualifications and applying his skill and judgment with ordinary care and diligence to the diagnosis and treatment of a patient, is not liable for an honest mistake or error of judgment in making a diagnosis or prescribing the mode of treatment, where there is reasonable doubt as to the practice to be pursued. But one who is not possessed of the requisite qualifications cannot claim to be exempted from liability on the ground that his mistake was caused by an error of judgment.

### Damages.

Who may recover? It has been seen above that the practitioner is liable to the one injured by reason of his malpractice, but in the case of injuries to married women, infants and servants, the physician is exposed to an additional action by the husband, father or master for the loss of services.

### Failure to Obey Instructions.

It is the duty of the patient to conform to the reasonable and necessary instructions and treatment ordered by the physician or surgeon, and his failure which contributes to injury will bar recovery, even though his compliance is prevented by pain. If the condition of the patient is such that he cannot be made to understand the necessity of the treatment proposed, and the members of his family having him in charge refuse to allow the proposed treatment, then the physician or surgeon is not required to use force, and is relieved from liability for injuries ensuing from failure to apply the treatment. Consent to administer an anesthetic or perform a minor or major surgical operation must always be had from the patient or from his legal and authorized representative except in case of unusual emergencies.

**Stolock vs. Holm et al.**

Said Jaggard: "The negligence of a surgeon in determining to perform a primary operation during a condition of shock is to be determined by reference to pertinent facts then in existence, which were known or might have been known in the exercise of due care, and not by reference to knowledge acquired after the operation has been performed. To the ordinary rule that the exercise of defendant's best judgment is no defense in an action for damages caused by his negligence, a general exception is recognized **with respect to cases involving matters of opinion and judgment only**. A physician entitled to practice his profession, possessing the requisite qualifications and applying his skill and judgment with due care, is not ordinarily liable for damages consequent upon an honest mistake or an error of judgment in making a diagnosis, in prescribing treatment, or in determining upon an operation where there is reasonable doubt as to the nature of the physical conditions involved, or as to what should have been done in accordance with recognized authority and good current practice."

"The exception in malpractice applies to the formation of the judgment by such physician. It may not extend to the previous acquisition of data essential to a proper conclusion or to consequent conduct in the subsequent selection and use of instrumentalities with which he may execute that judgment. The reasons for this exception are to be found in the character of the emergencies physicians meet, which often preclude deliberation; in the nature of their undertaking, which contracts for individual judgment and skill; in the peculiarity of the human constitution, which presents difficulties not arising from insensate matter; in the nature of medical science, which is based on progressive knowledge; and in the inherent uncertainty of expert testimony involved, which itself is the expression of opinion often in such cases founded on doubtful observation."

"Here a physician amputated a crushed, bruised and torn leg, the tibia of which had suffered an oblique compound, comminuted fracture. The operation was performed shortly after the injury had been caused by the teeth of a revolving cylinder of a threshing separator

into which the patient had fallen. The tibia was sawed in two places. Death ensued. It is held that, upon the testimony as to the condition of the patient and the evidence of experts, the physician was entitled to a directed verdict."

"The fact that a patient dies immediately after an operation is not of itself evidence of negligence on the part of the operating surgeon. Negligence in this case must be determined by reference to pertinent facts then in existence, of which he knew or should have known in the exercise of due care when the operation was performed. The principles of law in this and similar cases are clear and well settled."

"In an ordinary action for negligence, that a man has acted according to his best judgment is no defense. The standard of careful conduct is not the opinion of the individual, but is the conduct of an ordinarily prudent man under the circumstances."

Said Judge Tindall: "To hold otherwise would leave so vague a line as to afford no rule at all; the degree of judgment belonging to each individual being infinitely various."

"With respect to matters resting upon pure theory, judgment, and opinion, however, there is a generally recognized variation from this sound principle. The distinction between an error of judgment and negligence is not easily determined. It would seem, however, that if one assuming a responsibility as an expert, possesses a knowledge of the facts and circumstances connected with the duty he is about to perform and brings to bear all his professed experience and skill, weighs those facts and circumstances, and decides upon an action which he faithfully attempts to carry out; then, **want of success, if due to such course of action, would be due to error of judgment and not to negligence**. But if he omits to inform himself as to the facts and circumstances, or does not possess the knowledge, experience, or skill which he professes, then a failure, if caused thereby, would be negligence. Cases of malpractice may be within the exception. **He is not liable for a mere error of judgment provided he does what he thinks is best after a careful examination. He does not guarantee a good result but he promises by implication to**

use the skill and learning of the average physician to exercise reasonable care, and to exert his best judgment in an effort to bring about a good result. In some matters medicine is a science; in others it is an art. Generally the exception governs cases in which it is a science; the rule, cases in which it is an art."

"If, for example, a physician certifies that a man is insane, without having made an examination, his negligence is of fact and not of science. When the physician is actually operating he is employing surgery as an art, and if, for example, he uses an old rusty saw, or if he operates on the wrong arm, or sews up a sponge in the abdomen he has opened, his wrong concerns physical facts, and has fairly been held to be governed by ordinary principles of negligence."

"Where, however, due care, diligence and skill have been employed in ascertaining the essential preliminary information for an opinion whether a surgical operation should be performed or not, the formation of the judgment in accordance with appropriate scientific knowledge, in a case of reasonable doubt is within the exception."

"One reasonable justification for this exception in many cases is the elementary principle that when a man acts according to his best judgment in an emergency but fails to act judiciously, he is not chargeable with negligence. The act of omission if faulty may be called a mistake, but not carelessness. Physicians in the nature of things are sought for and must act in emergencies, and if a surgeon waits too long before undertaking a necessary amputation, he must be held to have known the probable consequences of such delay, and may be held liable for the resulting damage. Another justification for the exception lies in the nature of the undertaking. Most professional men are retained or employed in order that they may give the benefit of their peculiar and individual judgment and skill."

"A lawyer, for example, does not contract to win a lawsuit, but to give his best opinion and ability. He has never been held to liability in damages for a failure to determine disputed questions of law in accordance with their final decision by courts of appeal. It would be just as unreasonable to hold a physician responsible

for an honest error of judgment on so uncertain problems as are presented in surgery and medicine. Indeed, the peculiarities of subject matter with which medical men deal constitute another abundant justification for the exception. Those peculiarities concern, in the first place, the constitution of the human mind and body, and, in the second place, the nature of his science itself. On the human subject matter with which physicians have to do the words of Judge Woodward have become classical: "The surgeon does not deal with inanimate or insensate matter like the stonemason or bricklayer, who can choose his materials and adjust them according to mathematical lines, but he has a suffering human being to treat, a nervous system to tranquilize and an excited will to regulate and control."

"Where a surgeon undertakes to treat a fractured limb, he has not only to apply the known facts and theoretical knowledge of his science and art, but he may have to contend with very many hidden and powerful influences, such as want of vital force, habit of life, hereditary disease and the state of the climate. These, or the mental state of the patient may often render the management of a surgical case difficult, doubtful and dangerous and may have greater influence in the result than all the surgeon may be able to accomplish even with the best skill, diligence and care."

"Physicians and surgeons deal with progressive inductive science. On two historic occasions the greatest surgeons in our country met in conference to decide whether or not they should operate upon the person of a President of the United States. Their conclusion was the final human judgment. They were not responsible in law either human or divine for the ultimate decree of nature. The same tragedy is enacted in a less conspicuous way every day in every part of the country. The same principles of justice must apply. A physician is not a warrantor of cures. If the maxim 'res ipsa loquitur' were applicable and a failure to cure was held to be evidence, however slight, of negligence on the part of the physician or surgeon causing the bad result, few would be courageous enough to practice the healing art; for they would have to assume financial liability for nearly all the ills that human flesh is heir to.

God forbid that the law should apply a rule so rigorous and unjust as that to the relations and responsibilities arising out of this noble and humane profession.”

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#### CESAREAN SECTION.\*

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The material for this paper is taken from our experience at St. John's Hospital in Red Wing, and consists of nine cases upon whom the operation for Cesarean section has been performed by my associates and myself. It is not the object of the writer to contribute anything particularly new in regard to the operation, but rather by the relating of our experiences to bring the subject to the attention of the Society with the hope that it will stimulate interest in it, and at the same time cause it to be more generally used in certain complicated obstetrical cases, where, judging from our experience, it will afford improved relief to these difficult conditions and at the same time be a source of much satisfaction to the accoucheur.

The indications for operation, with brief histories of cases, follow:

*No. 1.* Primipara; aged 30. Dwarf with rickets, further complicated by ankylosed hip. All pelvic diameters irregular and below normal as given in the standard text books. She was allowed to go to term and at the beginning of labor was delivered of a seven-pound baby. There was absolutely no chance of delivery through the pelvis without a mutilating operation. She left the hospital in two weeks with a live baby.

*No. 2.* Multipara; aged 32. This patient came with the request for the operation with the history of having had three high forcep de-

liveries and three dead babies. The forceps operations were necessary on account of uterine inertia and the fact that in each instance the babies were extra large. These forcep operations were performed before the days of pituitrin and might possibly have been avoided had it been used, as the pelvic measurements were normal. She was given the operation which resulted in a much less stormy convalescence than any of her forcep operations and, in addition, was able to take a live baby home with her.

*No. 3.* Primipara; aged 29. This patient had a narrow contracted vagina due to scar tissue from a large pelvic abscess. The scars were thick and would not bear stretching. She came after being in labor 12 hours. The pelvic measurements were normal and there was a complete dilatation of the cervix. The head simply could not pass through the scarred vagina. She was given the Cesarean operation rather than forceps operation, which would have resulted in an almost irreparable perineum.

*No. 4.* Multipara; aged 38. Patient came with history of two forcep operations resulting in two dead babies and one cephalotomy. On all three occasions she had been in labor from 24 to 48 hours before being delivered. The babies were exceptionally large in each instance, which was the only explanation offered for the failure to deliver normally. The operation gave her a live baby with a convalescence much easier than any of her forcep operations.

*No. 5.* Primipara; aged 31. Patient came to hospital two weeks before term with the history of repeated hemorrhages for the preceding three weeks. Examination showed a placenta praevia partialis, about three-fourths of the surface of internal os being covered. She was kept quiet for four days, when, with the beginning of slight labor pains, she began to have a severe hemorrhage. She was operated at once, and while there was more hemorrhage than in any of the other cases, it was controlled by packing a towel in the uterus and taking the sutures over it. She was given a live baby and went on to an uneventful recovery.

*No. 6.* Primipara; aged 36. Sister of No. 1, with rickets. Pelvic measurements below normal in all diameters. She was given the operation as soon as she began to have labor pains.

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\*Read before the Annual Meeting of the Minnesota State Medical Association, St. Paul, October 11 and 12, 1917.



This case was complicated by a hemorrhage in the abdominal wound, which occurred a few days after operation and resulted in a ventral hernia in the scar six months afterward.

*No. 7.* Primipara; aged 42. Pelvic measurements normal—a large baby in O. L. A. position. After being in hard labor for 12 hours with good dilatation but no engagement, the patient, a trained nurse, requested the Cesarean rather than a high forceps operation. This was typical of the case Murphy describes as a positive indication for Cesarean section—a primipara over 40 with a large baby—his argument being that there is a tearing rather than a stretching of the tissues and that a high forceps delivery under these conditions will invalide a woman for the remainder of her life.

*No. 8.* Primipara; aged 26. Pelvic measurements slightly below normal. Because the baby was small, patient was allowed to have labor pains for 10 hours. The pains were very severe for the last three hours. The position was O. L. A. with no engagement. On account of certain injury to the child's head with a forceps operation, she was given the section.

*No. 9.* Multipara; aged 34. This patient had given birth to five children. All labors had been long and difficult on account of uterine inertia, further complicated in three instances by breech presentation with forceps to the after-coming head. The convalescence of the mother was long and trying after each case. She came to the hospital with the expectation of having the section rather than another forceps operation. She was left in labor with a breech presentation for six hours, when she was delivered of a large baby and went on to a normal convalescence.

The following technique is employed: Patient is given a bath, an enema, and is catheterized. Instead of using iodine, the abdomen, vulva and thighs are shaved and scrubbed. One-fourth c. c. of pituitrin is given at the time the anaesthetic is started and the remainder of the c. c. just as the abdominal incision is made. We use three assistants. The incision is made slightly to the left of the umbilicus, which is used for a center, and is extended four inches above and below this point. On account of the extreme stretching of the abdominal muscles, the skin is very carefully

incised, care being taken not to include the uterus in the incision. After the peritoneum is separated, it is best to enlarge the opening with the scissors, using the finger as a guide. The operator now delivers the uterus through the abdominal wound, and one assistant grasps tubes and broad ligaments with both hands. Warm saline towels are now quickly packed about the uterus by the second assistant, these preventing as much as possible the entrance of blood and amniotic fluid into the abdominal cavity.

The uterus is now carefully incised through the fundus. When the cavity has been entered, the scissors, with the finger for a guide, is again the best means of completing the incision on account of the danger of injuring the child. One lower limb is now grasped by the operator and delivery made. An assistant doubly clamps and cuts the cord, and the child passed to a waiting nurse, who has all preparations made to resuscitate if necessary. The operator now delivers the placenta, thoroughly dilates the cervix, and wipes the interior of the uterus with a towel to be sure all membranes are removed. If the hemorrhage is severe, hot packs are used. This we found necessary in three of our cases. The uterine wound is closed as follows: a continuous 20-day chromic catgut, including a small bite of muscle down to, but not through the endometrium. The second row is continuous of stout linen, and includes the remaining muscle tissue which has now become quite thickened on account of the uterine contractions. This row extends to the peritoneal covering. The third row of 10-day catgut is again continuous and approximates the peritoneal covering. Any blood clots that may have entered the abdominal cavity are removed with the saline packs. the uterus returned to the abdomen, one assistant continuing the massage. The abdominal wound is now closed in the usual manner.

The question of ligating the tubes for the purpose of preventing future pregnancies came up in several of our cases. Four of these were ligated, Nos. 1 and 6, sisters, both with rickets; No. 4, 38 years of age, whom we did not deem physically fit to go through another pregnancy; and No. 8, who showed a tuberculous tendency. Some of the others asked for the ligation, but

when they were given to understand that it was possible to undergo the operation a second time and that there was always a possibility of giving birth normally, providing the baby is not too large, they were satisfied.

The time required for the operations varied from 15 to 30 minutes and was dependent mainly upon whether or not the tubes were ligated, and on the difficulty of controlling hemorrhage. This latter has been much easier since we have been using pituitrin as a hemostatic rather than ergot, which was used in some of our earlier cases.

We have had no maternal mortality in our series and no infant mortality except one, which occurred one week after delivery from causes in no way incident to the operation. These uniformly good results can be ascribed in a large measure to the fact of having the patients in the hospital and directly under control. Unnecessary or questionable examinations were not made, and the patients were operated before they had become physically exhausted from long labor pains. It is easy to see how the 3 per cent mortality which DeLee gives for the section can be brought about by delay in giving the patient the operation until her strength is exhausted, and by infection due to repeated examinations after the sac has been ruptured. It would seem that the 3 per cent mortality should be charged to the delay in coming to operation rather than to the operation itself.

It appears to us after our experience with the operation, that it is advisable to use it in many more cases than it is used in at present. One cannot help being convinced of this by watching a convalescence from a high forceps and a Cesarian operation. If there remains any doubt, it can be easily and quickly dispelled by interviewing the patient who has undergone both operations.

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#### DISCUSSION.

DR. H. B. SWEETSER, Minneapolis: My experience with Cesarean section has been limited. I had hoped the author of the paper would take up the various indications other than the mechanical difficulties of labor. Placenta previa and eclampsia have entered into our cases very largely. Given a primipara with an undilated os, with convulsions, Cesarean section seems to be a life-saving measure.

There has been a good deal of discussion as to whether Cesarean section is justifiable for these cases or not, but in the cases we have had I feel sure a few of them have recovered, who would probably have succumbed under other treatment. Only about a month ago I was asked to see such a case. The woman had a blood pressure that was low she had had two convulsions, and when I saw her she seemed to be in a very fair condition, so that I did not advise Cesarean section at that time. She was delivered in the afternoon of a small child without any trauma; still she died. Another case recovered very well following the Cesarean section, but in a week became maniacal. This condition lasted for a few days, and then she recovered and has been well since.

I have seen several cases of placenta previa where I was very sorry we did not resort to Cesarean section. If the pelvic measurements are such that the child cannot go through the natural passages, then, of course, Cesarean section is indicated, and in these days, with such a low mortality, it is very much to be preferred to any mutilating operation, in that the mother almost invariably recovers with a living child.

In the cases that are reported today (nine cases) the indications did not seem to be very well marked for so serious an operation because it seems to be the consensus of opinion that once a Cesarean section, always a Cesarean section. The woman who has had a child delivered in this way, according to the statistics, submits to it again.

Then, there are certain complications which occur and which we must bear in mind. There is always more or less danger in the second pregnancy of a rupture of the uterus. Another complication sometimes occurs in these cases, which is avoidable frequently, namely, a traumatic hernia. The woman who has a traumatic hernia following a Cesarean section suffers a serious inconvenience, and is frequently an invalid.

Concerning the method of operation, there are several. One of which is to make a large incision so that the uterus may be delivered outside; and another in making a small incision, where the uterus is pushed against it, and the uterus not delivered out onto the abdomen, the child being delivered, and the uterus put back. This latter, it seems to me, is the far preferable method because the incision is smaller, and if the operation is done at the time of election there is no danger of infection even if some of the fluid from the uterine cavity goes into the peritoneal cavity. If you select your time in all these cases, when no vaginal examinations have been made, and the contents of the uterus are not infected, the mortality rate will be very low and the chances of having a large, weak scar lessened.

DR. R. E. FARR, Minneapolis: The Association is very fortunate in having as a visitor today, Dr. Culbertson, of Chicago, one of the teachers in Rush Medical College, and who is also one of the editors of *Surgery, Gynecology and Obstetrics*. I would ask

that the privileges of the floor be given Dr. Culbertson to discuss this paper.

DR. CAREY CULBERTSON, Chicago: The subject of Cesarean section is one of great interest to me. I always try to fortify whatever statements I may make in reference to this subject with accurate data, but I have not such data in my possession at this time.

I dare say, every man here who has been in practice for ten years or more has been educated in regard to the question of Cesarean section by the old Vienna school of teaching, that there was only one indication for Cesarean section and that is, the absolutely contracted pelvis. As recently as 1903, at which time I was in Vienna, Cesarean section was being done for six and a half centimeters of conjugata vera. Other physicians were treating conditions with less contraction than that by all of the other things that have been mentioned—version and extraction, high forceps, premature induction of labor, etc. Cesarean sections were usually done well, and all other things were usually done indifferently well or badly.

It has remained for the American obstetrician to emphasize the value of Cesarean section for the relative indication, as it is called in the text books. By the relative indications we mean, of course, all of the other things for which we are now doing Cesarean section, instead of the absolutely contracted pelvis.

In the last fifteen years in the clinic with which I have been associated in Chicago, of which Dr. J. Clarence Webster is the chief, we have done many Cesarean sections, and Dr. Webster is one of the men who has helped to put it down as one of the best methods of meeting these relative indications in obstetrics. If you take our results, there can be no question as to the advantage and facilities of Cesarean section in a good hospital over the other methods. I do not mean to say that every man who is engaged in general practice should resort to Cesarean section and have it take the place of some other methods of treatment, because statistics do show, for instance, that version and extraction is just as good a measure for treating placenta previa as Cesarean section; but in the practical application of our work, when we see a woman come in with an acute anemia from placenta previa, and then see her develop an infection after a version and an extraction for instance, and then we see another case who is sectioned as soon as she begins to bleed, and see the difference in the recoveries, the difference in the fetal mortality, the difference in the subsequent morbidity, there is no question at all as to the advantage of Cesarean section in a number of these cases. In a series of cases the difference is certainly in favor of Cesarean section. The same thing holds true in regard to the toxemia of eclampsia, etc., so that I was greatly pleased indeed to find that the essayist this afternoon advocated and demonstrated by his own case records the value of Cesarean section for the relative indication.

In the fifteen years I speak of we have had—I do not know how many, but very nearly 200 Cesarean sections in our clinic. Dr. Webster himself has done over 100 Cesarean sections without the loss of mother or child. I regret to say that the results of his associates, his assistants, have not been quite so brilliant, because we have lost two mothers, one from pulmonary embolism on the eighth day after Cesarean section, and another from toxemia. Autopsy was not permitted, but possibly it was an intoxication from the anesthetic, because in that particular case we had run out of novocain and had to use a substitute.

As regards the method of procedure, I would differ from the doctor in this particular: we do not find it necessary to put linen in the wall of the uterus; we sew up the uterine wall in two stages with catgut. We have seen but one rupture of the uterus where a previous Cesarean section had been done, and that was a spontaneous rupture at the onset of labor, probably because the patient came in with the rupture. At the onset of labor the patient was extremely toxic from a pyelonephritis on one side; all of her tissues were marked by cloudy swelling and softening of the uterus itself which might have explained the rupture of the uterus, because the rupture in this case was not only in the line of the old scar but also beyond. We do not deliver the uterus through the abdomen, we leave it in, as we see no advantage from doing that. The material does not escape. We do a Cesarean section exactly the same as we do a pelvic operation; that is to say, we use very large, continuous flap sponging and pack the entire field off before we approach the uterus, and just as soon as we operate upon a septic pelvis we pack the bleeding space. We put a very large pad around the uterus; we control hemorrhage in that way with plenty of assistance; you have to have one assistant to do that. As a matter of fact, the longitudinal median incision which we have used, and a median incision in the uterus, is a relatively bloodless one so far as the uterus itself is concerned.

I would like to mention one other thing in our technic, and that is the use of pituitrin. As soon as we have the uterus exposed and packed off, we inject pituitrin into each side of it, directly into the uterine wall, then make our incisions between. We have used as many as 2 c. c., one on each side. Sometimes we do not use quite that much. Another very important thing is that we never open the uterus when it is flaccid; the uterus must be contracted. We either contract it by massage, or wait for a contraction if the patient is in labor, and incise the uterus in its contraction, and the result is we have the baby delivered into our hands. As soon as the uterus is split it contracts, and sometimes the entire sac bulges out, and all you have to do is to split with your scissors and the baby is in your hands. Before the cord is tied off, the placenta is delivered spontaneously in the uterus. I have seen that in my own experience time and again. That is an extremely valuable point in technic we think.

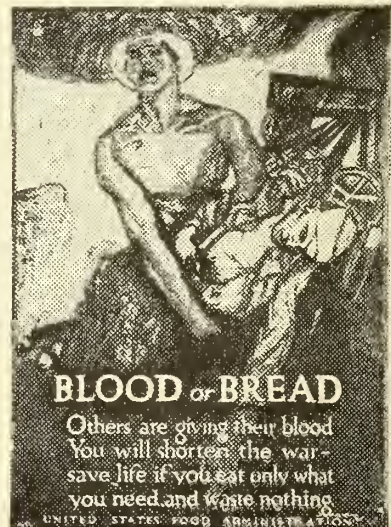
Another thing we do that makes Cesarean section safer is the method of anesthesia. We work nearly altogether now with novocain, giving the patient also nitrous oxid. In our clinic, as some of you know, we use nitrous oxid for normal labor and continue to do so after something over two years' experience. We start the nitrous oxid before we begin the administration of novocain, so that the patient does not have the distress of the infiltration. The infiltration is done abundantly, injecting not only the skin but the subcutaneous tissue and fascia as well, and finally putting the pituitrin into the uterine wall. It is unnecessary to inject novocain in the uterine wall. By that means it is possible to operate very rapidly.

There is one point which was brought out by the doctor which was not emphasized sufficiently. He spoke of the importance of estimating the size of the baby and the baby's head, and I think it is just as important to do this as it is to estimate the size of the pelvis. Many men will tell you that you cannot do that; there are other men who will tell you that you can. One man will tell you that he can estimate the size of the baby's head to a fraction of a centimeter, and that you can estimate the baby's weight to an ounce or a pound, which is all right. I do not deny that he can, because he was my old teacher; it does not make any difference whether you can estimate it or not. We only estimate the size of the pelvis; we can estimate it accurately enough for all practical purposes and so you can the baby's head. Not only a moderate or considerable contraction of the pelvis is important, but the size of the baby is important. Take a woman who has gone over term, and nobody knows when that woman

is at term, and the baby has developed to an excessively large baby with a large head. It is as important there to know that baby is a large baby as it is to know that the mother has a contracted pelvis. The relation of the one to the other is an important thing. I have seen a woman with a pelvis in which the conjugata diagonalis was only 7 centimeters, and yet she spontaneously expressed the baby. The fact that she can deliver herself of a child is not a test. The important thing is that you recognize the disproportion between the two, no matter what it may be.

Just one other point. High forceps is the most serious obstetrical operation there is, not only in its influence upon the child, for its mortality is very high, but for its influence on the mother because it is followed by morbidity. You cannot put on high forceps where the head is in the inlet, and pull the baby's head through the inlet by main force, without damaging the mother. That point has been emphasized by able men over and over again, and there is no question about it. The statistics of Williams have shown that the sooner Cesarean section is done after labor begins, the less morbidity follows; but the mere fact that the membranes have not ruptured should not contraindicate Cesarean section. Theoretically, the uterus should not be infected because it is protected by the sac. We do Cesarean section right along without the membranes being ruptured.

I am pleased that Dr. McGuigan has presented to you these case reports, demonstrating that the time has come—and it must be impressed upon all of you—when we in America are doing Cesarean sections for the relative indications and we are getting away with it. It seems to me that answers the whole argument.



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## EDITORIAL

### RECENT WORK ON THE TREPONEMA PALLIDUM.

Syphilographers have practically agreed that salvarsan will kill all of the treponemata with which it comes in contact. Nevertheless, the vast majority of cases of syphilis are not cured by its use—a fact which gives rise to speculation, and should be a powerful incentive to further scientific research. Several explanations have been brought forth to explain the frequent lack of cure: first, that the organisms may be encapsulated and consequently are unaffected by the drug; second, that the organ-

isms may acquire a tolerance against the remedy; and third, that the organisms may possess a life cycle, certain forms of which are not affected by salvarsan.

H. H. Hazen in *Medicine and Surgery*, Vol. I, No. 8, has reviewed the literature of recent date with the purpose of ascertaining facts determined by experimental research that might throw light upon these important questions. Several valuable points brought out in this review provide food for thought.

McDonagh, working upon the life cycle of the organism, contends that the spore which appears either circular or renal-shaped, motile and measuring 1.5 microns in diameter, is the elemental form, the starting point of the sexual cycle. There is, however, an asexual cycle in which the spore divides and forms a cyst, the parent cell being killed.

A fact which militates against this belief of McDonagh's, is that the treponema can be cultivated through hundreds of generations and inoculated into animals and no other form can be obtained. Nevertheless, clinical observation might give credence to McDonagh's work. Another point that would appear to invalidate spore formation is that infected material is rendered sterile by heating for three minutes at a temperature of 55° C.

Reasoner has shown that the organism may live 56 hours at room temperature in an infected testicle and presumably in other tissues.

Akatsu and Noguchi in order to determine what effect salvarsan and mercury might have upon the treponema pallidum incorporated these drugs in culture media used in the cultivation of the organism. They found that the treponema pallidum might increase its tolerance to both salvarsan and neosalvarsan five and one-half times the original mark, and bichloride of mercury thirty-five to seventy times the original. The organism also became more resistant to iodine. We may assume then, that syphilitic patients may acquire a far greater tolerance for mercury than for either salvarsan or neosalvarsan.

Akatsu has shown by bacteriological experiments in vitro that the treponema pallidum is killed by certain drugs in the following dilutions: phenol, 1:2,500; bichloride of mercury, 1:100,000; salvarsan, 1:7,500; neosalvarsan, 1:2,500; potassium iodide, 1:10.

The selective action of the treponema pallidum on certain types of tissue, e. g., central nervous system, aorta, etc., led Reasoner to believe that there are different strains of the organism having specific affinity for various tissues of the host. Through experimental evidence he believes his contention to be a correct one. Clinical experience tends to substantiate his claim.

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## WAR AND MINNESOTA'S TUBERCULOUS.

The war measure, second to none in its importance, directed against the great white plague has been conceived, and is now operating for the relief of returned soldiers suffering from tuberculosis.

By means of an arrangement combining the resources of the American Red Cross, the Advisory Commission of the Minnesota Sanatorium for Consumptives, and the Minnesota Public Health Association, proper care and treatment will be supplied every Minnesota soldier suffering from tuberculosis.

This co-operative effort will prohibit a repetition in Minnesota of the misfortunes experienced in other states by soldiers who have in some instances been left to die in poor-houses or alm-houses for lack of proper provisions for their care.

There are the brightest prospects that exceedingly valuable services will be rendered under the provisions of the following contract:

Memorandum of Agreement between the Northern Division of the American Red Cross, the Advisory Commission of the State Sanatorium for Consumptives, and the Minnesota Public Health Association.

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As a preface to this agreement it is understood that the several agencies shall co-operate in securing adequate care and treatment for the tuberculous soldier, whether he may have been discharged in (1) "line of duty," (2) "not in line of duty," or (3) rejected by local examining boards.

In carrying out the program, the following points will be observed by all parties hereto:

Sec. 1. That, immediately upon notification of a tuberculous soldier, the Northern Division of the American Red Cross, through its Home Service Section of the local chapter, shall make contact with such soldier and ascertain essential facts concerning him, including the following facts desired by the

Minnesota Public Health Association and the Advisory Commission:

(a) Exact location of the individual, including his nearest railway station. (b) The apparent physical condition of the individual, whether in apparent normal health, debilitated or actually sick. (c) The financial condition of the individual, or his ability to meet all or part of the cost of care, approximating from \$10.00 to \$25.00 per week. (d) The educational standards of the individual and his family, rated as excellent, good, fair or poor. (e) The home conditions of the individual, rated as excellent, good, fair or poor. (f) The name of the family physician, and his willingness to co-operate in this program, indicated by "yes" or "no," or "doubtful." (g) The desire of the individual and his family for expert diagnosis and treatment, indicated as "willing," "uninterested," "opposed." (h) And any other information mutually agreed upon as desirable.

Sec. 2. The reports referred to above shall be made directly to the Minnesota Public Health Association through the office of the Northern Division of the American Red Cross, except as otherwise specified; and the Director of the Northern Division shall do all in his power to encourage prompt and thorough work on the part of the local committees in charge of this work.

(a) Furthermore, the Minnesota Public Health Association and the Advisory Commission shall make no effort to establish contact with tuberculous soldiers until after such contact is made by the local chapters of the American Red Cross, except that, in case no notice and information be furnished to the Minnesota Public Health Association within two weeks, said agencies may establish contact, at the same time notifying the Director of the Northern Division of the American Red Cross.

(b) Furthermore, provided local health departments express a willingness to make the initial contact and report on the case as required under Section 1, the Home Service of the Red Cross shall not make initial contact or visit cases except on request of the local department. This will apply to the following: Duluth, Minneapolis, St. Paul.

Sec. 3. That the Minnesota Public Health Association shall furnish to the Northern Division of the American Red Cross, at once, a complete record of all tuberculous soldiers with whom contact has been made or whose return has been reported to the Association, including all information relative to such soldiers now in the possession of the Association.

Sec. 4. That upon notice from the Northern Division of the American Red Cross the Minnesota Public Health Association and the Advisory Commission will proceed to bring about, in the shortest time practicable, the examination and diagnosis of all returned tuberculous soldiers, and the outlining of proper methods of treatment, and will report such diagnosis and outlines of treatment to the Northern Division of the American Red Cross.

Sec. 5. That the Minnesota Public Health Association and the Advisory Commission, for the pur-

pose of the examination, shall enlist the services of experts in the diagnosis of tuberculosis, and the services of competent nurses as required, and that the examinations will be held either at the home of the soldier or the central points convenient to the various soldiers.

(a) Services of medical experts for the diagnosis, instruction and public lectures will be supplied by the Advisory Commission. A uniform system of blanks or cards for all reports, dispensary and all other records will be supplied by the Advisory Commission.

(b) All public health nursing service required will be furnished by the Minnesota Public Health Association.

Literature, exhibits, press stories and all educational material required shall be furnished or approved by the Minnesota Public Health Association.

Sec. 6. It is understood that, in order to avoid delay, when transportation to a central examining point is necessary, the cost of such shall be borne by the Home Service Section of the local Red Cross chapters, provided the individual is unable to pay it.

Sec. 7. It is further understood that when the field workers of the Minnesota Public Health Association or the Advisory Commission, or other representative, enter a community to carry on the purpose of this agreement, they will act in co-operation with the Home Service Section and the local health officer, so that the Home Service Section will be in touch with the service rendered to the soldier at all times, and so that the local health officer may conserve the interests of the civil population.

Sec. 8. The results of all examinations shall be reported to the State Board of Health so far as they may affect the control and prevention of communicable diseases.

Sec. 9. That, in the interim between the reporting of a tuberculous soldier and his examination, and the outlining of his more permanent care, Home Service Sections of the American Red Cross shall render the soldier such care as he may require, with the understanding that examinations will be carried out as expeditiously as circumstances will permit.

Sec. 10. That under no circumstances will the American Red Cross countenance the housing of a tuberculous soldier in a county almshouse either temporarily or permanently.

Sec. 11. That the local chapters of the American Red Cross shall agree to assume expense of sanatorium or other care, as outlined or recommended by the Minnesota Public Health Association and the Ad-

visory Commission provided the funds cannot be secured from public agencies for the treatment of tuberculosis.

Sec. 12. That the records of the Minnesota Public Health Association and the Advisory Commission and the records of the American Red Cross, so far as they apply to the tuberculous soldiers in Minnesota, shall at all times be open to representatives of any party to this agreement for the purpose of carrying out the provisions of this agreement.

Sec. 13. That the Minnesota Public Health Association and the Advisory Commission will require of institutions, physicians, or other agencies to whom the care of tuberculous soldiers is entrusted, complete reports of progress, and abstracts of copies of these reports will be sent at frequent intervals to the office of the Northern Division of the American Red Cross.

Sec. 14. Nothing in this agreement shall be construed to affect the jurisdiction of the State Board of Health or local health authorities in cases of tuberculosis which fall within the rules and regulations for the control and suppression of tuberculosis.

This paper does not bind the National organization of the Red Cross, or its Division Office, to any payment from either treasury for the purpose indicated. It does mean, however, that the Division Office, through its Civilian Relief Bureau, shall use every possible influence to cause the Home Service Sections of local chapters to provide funds as indicated. The Division Office shall present to the various chapters in the division that the care of discharged tuberculous soldiers, in accordance with the plan outlined here, is a war obligation as well as an opportunity resting upon them because of their assumption of Home Service Work.

THE AMERICAN RED CROSS,  
Northern Division,  
F. T. Heffelfinger,  
Manager.  
(Signed) F. J. BRUNO,  
Director, Civilian Relief.

ADVISORY COMMISSION OF THE STATE  
SANATORIUM FOR CONSUMPTIVES,  
(Signed) ROBINSON BOSWORTH,  
Executive Secretary.

MINNESOTA PUBLIC HEALTH ASSOCIATION,  
(Signed) I. J. MURPHY,  
Executive Secretary.

## MINNESOTA'S MEDICAL HONOR ROLL\*

## Aitkin County

AITKIN—Benjamin William Kelly.

## Becker County

AUDUBON—Oluf Johan Pederson. RONSFORD—James T. Ballou. WHITE EARTH—Alick Bernstein; Thomas Frank Rodwell. FINLAYSON—William Henry Conner.

## Beltrami County

BEMIDJI—Daniel F. McCann, Jr.; Earl Howard Marcum. PONEMAH—Lunn Geophrey Neal. RED LAKE—Richmond Favor, Jr.

## Benton County

RICE—Clarence Addison Rathbun.

## Blue Earth County

MANKATO—Julian Adolph Hielscher; Adolph G. Liedloff; Hiram John Lloyd; Chelsea Carroll Pratt; Albert Johnson Wentworth. VERNON CENTER—Thomas Gage Clement.

## Brown County

NEW ULM—Otto John Seifert. SLEEPY EYE—Abraham Franklin Strickler. SPRINGFIELD—William Arnold Meierding.

## Carlton County

CLOQUET—Virgil D. Guittard; Franklin W. S. Raiter.

## Carver County

WACONIA—William John Stock.

## Cass County

BACKUS—Albert Evan Williams. CASS LAKE—Samuel Reed Fraker. STATE SANATORIUM—Guy Brelsford.

## Chippewa County

WATSON—Seth Edwin Gilkey.

## Clay County

BARNESVILLE—Alphonse Cyr; Charles Henry Patterson. MOORHEAD—Victor Ernest Verne.

## Clearwater County

BAGLEY—Peter Cornelius Bjorneby. GONVICK—John Stevens.

## Cottonwood County

JEFFERS—Chales Daniel Richmond.

## Crow Wing County

BRAINERD—George I. Badeaux; Parker Lloyd Berge. CROSBY—Ralph Justin Sewall. DEER WOOD—George Melville Sewall. RIVERTON—Fred Foster Stocking.

## Dakota County

WASTINGS—Rudolf Henry Wald.

## Douglas County

ALEXANDRIA—Linwood Melrose Keene; Roy Edwin Swanson. OSAKIS—William Howard Hengstler.

## Faribault County

BRICELYN—Oliver Eugene Stewart. WELLS—Stewart Harry Anderson.

## Fillmore County

PRESTON—Adolph Edward De Tuneq, Jr. SPRING VALLEY—Edgar Raymond Sather. WYKOFF—James Douglas Walker.

## Freeborn County

ALBERT LEA—T. L. Hansen; Byron A. Kamp; Jonas Risting Nannestad; Solomon Francis Rudolf. EMMONS—Arthur Irving Arneson.

## Goodhue County

CANNON FALLS—Paul Richard Hankee. RED WING—Frederick Nikolai Bjerken.

## Grant County

ASHBY—Auvigne Mason Randall. ELBOW LAKE—Albert Ingvald Haugen.

## Hennepin County

HOPKINS—Minor Morris. LONG LAKE—Winfield Scott Nickerson. MINNEAPOLIS—James Kerr Anderson; P. A. Ashley; Jacob Fowler Avery; Grover C. Black; C. E. Henry; Lawrence J. Leonard; John Litchfield; John S. Macnie; Walter Marcey; William W. Moir; Henry Odland; A. J. Riegel; William P. Robertson; R. J. Sewell; H. A. Thompson; C. C. Tyrrell.

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Walter Henry Darling; Lloyd Thomas David; Richard Irving Dorge; Aloysius Stephen Fleming.

Bernard James Gallagher; Emil Sebastian Geist; Paul William Giessler; Paul Bernard Gillespie; Ernest George Gilmore; Earl William Gilroy; Harold Leroy Goss; Ralph A. Gowdy; Walter Edward Grempler.

Erling Wilhelm Hansen; Henry Charles Hansen; Abraham Irving Haskell; Frederick Eugene Haynes; Arthur Trautwein Henrici; Seth Evelyn Howard.

Albert Eugene Johann; Norton Theodore Johnson; Reuben Alfred Johnson; Richard Newton Jones; Alexander Josewich.

Charles Herbert Keene; Oscar Miller Kligen; Ralph Thomas Knight; Louis Robert Koller.

Rae Thornton La Vake; Arthur Ayer Law; John William Lee; Leslie Earl Luehrs; Frank Benjamin Mach; John Silliman Macrice; Stanley Robert Maxeiner; Thomas Francis McCormick; Charles Fergus McCusker; James Alvin McLaughlin; John William Mintener; Virgil Harrison Moats; Frederick Paul Moersch; Angus Washburn Morrison; Herbert E. Morris.

Joe Mullineaux Neal; Russell R. Noice; Gustaf Theodore Nordin; James Montgomery Northington; Bernt Odegaard; Harry Oerting; Trygve Oftedal.

Carl W. Paulson; Edw. Ludwig Paulsen; Reuben M. Pederson; Ralph St. John Perry; Paul James Preston.

Charles Anthony Reed; Douglas Ford Robbins; Harold Eugene Robertson; John P. Rosenwald; Max Seham; Henry H. Sellers; John Chandler Sessions; Benjamin Joseph Shalett; Morse Joseph Shapiro; Daniel Marsh Shewbrooks; Harvey Maurice Slater; Taylor Sivens Smith; John Elford Soper; Joseph Aloysius Stoeckinger; Joseph Stomel; Harold M. Stone; Adolph G. Sund.

\*Adopted with additions from the Jour. A. M. A., Vol. 70, No. 22.



Lewis Leonard Ten Broeck; David Owen Thomas; Gilbert Joshua Thomas; Frank Chisholm Todd. Henry Patrick Wagener; Paul Alson Ward; Solon Marx White; Hugh Spaulding Willson; Paul William Wipperman; Philip H. Wolfram.

#### Hubbard County

NEVIS—George Earle McCann.

#### Isanti County

BRAHAM—Theodore H. Dedolph.

#### Itasca County

COLERAINE—Roderick Frederick McHugh.

#### Jackson County

JACKSON—Ursus Victor Portmann. LAKEFIELD—John Townsend Rose.

#### Kandiyohi County

NEW LONDON—Henry Virgil Hanson. WILLMAR—Harry E. Canfield.

#### Kittson County

HALLOCK—John R. Wood. LANCASTER—Gustav Dahlquist.

#### Koochiching County

INTERNATIONAL FALLS—Jenner P. Chance; Robert Hugh Monahan.

#### Lac Qui Parle County

FARIBAULT—Adolph Melancthon Hanson. MADISON—Walter D. Lee; Walter Nordal.

#### Lake County

SECTION THIRTY—Gordon Griffith St. Clair.

#### Le Sueur County

LE SUEUR—Joseph Eloi LeClerc; Daniel William McDougald; Felix Traxler. MONTGOMERY—Joseph Owen McKeon. NEW PRAGUE—William John Kusera; William F. Maertz. WATERVILLE—Harry Bennett Weinburgh.

#### Lyon County

BALATON—Charles Germo. COTTONWOOD—John Banks Robertson; Therfinn Tharaldsen. MINNEOTA—Gustaf Larson. TRACY—Warner Gleason Workman.

#### Mahnomen County

MAHNOMEN—Erhard Anton Rumreich.

#### Marshall County

MIDDLE RIVER—Robert Earl Spinks. NEWFOLDEN—George Luther Johnson. WARREN—Baldwin Borreson.

#### Martin County

DUNNELL—Nels Philip Anderson. FAIRMONT—George Willard Dewey; Roy Chester Lowe; Gustav Herman Luedtke. TRUMAN—Erwin Otto Fitz; August Frederick Hunte.

#### McLeod County

GLENCOE—Richard L. Leavenworth; Merritt Whitacre Wheeler. HUTCHINSON—Henry Edwin Douglas. WINSTED—John Baptiste Clair.

#### Meeker County

LITCHFIELD—John Joseph Donovan; Carl J. Robertson.

#### Mille Lacs County

MILACA—Harry P. Bacon. PRINCETON—George P. Dunn.

#### Morrison County

SWANVILLE—Irving G. Wiltrout.

#### Mower County

AUSTIN—Charles Crawford Allen; Fred Bruce Coleman; Clifford C. Leck.

#### Murray County

FULDA—Emil King. SLAYTON—Leon Arlington Williams.

#### Nicollet County

NICOLLET—Reinhart Gilbert Olson. ST. PETER—Jared Waldo Daniels.

#### Nobles County

ADRIAN—Carl Chamberlain Cowin. WILMONT—Joseph Dawes Waller; Arthur Bent Williams. WORTHINGTON—Frank Melville Manson.

#### Norman County

TWIN VALLEY—Charles Fremont Snell.

#### Olmstead County

ROCHESTER—Alfred Washington Adson; Burton A. Baird; Roy A. Barlow; D. M. Berkman; Ralph B. Bettman; Wayne W. Bissel; Samuel Orr Black; Pio Blanco; Walter Meredith Boothby; James C. Brogden; Hermon Carey Bumpus; Charles M. Clark; William Gregg Crumley; Daniel Davis; Charles Herbert Doe; Henry Lightfoot Douglass; William John Egan; Raymond Myers Evans; Samuel Thomas Forsythe; Andrew Jackson Goodwin; Stuart William Harrington; James Martin Hayes; Joseph Eugene Heard; Russell A. Hennessey; Clarence Calvin Hoke; Herman William Hundling; Verne Carlton Hunt; Edward Starr Judd; Lawrence Ewald Lepper; Walter Ivan Lillie; Harry Matthew Lowell; Frank Charles Mann; Harold Edward Marsh; Edward Vernon Metcalfe Mastin; William W. Mattson; Charles Horace Mayo; William James Mayo; James Robert McVay; Frank Edward McEvoy; Oliver Clarence Melson; Alexander Berkeley Moore; Robert Daniel Mussey; Oliver C. Nelson; John Joseph O'Hearn; Paul Arthur O'Leary; John DeJarnette Pemberton; Frank Arents Plum; Lee Wesley Pollock; Samuel Robinson; Frederick Roman Sanderson; Ralph R. Simmons; Charles Daniel Squires; George Ellsworth Sutton; Thaddeus L. Szapka; William Joseph Tucker; Porter Paisley Vinson; Charles Leonard Von Hess; Samuel Dinwiddie Weaver; Louis B. Wilson; William Ray Winnie; Henry William Woltmann. STEWARTSVILLE—John G. Goggin.

#### Ottertail County

FERGUS FALLS—Shirley Dan Folsom; David Oscar Nathaniel Lindberg; Ralph Moody Thurlow. UNDERWOOD—William Andrew Lee.

#### Pennington County

THIEF RIVER FALLS—Jesse Ellsworth Douglass.

#### Pine County

HINCKLEY—Carleton Gale Kelsey. POKEGAMA—Robert Glenn Allison.

#### Pipestone County

JASPER—Albert Marinius Larson. PIPESTONE—Francis Lawrence Powers; George Fred Schmidt.

**Polk County**

CLIMAX—Thomas Arneson. GULLY—Axel Wilhelm Swedenburg.

**Pope County**

GLENWOOD—Michael Ambrose Desmond; James Ralph Elsey; Iver Ferdinand Selleseth. LOWRY—Luther Lewellyn Gibbon; Howard Lee Sargeant. STARBUCK—Charles R. Christenson. VILLARD—Richard Bates Girvin.

**Ramsey County**

NORTH ST. PAUL—Ernest William Cowern. ST. PAUL—John S. Abbott; Moses Barron; Walter Douglas Brodie; Frank Earl Burch; Floyd William Burns; Andrew Christiansen; Sol George Cohan; Paul Burns Cook; Wallace Cole; Albert D. Corniea; Bronson Crothers; Karl Dedolph; Warren Arthur Dennis; Carl Bigelow Drake; James Nicholas Dunn; Edward John Engberg; James C. Ferguson; Everett K. Geer; Charles Harry Ghent; Joseph Marie Arthur Gravelle; A. R. Hall; Walter Henry Halloran; J. Felton Hammond; John Comstock Harding; Charles King Holmes; Joseph William Jesion; Elmer Mendelssohn Jones; Frank Norris Knapp; Albert M. Larson; John Nickolas Libert; Elmer Harry Lutz; R. D. McHugh; Jos. Louis Martineau; Edward August Meyerding; Joseph Clement Michael; Nels. George Mortensen.

Justus Ohage, Jr.; William Patrick O'Malley; John Jay Platt; Fred John Plondke; Louis Ramaley; Willmar C. Rutherford; Francis Savage; Edward Schons; Olaf I. Sohlberg; John Clarence Staley; Kenneth Taylor; William Henry Von der Weyer; Jonas Samuel White; Frank White Whitmore; Clayton K. Williams; Otto Louis Winter; Harry Bernard Zimmermann; Johan Martin Arnsion; Bernard John Weigel.

**Red Lake County**

RED LAKE FALLS—John Clinton Wilkinson.

**Redwood County**

REDWOOD FALLS—Herman Oscar McPheeters; Hugo N. Sarchet. SANBORN—Monte Charles Piper.

**Renville County**

FAIRFAX—Arthur Murphy Crandall. HECTOR—Harry E. McKibben. RENVILLE—Ivan Rudolph Maercklein.

**Rice County**

FARIBAULT—Charles W. Robilliard; Frank Storms Warren. NORTHFIELD—Fager M. Babcock; Joseph Moses, Jr.

**Rock County**

HILLS—Frederick Alonzo Engstrom.

**Scott County**

BELLEPLAINE—George W. Snyder. JORDAN—Lawrence Joseph Leonard; William Henry Phillips. SHAKOPEE—George Peter Dempsey.

**Sherburne County**

CLEAR LAKE—Harry Brooks Clark.

**St. Louis County**

AURORA—Robert Peroy Pearsall. BIWABIK—Paul Stevenson Epperson. CHISHOLM—Charles Hyatte Cherry. DULUTH—Chester Harland Clark; Joseph Henry Cosgrove; William Joakim Eklund; Frank J. Elias; Frank Augustus Grawn; A. T. Laird; Fredolph H. Magney; William Joseph McKillip; Fred

J. Patton; C. E. Prudden; Campbell Sansing; Simon Aloysius Walkowiak. EVELETH—Harvey Francis Rawlings; John Andrew Saari. GILBERT—Frederick Barrett. HIBBING—Hugh W. Reynolds; Albert F. Ryan. VIRGINIA—Holland Todd Ground. WEST DULUTH—Robert Sabin Forbes.

**Stearns County**

ALBANY—Delphin William Kohler. BELGRADE—Hugh Henry Slocumb. BROOTEN—Richard T. Glycer. KIMBALL—Frank P. Frisch; Richard O. Leavenworth. P A Y N E S V I L L E—Harry William Arndt; Pierre Celestin Pilou. SAUK CENTER—Harold Ladd Lamb. ST. CLOUD—George Delos Rice; Phillip E. Stangl.

**Steele County**

BLOOMING PRAIRIE—William John Dailey; Albert Miller Treat.

**Stevens County**

HANCOCK—Mathias Lent Ransom. MORRIS—Edward Thomas Fitzgerald.

**Swift County**

BENSON—Lloyd Hermanus Van Slyke.

**Todd County**

BROWERVILLE—Verne S. Cabot.

**Traverse County**

BROWN VALLEY—Ronald Leitch Laney. TIN-TAH—Nathan Freeman Doleman. WHEATON—Bret Verne Bates.

**Wabasha County**

ELGIN—Walter Franklin Bleifuss. MAZEPPA—William Brown Heagerty. MINNEISKA—Cleon J. Gentzow. WABASHA—David Simon Fleischauer.

**Wadena County**

WADENA—Paul E. Kenyon.

**Waseca County**

WASECA—William Frederick Passer.

**Washington County**

STILLWATER—Eugene Benson Stebbins.

**Watsonwan County**

LEWISVILLE—Robert I. Barickman.

**Wilkin County**

BRECKENRIDGE—Ernest Wesley Rimer. CAMP-BELL—William Edgar Wray.

**Winona County**

LEWISTON—Gilbert Hendrickson. WINONA—William Vardeman Lindsay; George Vincent Lynch; Bertolet Perry Rosenberry; Charles Pern Robbins; Samuel Schaefer.

**Wright County**

ANNANDALE—George Henry Norris. BUFFALO—John Jefferson Catlin. DELANO—Bert Victor Lares. MONTICELLO—Frank Everette Ellison.

**Yellow Medicine County**

GRANITE FALLS—Maurice Levy.

MINNESOTA

County	Area, Square Miles	Sq. Miles per Physician	Population Est. 1917	Population per Phys.	Total No. Physicians	Total Women Phys.	Physicians Under 45	Physicians Under 35	Members of Co. Society	Commiss'd in M. R. C., etc.
Aitkin	1,830	305.0	13,019	2,169	6	6	4	4	5	1
Anoka	459	76.5	13,354	2,225	6	3	3	5	2	1
Becker	1,349	64.2	20,994	999	21	8	8	17	10	5
Beltrami	3,822	201.1	27,341	1,439	19	11	11	17	10	4
Benton	405	57.8	12,857	1,836	7	4	4	5	3	1
Big Stone	491	54.5	9,830	1,092	9	9	7	7	5	6
Blue Earth	762	16.5	29,337	637	46	6	24	38	26	6
Brown	612	32.2	20,387	1,073	19	1	10	14	17	3
Carlton	867	66.6	23,065	1,774	13	1	8	9	8	2
Carver	376	34.1	17,455	1,586	11	1	8	7	1	1
Cass	2,104	150.2	14,425	1,030	14	8	8	12	8	3
Chippewa	591	65.6	14,158	1,573	9	6	6	6	7	1
Chisago	427	47.4	13,747	1,527	9	9	5	7	9	1
Clay	1,043	65.1	20,881	1,305	16	11	11	12	11	3
Clearwater	1,019	254.7	9,713	2,428	4	3	3	4	2	2
Cook	1,498	1439.0	1,719	1,719	1	1	1	1	1	1
Cottonwood	640	91.4	13,076	1,868	7	7	7	7	7	1
Crow Wing	1,057	39.1	18,766	695	27	17	17	22	17	5
Dakota	599	33.2	27,681	1,537	18	1	9	10	10	1
Dodge	440	40.0	12,094	1,099	11	4	4	7	8	1
Douglas	648	38.1	17,669	1,037	17	13	13	15	11	3
Faribault	719	36.2	19,949	1,049	19	12	12	14	14	2
Fillmore	868	37.7	25,680	1,116	23	18	18	23	22	3
Freeborn	735	35.0	22,606	1,076	21	1	11	18	15	5
Goodhue	767	23.0	32,001	1,103	29	1	13	21	15	2
Grant	553	39.5	9,244	660	14	1	10	11	5	2
Hennepin	565	0.8	410,227	638	642	23	362	508	394	119
Houston	570	71.2	14,297	1,111	8	6	6	7	7	1
Hubbard	958	106.4	12,204	1,356	9	4	4	4	2	1
Isanti	442	63.1	13,300	1,900	7	5	6	6	2	1
Itasca	2,730	160.5	27,338	1,608	17	8	8	14	10	1
Jackson	702	46.8	14,491	966	15	8	11	12	12	2
Kanabec	534	267.0	7,809	3,904	2	2	2	2	1	1
Kandiyohi	801	50.0	19,373	1,210	16	11	13	13	13	2
Kittson	1,111	138.8	10,967	1,370	8	5	6	6	4	2
Koochiching	3,141	349.0	10,217	1,135	9	2	2	9	4	2
Lac Qui Parle	790	60.7	16,271	1,251	13	8	8	9	8	3
Lake	2,099	349.8	10,462	1,743	6	4	5	4	1	1
Le Sueur	466	22.1	18,609	886	21	11	11	14	13	7
Lincoln	535	66.8	10,536	1,317	8	6	6	6	6	1
Lyon	708	37.2	16,546	870	19	8	8	15	13	5
McLeod	496	24.8	18,691	934	20	13	14	14	14	4
Mahnomen	572	114.4	3,249	649	5	1	1	1	1	1
Marshall	1,788	198.6	16,805	1,867	9	6	7	7	7	3
Martin	719	44.9	17,942	1,121	16	8	12	13	6	6
Meeker	621	27.0	17,022	740	23	11	11	9	9	2
Mille Lacs	583	44.8	12,630	971	13	4	10	6	2	1
Morrison	1,143	63.5	24,901	1,383	18	10	13	8	11	2
Mower	711	26.3	22,861	846	27	1	12	23	19	3
Murray	704	70.4	11,753	1,175	10	7	10	9	2	2
Nicollet	443	29.5	14,125	941	15	1	5	11	14	2
Nobles	722	45.1	15,412	963	16	8	11	12	4	4
Norman	860	86.0	13,446	1,344	10	6	9	2	1	1
Olmsted	666	45.9	22,497	1,555	145	3	100	134	82	63
Ottertail	2,039	56.6	46,519	1,292	36	21	30	22	4	4
Pennington	607	60.7	10,983	1,098	10	6	8	6	1	1
Pine	1,413	128.4	19,039	1,730	11	8	9	7	2	2
Pipestone	469	33.5	9,762	668	14	1	6	10	9	3
Polk	1,979	69.9	36,419	1,300	28	18	23	23	2	2
Pope	693	69.3	12,869	1,286	10	4	9	6	7	1
Ramsey	161	0.4	262,450	748	351	3	198	257	233	56
Red Lake	432	72.0	7,689	1,281	6	2	2	4	1	1
Redwood	881	61.5	19,274	1,376	14	11	11	11	11	3
Renville	978	65.2	23,123	1,541	15	11	14	12	3	3
Rice	495	16.5	25,911	839	30	2	16	25	24	4
Rock	492	70.2	10,626	1,518	7	4	6	5	1	1
Roseau	1,670	208.7	14,509	1,813	8	4	3	3	1	1
St. Louis	6,503	31.2	221,920	1,082	205	6	125	168	133	22
Scott	366	24.4	14,888	992	15	7	12	13	4	4
Sherburne	448	89.6	8,759	1,751	5	4	5	4	1	1
Sibley	585	48.7	15,540	1,295	12	9	9	8	8	1
Stearns	1,362	29.6	50,119	1,089	46	23	35	32	10	10
Steele	431	26.9	16,146	1,009	16	8	11	12	2	2
Stevens	564	80.5	8,293	1,184	7	4	5	5	2	2
Swift	741	61.7	12,949	1,079	12	1	5	9	4	1
Todd	955	73.4	24,277	1,867	13	6	7	9	1	1
Traverse	568	94.6	8,395	1,399	6	6	6	3	3	3
Wabasha	541	28.8	18,554	976	19	14	17	15	4	4
Wadena	538	48.9	9,185	835	11	5	7	8	1	1
Waseca	431	43.1	13,466	1,346	10	5	10	9	1	1
Washington	397	17.2	26,013	1,131	23	7	14	12	1	1
Watsonwan	434	54.2	11,382	1,823	8	5	8	7	1	1
Wilkin	745	149.0	9,780	1,956	5	5	5	4	2	2
Winona	637	19.3	33,398	1,012	33	1	16	22	23	6
Wright	691	28.7	28,082	1,170	24	12	18	12	4	4
Yellow Medicine	749	49.2	15,991	1,066	15	5	10	6	1	1
Totals	80,856	31.7	2,286,341	897	2,548	57	1,454	1,992	1,621	451

1 Includes Minneapolis, population 373,448; physicians 621 [M. R. C. 119.]

2 Includes St. Paul, population 252,465; physicians 345 [M. R. C. 55.]

3 Includes Duluth, population 97,077; physicians 109 [M. R. C. 12.]

## OF GENERAL INTEREST

At a special meeting of the Hennepin County Medical Society held on June 3d, in Minneapolis, a motion was carried which provided for the appointment by the president of a committee of five who were to list and classify all the members of the medical profession of Hennepin county, the object being to classify all the men according to age, physical condition, special training, dependents, etc., so that the military needs now existing could be met with the best material and with the least disturbance of civilian needs. The members of this committee are: Drs. C. A. Donaldson, C. P. Nelson, A. E. Hedbach, Oscar Owre, and F. L. Adair.

Great changes have taken place at the State Sanatorium recently. Dr. George William Beach who has been the superintendent for the past six years has accepted a commission in the Medical Reserve Corps. Dr. P. M. Hall, President of the Advisory Commission, has taken charge of the management at the urgent request of the Board of Control. This action involves great sacrifices on his part, to thus take up the rather thankless job of an interim management until a permanent resident superintendent can be secured. Dr. M. G. Milan, on the Staff of the Advisory Commission, is acting as temporary assistant superintendent and is taking charge of the medical work, assisted by Dr. McGee.

Lieutenant J. Warren Bell, of Minneapolis, is at the Army Medical School, Washington, D. C.

Dr. E. S. O'Hare has moved from Wing, N. D., to Milroy, Minn.

Lieutenant Theodore H. Sweetser, of Minneapolis, son of Dr. H. B. Sweetser, for many years connected with the medical faculty, has been recommended for the British War Cross for bravery and devotion to duty near Passchendaele on March 13. It is reported that when the battalion headquarters were struck by a shell Lieutenant Sweetser attended to

forty gas victims although he was himself suffering from the poison gas. He also helped to rescue men from a destroyed dugout. Lieutenant Sweetser completed his medical work in the College of Physicians and Surgeons in New York City last June and entered the medical corps of the regular army. Later he was transferred to the medical corps of the British army.

Among the distinguished visitors to Rochester, and the Mayo Clinic during the past week were:

Major P. F. Armand-De Lille, of the Child Welfare Department of France.

Sir James Mackenzie, Consulting Surgeon to the London Hospital.

Sir William Arbuthnot Lane, Consulting Surgeon to Guy's Hospital.

Mons. Justin Godard, member of the French Chamber of Deputies.

Dr. G. Loewy, Major Locard and Capt. De Helle of France.

At a meeting of the Brown-Redwood Medical Society held at New Ulm, Minn., May 23, 1918, the following officers were elected for the ensuing year:

Dr. A. W. Eckstein, Comfrey, Minn., President.

Dr. G. F. Reineke, New Ulm, Minn., Secretary-Treasurer.

Board of Censors: Dr. J. C. Rothenburg, Springfield, Minn.; Dr. D. V. Gleysteen, Lambertton, Minn.; Dr. G. B. Weiser, New Ulm, Minn.

Dr. O. C. Strickler, New Ulm, Minn., delegate to State Society.

Dr. Geo. B. Weiser, New Ulm, Minn., alternate to State Society.

Dr. W. O. Pearce, Minneapolis, gave a talk on Child Relief Work in France.

Three new members were admitted: Dr. F. J. Pelant, New Ulm; Dr. W. A. Meilicke, Nicollet; Dr. W. G. Muessle, Springfield.

Lieut. Lloyd T. Davis of Wadena, is now at Base Hospital, Camp Shelby, Hattiesburg, Miss.

Dr. E. J. Engberg, St. Paul, has been transferred from Camp Doniphan, Okla., to Base Hospital 65, Fort McPherson, Ga.

The following is the present address of Dr. Heagerty of Mazeppa: Major Wm. B. Heagerty, 314 Sanitary Train, 89th Division, American Expeditionary Forces.

The address of Capt. Jacob Fowler Avery, Minneapolis, is now 44th Infantry, Camp Lewis, American Lake, Wash.

We are glad to announce that word has been received from Major J. S. White of St. Paul, of his safe arrival overseas.

Professor L. G. Rowntree, Chief of the Department of Medicine, University of Minnesota, has been commissioned Lieut.-Colonel in the United States Army medical service, and expects to sail in July for active service overseas.

The death of Dr. George Nye, one of the prominent residents of Hubbard county, occurred at his home in Park Rapids May 10th, following an illness of several weeks.

Dr. William N. Porteus who had practiced in Minneapolis 25 years, died May 15th, at his home, 2402 Nicollet Ave. Dr. Porteus was 63 years old and came to Minneapolis from Pembroke, Ontario, where he practiced ten years after receiving his degree from McGill University.

Dr. William W. Lewis of St. Paul, has been commissioned Captain in the Medical Officers Reserve Corps.

Dr. S. S. Hesselgrave of St. Paul, was commissioned First Lieutenant in the Medical Reserve Corps of the National Army.

Dean Wulling and his co-workers in the College of Pharmacy, University of Minnesota, during the past year prepared, or have in process of preparation, 28,000 half pint bottles of tincture of digitalis. This constitutes the complete supply of the drug used in the United States army. A large portion of the drug was raised in the medicinal garden of the college and a new lot of plants are being set out for a supply for next year.

Dr. Frank B. Mach, who has been practicing at 2337 Central Ave., Minneapolis, has left for Washington as First Lieutenant in the Medical Reserve, U. S. A.

## NEW AND NON-OFFICIAL REMEDIES

During May the following articles were accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

**Geo. W. Brady & Co.:**

**Barium Sulphate-Brady For Roentgen-Ray Work**

**Johnson and Johnson:**

**Chlorine-Soda Ampoules.**

**Lederle Antitoxin Laboratories:**

**Antipneumococcic Serum, Type I.**

**Monsanto Chemical Works:**

**Chlorcosane-Monsanto.**

**Morgenstern & Company:**

**Acid. Phenylcinch.—Morgenstern  
Acid. Phenylcinch.—Morgenstern Tablets  
Sodium Phenylcinch. Water-Morgenstern.**

**Parke, Davis & Company:**

**Antipneumococcic Serum, Type I.**

**Rector Chemical Company, Inc.:**

**Procaine-Rector.**

**E. R. Squibb and Sons:**

**Antipneumococcic Serum, Type I.**

**Chlorcosane.**—A liquid, chlorinated paraffin, containing its chlorine in stable (non-active) combination. It is used as a solvent for dichloramine-T and is itself without therapeutic action.

**Chlorcosane-Calco.**—A brand of chlorcosane containing from 31 to 35 per cent. of combined chlorine. The Calco Chemical Co., Bound Brook, N. J.

**Chlorcosane-Monsanto.**—A brand of chlorcosane containing from 27 to 30 per cent. of combined chlorine. Monsanto Chemical Co., St. Louis, Mo. (Jour. A. M. A., May 18, 1918, p. 1459).

### PROPAGANDA FOR REFORM.

**Mayr's Wonderful Stomach Remedy.**—This is a "patent medicine" adaptation of the old "fake gallstone" trick, which consists of selling large doses of olive or other oil and a saline cathartic. The result of taking this combination is the passage of a number of soapy concretions which the victim is persuaded to believe are gallstones. In 1915 Mayr was convicted under the Federal Food and Drugs Act for making false and fraudulent claims for his "remedy." As the Food and Drugs Act applies only to the packages of a preparation and not to store window displays and newspaper advertising, Mayr has revised

the labels, etc., for his "patent medicine," but still makes misleading claims elsewhere. (Jour. A. M. A., May 11, 1918, p. 1393).

**Cotarnin.**—Cotarnin is an artificial alkaloid derived by oxidation from narcotin, by a process analogous to the derivation of hydrastinin from hydrastin (which again differs from narcotin only by an additional OCH<sub>3</sub> group). Cotarnin hydrochlorid is marketed as stypticin, and cotarnin phthalate as styptol. Cotarnin is used systematically mainly against uterine hemorrhage, especially in menstrual hemorrhage, endometritis and congestive conditions. It is ineffective against postpartum hemorrhage or bleeding from gross anatomic lesions, and probably also against hemorrhage in other internal organs. Local application of cotarnin in substance or concentrated solution has a direct vasoconstricting effect and is used in tooth extractions, epistaxis, etc. (Jour. A. M. A., May 11, 1918, p. 1396).

**Syphilodol.**—According to the French Medicinal Company, New York, Syphilodol is a "synthetic chemical product of silver, arsenic and antimony," the effects of which are very similar to those of salvarsan and neosalvarsan, with the advantage that, in addition to being available in ampules for intramuscular or intravenous use, it is also furnished in the form of tablets for oral administration. The A. M. A. Chemical Laboratory reports that each Syphilodol tablet contained approximate  $\frac{3}{4}$  grain yellow mercurous iodid with minute traces of arsenic, silver and antimony. The laboratory further reports that a Syphilodol ampule contained a liquid having the characteristics of water, in which the presence of less than 1/6000 grain of arsenic could be demonstrated. Shorn of its mystery, Syphilodol therefore is essentially the old, well-known "protoiodid of mercury." (Jour. A. M. A., May 18, 1918, p. 1485).

**Pyocyaneus Bacillus Vaccine.**—When this vaccine was admitted to New and Non-official Remedies in 1910 it gave promise of having therapeutic value. Now the firms whose products are described in New and Non-official Remedies advise the Council on Pharmacy and Chemistry that they have ceased to make the vaccine because of lack of demand. Holding the lack of demand as evidence that the vaccine had proved without value, the Council directed its omission from New and Non-official Remedies. (Jour. A. M. A., May 18, 1918, p. 1496).

**The Dr. Chase Company.**—A fraud order prohibiting the use of the mails has been issued by the postoffice department against the Dr. Chase Company. This patent medicine concern sold three remedies—pills—which, before the Food and Drugs Act made lying on the label irksome if not expensive, were known, respectively, as "Dr. Chase's Blood and Nerve Food," "Dr. Chase's Kidney Food" and "Dr. Chase's

Liver Food." Since the enactment of the Food and Drugs Act, however, the term "food" in the name of the nostrums has been changed to "tablets" for obvious reasons. In 1917 K. E. Hafer, the proprietor of the Dr. Chase Company, was fined under the Food and Drugs Act for misbranding. (Jour. A. M. A., May 25, 1918, p. 1557).

**Capsules of Bismuth Resorcino Compound.**—According to the label, each capsule of Bismuth Resorcino Compound (Gross Drug Co., Inc., New York City) contains bismuth subgallate, 2 grs.; resorcinol, 1 gr.; betanaphthol,  $\frac{1}{2}$  gr., and creosote (beechwood) 1 m. The preparation was declared inadmissible to New and Non-official Remedies because unwarranted therapeutic claims made for it; because the name is not descriptive of its composition, and because the combination of the stated drugs in fixed proportions is irrational. (Reports Council Pharmacy and Chemistry, 1917, p. 139).

**Elixir Novo-Hexamine.**—The A. M. A. Chemical Laboratory reports that Elixir Novo-Hexamine (Usher Smith, St. Paul, Minn.) is not a "stable, palatable, potent preparation of Novo-Hexamine, an acid compound of hexamethylenamine," as claimed, but a flavored and colored solution of sodium acid phosphate and hexamethylenamine in diluted glycerol. The Council on Pharmacy and Chemistry considered the report of the laboratory and the advertising claims, and declared Elixir Novo-Hexamine inadmissible to New and Non-official Remedies because its composition is secret; because the ill-advised use by the public is invited; because unwarranted therapeutic claims are made for it; because the name is misleading, and because it is irrational to prescribe hexamethylenamine and sodium acid phosphate in fixed proportions. (Reports Council Pharmacy and Chemistry, 1917, p. 142).

**Formosol.**—Sunshine's Formosol (The Formosol Chemical Co., Cleveland, Ohio) is claimed to contain 18 per cent. formaldehyde in a solution of soap. The preparation was refused recognition by the Council on Pharmacy and Chemistry because it was advertised indirectly to the public and because unwarranted therapeutic claims were made for it. (Reports Council Pharmacy and Chemistry, 1917, p. 154).

**Kalak Water.**—Kalak Water (The Kalak Water Co., Inc., New York) is a carbonated, artificial mineral water, said to contain in one million parts sodium carbonate, 4,049.0; sodium phosphate, 238.5; sodium chlorid, 806.3; calcium carbonate, 578.2; magnesium carbonate, 48.9, and potassium chlorid, 47.9. In view of the false and absurd claims made, the Council on Pharmacy and Chemistry declared Kalak Water inadmissible to New and Non-official Remedies. (Reports Council Pharmacy and Chemistry, 1917, p. 148).

## REPORTS AND ANNOUNCEMENTS OF SOCIETIES

### REPORT OF THE HENNEPIN COUNTY MEDICAL SOCIETY'S COMMITTEE ON PLAN TO SERVE INTERESTS OF MEN IN THE ARMY, MAY 27, 1918.

This committee met several times during the winter and spring. The purpose for which it was created was to devise means and methods to prevent, as far as possible, hardships befalling the families and dependents of those of our members, who, at the call of the nation, have entered her service in the medical corps. We all know that in many instances such service has been entered into only at a considerable sacrifice; that the financial return in the army is far below what was often earned in civil practice; that medical officers are often no longer young; that the majority have families dependent on them and that while supporting their families they must also support themselves in a manner befitting an officer; that many have left behind them obligations, such as life insurance, mortgages and debts, easily enough carried on their earnings from civil practice, but for which their incomes in the army are entirely inadequate; and that, therefore, it is inevitable that hardships will, and have already arisen in individual cases. In what way may these conditions be met and these hardships minimized? This question has appeared to the committee so important and so urgent, that it decided unanimously to request the president to call this special meeting to listen to its report, and formulate some plan of action to meet the condition. The committee feels, and it is sure that every member of the society feels, that this is an obligation resting on our profession, and that it must be met and borne by those of us who are obliged to remain at home. The question is largely one of money. In this most serious time of the world's history and of the history of this country, the keynote of all our actions and of the actions of everyone of us, must be sacrifice. Those who have gone away have sacrificed much, and we at home must also sacrifice much, and practically the only way in which we can sacrifice is by going without and giving from our incomes. As the war goes on the need for such action as is here contemplated will without question become more manifest. We realize it more now than we did a year ago.

A year ago it was thought that the necessary help could be given by returning to the absent doctor or his family, one-third of the fees collected from his

former patients. This plan has not worked out, and has proven impractical.

Your committee, after very full deliberation, has formulated a tentative plan which it feels confident will succeed if it receives the full and continuous support of all the members of the society. It does not mean that those who go away will suffer no hardship—in these days of stress such a result is impossible—but it does mean that we who remain at home must also carry on and feel the pinch of the times in which we live—that we must give up and give up, until our burdens equalize those of the men who enter the army.

The plan is as follows:

1. A fund to be created which may be drawn upon to supply (or supplement) the needs of medical army officers, members of this society, in the care of their dependent families.

2. The amount of this fund necessary is at present an unknown quantity. The committee has no means as yet of even guessing at the amount which will be required—as time goes on and the needs develop, the required amount will become evident. It is feared it may be large, and it is certain that its necessity will be prolonged to the duration of the war and even beyond.

3. The source from which this fund must be derived can only come from volunteer subscriptions by members of this society.

4. Therefore, it is suggested that a subscription be made by each member of the society for the period of one year, to be paid in twelve equal monthly payments. These amounts will be deposited in a designated bank, to draw interest until withdrawn, and subject to draft on the signatures of designated members of a permanent committee to be later nominated. After the need of such a fund is ended any amount remaining will be apportioned back to the subscribers.

There are over 300 members of our society who are still in active civil practice, and the committee feels that an average of \$10.00 per month would not work an unbearable hardship on any of us. Some will be able to subscribe much more, and some few possibly less, but it is a foregone conclusion that the name of no member of our society will fail to appear on the list. This will give a fund of \$3,000 per month, or \$36,000 for the coming year.

At present there are about 60 members who are in active service, and the recent call will increase this number, and it is anticipated that such a sum will help those in stress over the hard spots.

5. a. How may this fund be raised with certainty? It is the suggestion of the committee that the members be divided into groups, and that each group be assigned to a solicitor selected from our body, who will personally call on each member of his group for his subscription.

b. That then, these subscriptions be turned over for collection to the bank designated as the depository of the fund, and that the bank shall every month draw on the member for one-twelfth of his subscription.

c. It is estimated that one solicitor can conveniently take care of a group of fifteen, and therefore the committee will move, through its chairman, that the president be empowered to create such a board of solicitors, to consist of twenty members, for the purpose of making this canvas of the society and obtaining these subscriptions. The solicitors will report to the permanent committee to be nominated, which in turn will report to the executive committee, and through this latter the activities to date will reach the society at large.

6. It is suggested that the permanent committee to be nominated shall act for one year; that it shall have control of the fund; that it shall investigate cases as they arise; and that it shall have power to disburse the fund as it sees fit, in relief of such cases, either by gift, or by loan (with or without interest), or in any other way, as in its judgment, seems best.

In conclusion the committee wishes it clearly understood that it does not consider the distribution of this fund as in any sense the giving of charity—those who accept assistance from it shall consider it as a supplemental and just income which the government would like to but cannot afford, and that those of us who contribute also consider it in the same light, so that no stigma of accepting and giving charity may attach to such transaction between any member and through the society.

It is understood that if a subscriber enters the service his obligation ceases, and the amount previously subscribed may be withdrawn if he so desires.

Signed by committee.

DRS. H. B. SWEETSER,  
A. W. ABBOTT,  
R. E. FARR,  
E. K. GREEN,  
C. W. PETTIT,  
JAKOB HVOSLEF,  
C. J. RINGNELL,  
NORMAN M. SMITH,  
W. R. MURRAY,  
J. C. LITZENBERG,  
GEO. D. HEAD,  
J. P. SEDGWICK,  
J. G. CROSS,  
J. W. BELL,  
H. H. KIMBALL.

## PROGRESS IN MEDICINE AND SURGERY

### ROENTGENOLOGICAL SECTION.

**PULMONARY TUBERCULOSIS:** Dr. A. W. Crane, speaking editorially in *The American Journal of Roentgenology*, March, 1918, deploras an apparent lack of sympathy on the part of internists and tuberculosis specialists with the roentgenologist's efforts to aid in the early diagnosis and classification of pulmonary tuberculosis. This antagonism may have been aroused, he thinks, by the self-sufficient attitude of some roentgenologists, who thus convey the impression that they consider the roentgen method a blanket substitute for the time-honored laboratory and physical methods. Representative roentgenologists, however, have consistently emphasized the interdependence of different lines of diagnostic data, and the importance of their proper correlation. "We may recognize and even admire the pride of craft which leads the skillful internist to guard with jealous care, his diagnostic province, but we believe that this attitude (of antagonism) is fundamentally wrong." Those who manifest a tendency to discredit this valuable method, by unfair criticism, might rather join with the roentgenologist in his earnest and sincere effort to determine just what place it shall occupy in the galaxy of diagnostic adjuncts.

Let it be constantly borne in mind that the roentgen rays afford an excellent means of studying the diseased lung in the living subject, and that, with the inevitable accumulation of experience in the interpretation of the signs thus revealed, the method will become so potent a factor in diagnosis, that no progressive internist can longer ignore it.

*The Correlation of Pathological and Roentgen Findings:* In a laudable attempt to place the interpretation of the lung roentgenogram upon a foundation of scientific fact, Dr. Kennon Dunham (*Am. J. Roent.*, Vol., 14, No. 6) has conducted a series of studies in the pathology of tuberculosis and the anatomy of the lung, and has correlated his findings with studies of the lung roentgenogram.

He concludes that the earliest lesion is usually found in certain lymphoid tissue centers, described by W. S. Miller, situated in the peripheral part of the lung and in the pleura. To this point the organisms are carried by phagocytes, from the ductuli alveolares, where they have become lodged with soot and dust particles of the inspired air.

After the development of the tubercle within these lymphoid tissue masses, the lesion can be traced along the lymphatics of the veins, arteries and bronchi which supply a lobule, or lung unit. The special significance of these observations lies in the fact that the most characteristic shadow in the roentgenogram



of the actively tuberculous has the triangular shape of a lobule, and the "physical" qualities of a group of engorged lymphatics. Thus, one comes to think of tuberculosis as primarily a lobular disease, and since the lobule is triangular in shape, with its apex toward the hilum, we have a most excellent explanation for the fan-shaped cloud, so frequently seen in the roentgenogram of the tuberculous patient.

The author refers to the work of Gohn and the writings of Baldwin, the former having proven that a primary lesion, histologically slight, may be accompanied by a profound glandular reaction, and the latter that apparently repeated inoculations are necessary for the development of pulmonary tuberculosis.

This thought emphasizes the importance of the study of latent tuberculosis.

The writer asserts in closing that the densities he describes in the roentgenogram are due to tubercles, but he fails to explain why his "fan" disappears as the process becomes inactive. It seems much more logical to attribute these densities to lymphatic engorgement within the affected lobule, the engorgement being due to the activity of the tubercle, lodged in the tiny masses of lymphoid tissue.

We are not prepared to accept, without qualification, the statement that the Dunham "fan" is the sole reliable sign of active tuberculosis, although when present it may be the most conclusive sign we have. We still contend that pulmonary tuberculosis may be recognized, in the absence of the fan, by an infiltration of peculiar distribution and physical characteristics. And having localized such a lesion, the stethoscope in the hands of a competent man, will usually elicit signs of confirmative and conclusive value.

FRANK S. BISSELL.

**ICTERO-HAEMORRHAGIC SPIROCHAETOSIS:** L. Weekers and J. Firket (*British Journal of Ophthalmology*, Vol. II, No. 3, March, 1918. Translation) review briefly the symptoms and clinical findings in "Weil's disease" the study of which is of comparatively recent date. Conditions on the battle front are suitable for its development and as a consequence it is comparatively frequent among the troops and, in fact is labelled a War disease.

The malady is rapid in its onset attacking those in perfect health; the symptoms are chills, headache, violent muscular pains, especially in the neck, the lumbar region and flanks, the posterior surface of the thighs and legs, hyperaesthesia of the skin, pain on movement of the eyeballs. The temperature rises rapidly to 39° or 40° Cent. and remains there for five or six days, during which period the pulse is feeble but not very rapid and the arterial pressure is lowered.

There may be labial or nasal herpes, frequent epistaxis, moderate bronchitis with blood-stained sputum,

a dry-coated tongue and recurrent bilious vomiting. The stools are soft and colored, but diarrhoea is seldom noted. The liver and spleen show slight enlargement; the urine contains a trace of albumen, abundant urobilin, and some blood.

On the fourth or fifth day icterus develops, in some instances slightly, in others intensely. Shortly after the onset of the jaundice the temperature drops to normal or thereabouts and other pre-existing symptoms abate although the urine remains abnormal and contains in addition biliary pigment. After five or six days of apyrexia the temperature often rises, reaching 40°, with daily oscillations and the reappearance of general symptoms. After the termination of this exacerbation, convalescence is rapid.

Cardiac failure is not uncommon, the mortality varying from four to eight per cent.

In cases without characteristic clinical symptoms the diagnosis can be made with certainty by the discovery of the causal agent in (1) the blood, (2) the fresh urine, centrifugalized. If the blood of the patient be injected into a guinea pig, the animal dies in eight days.

The ocular symptoms met with in the course of the disease are numerous and diverse, and in analyzing 50 cases the authors found these symptoms proportioned as follows: (1) Cases without ocular symptoms, 4; (2) simple hyperaemia of the anterior segment of the eye, 29; (3) congestion of the iris, 7; (4) iritis, 6; (5) iritis and optic neuritis, 2; (6) iritis and retro-ocular neuritis, 1; (7) ocular herpes, 1.

PAUL D. BERRISFORD.

**THE ACTION OF PITUITRIN UPON THE GASTRO-INTESTINAL TRACT OF MAN:** H. K. Pancoast and A. H. Hopkins (*N. Y. Med. Jour.*, Feb. 17, 1917) state their conclusions after studying the effect of this drug in eleven cases, as observed by the Röntgen ray. Of these cases, five were entirely free from any gastro-intestinal symptoms—the other six complained of constipation. Of the latter, four presented gastric symptoms of reflex origin, but the effects of the pituitrin did not differ from the normal cases.

The authors state that the time for these studies was twice as long as for normal cases. Furthermore, that a control examination was made previous to the exhibition of the drug.

**Effect on the Stomach.**—Two cases showed definite increase in peristalsis and motility, and two showed no appreciable effect. The others all showed a primary depressing effect of from 15 to 60 minutes, followed in a majority of instances by increased peristalsis and motility.

The influence over the tonicity of the pylorus was variable.

**Effect on Small Intestine.**—In five cases no effect. In the others, the motility was delayed in proportion to the degree of gastric depression.

Effect on Large Bowel.—Some positive influence upon increased motility in two cases. No effect in five cases. Lessened effect in two cases. Not examined in two cases.

The authors conclude that the drug has no appreciable effect on the colon in the class of cases examined, admitting that other technic as far as the colon was concerned would give better results.

C. N. HENSEL.

**THE ETIOLOGY OF PLYCTENULAR CONJUNCTIVITIS:** W. Stanley Gibson (*Am. Jour. of Dis. of Children*, Vol. 15, No. 2) for the purpose of ascertaining the true etiology of phlyctenular conjunctivitis, studied exhaustively 92 patients afflicted with this disease, both from a clinical and hygienic standpoint.

On physical examination, 52 were found to be well developed and nourished, 28 with fair physique, 12 decidedly below par. To determine with a certainty the living conditions, the author personally visited the homes of 53 patients and found it good in 23, fair in 12, poor in 18. That the poorly nourished patients, particularly those living in miserable homes, are most frequently attacked by this disease is hardly consistent with the foregoing facts if one is to judge from so small a number of cases. In order to determine auto-intoxication as an etiological factor, a measure of indican in the urine was determined in 17 cases with the following results: 5 showed no indican, 5 a trace, 4 a small amount, 3 a large amount.

The value of the quantitative estimation of indican in the urine as an indicator of auto-intoxication is somewhat offset by the fact that this substance may appear in varying quantities in persons enjoying perfect health.

The frequency with which phlyctenular conjunctivitis is met with in scrofulous children and in those who show additional signs of tuberculosis, suggests the possibility that the conjunctival condition rests upon a tuberculous basis. A history of direct exposure to tuberculosis was obtainable in 29 per cent of the 92 reported cases. Nine showed clinically tuberculous glands or scars from operations, 7 had papulonecrotic tuberculids, 7 had suggestive findings in the lungs, 2 had Pott's disease, 6 a distinct D'Espine sign, and in a considerably larger number of cases the findings were suggestive. Of the 92 reported cases all save two gave a positive reaction to the Von Pirquet test. The author remarks: It is an interesting fact that in no case in which there was a typical efflorescence with characteristic focal injection of the surrounding conjunctival vessels, together with lachrimation and photophobia, was there a negative Von Pirquet reaction.

Additional facts brought out by Weekers tends to strengthen the view that phlyctenular conjunctivitis is founded upon a tuberculous basis.

1. The subcutaneous tuberculin test carried out during an attack of phlyctenular conjunctivitis causes an aggravation of the eye symptoms. Weekers

found in 10 patients so treated that the eye lesions became distinctly worse in eight.

2. Phlyctenules have occasionally occurred following the diagnostic or therapeutic use of tuberculin subcutaneously.

3. Numerous cases of phlyctenular conjunctivitis have occurred co-incidentally with, or following a positive ophtalmo-reaction.

4. Weekers performed the ophtalmo-reaction test in five patients who had a history of repeated attacks of phlyctenular conjunctivitis with scars of former lesions, but in none of whom had there been an active process within a year. All of the patients gave a positive reaction, and in three the phlyctenules recurred.

5. Weekers and Stargardt have studied histologically phlyctenules which occurred as a complication of the Calmette reaction, and found that they correspond to those which occur spontaneously.

PAUL D. BERRISFORD.

**CONTRIBUTION TO THE STUDY OF THE PATHOLOGY AND TREATMENT OF MARGINAL BLEPHARITIS:** Cuenod (*Contribution a l'etude de la pathogenie et du traitement de la blepharite ciliare*, La Clinique Ophthalmologique, April 1917) in a short but concise article divides this disease into the two regular classes, the simple and the ulcerated.

The former is caused by a chronic hyperemia of the lid margin, often produced by the diathetic conditions, and followed by a distention of the capillary walls. This is often found in individuals who suffer from frequent irritation of the conjunctiva, either from errors of refraction, obstructed tear passages, or vitiated atmosphere.

There is present a hypersecretion of the Meibomian and Moll glands. This in turn often causes the complication of Meibomian infarcts and calcium deposits in cases of blepharitis.

The ulcerated form is merely due to a folliculitis produced by a staphylococcic invasion under the excessive secretion found in the simple variety.

The treatment consists: (1) Combating the atony of the tissues; (2) preventing the general auto-intoxication, usually alimentary in origin; (3) removal of all local causes of irritation; (4) endeavoring to obtain a vasoconstrictor for the vessels; (5) combating the staphylococcic infection.

As a vasoconstrictor, the author advises instillation of adrenalin every two hours for several days, followed by cold compresses.

When the staphylococci have become deep seated in the follicles, applications of yellow oxid fail to reach them and no results are obtained.

Cuenod epilates under cocain anesthesia the entire ciliary margin and then applies a solution of iodid in acetone (percentages not given), followed by a glycerin dressing, for twenty-four hours.

For repeated recurrences he advises the administration of anti-staphylococcic vaccine.

CARL L. LARSEN.

**FURTHER STUDIES OF AN ANTIPOLIOMYE-LITIC SERUM, ITS PROTECTIVE AND CURATIVE PROPERTIES IN EXPERIMENTAL POLIOMYELITIS OF MONKEYS:** J. W. Nuzum and R. G. Willy (Jour. Inf. Dis., Vol. 22, No. 3) say that observations over a considerable number of years show that one attack of poliomyelitis confers immunity against subsequent infection. And further, that the serum of recovered patients and monkeys may have acquired neutralizing and protective properties against the virus of poliomyelitis. The chief disadvantage in treating this disease with the serum of recovered human patients is the difficulty in securing serum in sufficient quantities and the low antibody content of human serum.

A peculiar coccus was isolated quite regularly from patients with poliomyelitis in Chicago during the years of 1916 and 1917. This was used in the studies.

From the series of experiments they conclude:

A highly potent immune serum can be produced in the horse by repeated intravenous injections of aerobic cultures of the poliomyelitis coccus.

Monkeys can be immunized against several fatal doses of virulent monkey-adapted virus by repeated intravenous and intra-cerebral injections of the poliomyelitic coccus.

The serum of the horse immunized with strains of the poliomyelitic coccus obtained from human and monkey sources possesses protective and curative properties against the virus in experimental poliomyelitis of monkeys.

C. E. SMITH, JR.

**ANGULATION OF THE SIGMOID:** Delatour (Surg., Gyn. and Obs., Vol XXVI, No. 3) points out that the sigmoid flexure is the narrowest part of the colon, beginning at the termination of the descending colon at the margin of the crest of the ileum and ending in the rectum opposite the left sacro-iliac symphysis. It is retained in place by a loose fold of peritoneum, the sigmoid mesocolon.

At either end of the sigmoid is a constriction which Cantlié describes as a sphincter to which he gives the same importance as to the pylorus. He describes the sigmoid as an organ with a definite function and not a mere channel for the passage of faeces. The sigmoid mesocolon varies much in length and this leads to varying degrees of mobility with occasionally a twisting of this upon itself, producing volvulus.

If, as Cantlié claims, there is sphincteric action at either end of the sigmoid, it must be possible for spasm to occur here and thus to impede the flow through the intestine at this point, just as we see in cardiospasm and pylorospasm at the stomach.

If the bowel twists completely on itself, we have produced volvulus with the symptoms of intestinal obstruction, but if the sigmoid becomes distended and displaced with two extremities attached, as they are,

close to the abdominal wall, it is easy to see how the bowel may become bent upon itself and an angulation instead of a twisting, result. This angulation will cause symptoms of intestinal stasis through the partial obstruction that takes place. Angulation at the proximal end of the sigmoid is rare but it is more common at the rectosigmoid junction, as the distended sigmoid loop tends to drag downward and to bend the bowel at this point. Occasionally, angulation results from external bands which pass across the sigmoid, or to contraction following a mesosigmoiditis. Intestinal stasis, as a cause of varying degrees of ill health, is a recognized fact. Resection of the caecum, ascending colon and a portion of the transverse colon, is necessary in some cases; in others, the freeing of adhesions at either the hepatic or splenic flexures, or the overcoming of a prolapsed transverse colon is necessary. In other cases, the author states the cause is found in a relaxed sigmoid that angulates itself at times and requires resection of that portion of the bowel for relief.

E. M. JONES.

**OBSERVATIONS ON THE BACTERIOLOGY OF CHOREA:** W. J. Quigley (Jour. Inf. Dis., Vol. 22, No. 3) says that the frequent association or sequence of tonsillitis, acute rheumatic fever, endocarditis, and chorea in children is an ancient observation in clinical medicine. The etiology of chorea has been explained on several theories, one of which is that it is an infection.

Many investigators have obtained bacteria in blood cultures in chorea before and after death, but in a large number of these cases, rheumatic fever or acute cardiac involvement was associated. Very little has been written on the bacteriology of uncomplicated chorea.

He made cultures from the tonsils, and whatever foci were observed, and from the blood and cerebrospinal fluid of acute, subacute and chronic cases of chorea, care being exercised to select only patients showing no evidence of active heart or joint involvement.

From so small (21) a series of cases no general conclusions can be drawn. It is of interest that in 21 patients with chorea in public institutions none gave any evidence of syphilis, which consequently seems not to be of any etiologic importance in the disease.

There is nothing characteristic or peculiar in the spinal fluid in chorea. Accepting the presence of globulin in the spinal fluid, and an increase in the number of cells, as an indication of irritation or inflammation of the meninges, these results indicated that there is no change in the meninges in chorea as a rule.

Of 21 cases, 10 yielded positive cultures from both the blood and spinal fluid, and 14 in either one or the other. Six of the bacterial strains isolated from the tonsil, 8 from the spinal fluid and 9 from the blood, were identical in their morphologic and cultural char-

acteristics. It, therefore, seems that bacteria are of importance in chorea and that the coccus mentioned in the foregoing is most frequently present, judging from the results in this series as well as the work of others.

As to the grouping of the organism, its slow, scant, pin-point growth on blood agar, the slight turbidity and fine granular sediment produced in broth, would seem to relate it with the streptococci. In the predominance of pairs, with few short chains, and a few irregular groups, when grown in broth, it resembles the streptococci also, and especially the streptococci or diplococci frequently found in rheumatic fever and endocarditis. It should be noted that the strains studied do not as a rule cause hemolysis on blood agar plates. No definite grouping can be made on the bases of the fermentative reactions as observed.

C. E. SMITH, JR.

**A NEW MICROSCOPIC METHOD OF COUNTING BACTERIA ADAPTABLE TO ALL GRADES OF RAW AND PASTEURIZED MILK:** P. W. Allen (Jour. Inf. Dis., Vol. 22, No. 3) considers one of the greatest difficulties in the way of bacteriologic control of market milk to be the lack of a suitable means of determining the number of bacteria per c. c. at all stages of production and handling. The plate method is not adaptable as it requires a laboratory and at least a few days for incubation of the plates, during which time the milk is consumed before the count is known. The microscopic method in which the 1-100 c. c. pipet is used has little accuracy until the milk contains about 200,000 bacteria per c. c. In an attempt to find a satisfactory method for use where the count ranged between 3,000 and 300,000 bacteria per c. c., one was devised which is based on the fact that a watery suspension of aluminum hydroxide readily collects the bacteria in milk and the centrifuge is able to throw down the chemical with contained bacteria at one end of the tube leaving the fat casein and water very largely behind. The technique of the method is given in detail, including both the preparation of the hydroxide suspension and the procedure. The precautions to be observed are considered carefully.

Tables are given showing the comparison of the hydroxide method of counting bacteria in milk with the plate method and the Breed method. From these tables it is concluded that in this method about 95 per cent of the bacteria in the average sample of milk appear in the hydroxide thrown down by centrifugalization.

A final verdict can be given on this method only after several laboratories report satisfactory results.

C. E. SMITH, JR.

**A CONTRIBUTION TO THE PROPHYLAXIS OF LOBAR PNEUMONIA:** J. A. Kolmer and E. Steinfield (Jour. Inf. Dis., Vol. 22, No. 3) record various experiments which they have conducted on mice with the sputum containing Type I and IV of the pneumo-

coccus obtained from the mouth secretions of convalescents and carriers.

Bearing in mind the numerous difficulties in disinfecting the mouth of pneumococci even with powerful and more or less specific antipneumococcus agencies as ethylhydrocuprein and other quinine compounds, it is hardly to be expected that complete destruction of all pneumococci in the mouth and upper air passages generally can be accomplished by this means, but for use among physicians, nurses and members of a family in intimate contact with persons suffering with lobar pneumonia, the systematic and daily use of washes prepared from 1:10,000 solutions of ethylhydrocuprein hydrochloride or quinine bisulphate in 1:10 liquor thymolis, may serve to destroy virulent pneumococci as they gain access to the mucous membrane of the mouth and upper part of the throat and prevent their proliferation in large numbers; in this manner and among such groups of persons the systematic use of a mouth wash of this kind held in the mouth and gargled in the throat for at least a minute, twice or three times each day may aid in the prophylaxis of lobar pneumonia. Ethylhydrocuprein hydrochloride by reason of its superior pneumococcidal properties is to be preferred, but owing to the great scarcity of the drug at this time may be substituted by quinine bisulphate; solutions of either stronger than 1:10,000 are likely to prove objectionable to most persons. Liquor thymolis in itself appears to aid in the disinfecting process and is well borne in a 1:10 dilution serving also to disguise to a large extent the bitter taste of ethylhydrocuprein or other cinchonic.

C. E. SMITH, JR.

**ETIOLOGICAL FACTORS OF ACNE VULGARIS:** Albert Strickler (Amer. Jour. Med. Sc., Oct., 1917) states after investigating acne patients from every point of view, that acne is a complex disease with a great many factors to be considered. Acne comprises from 3-11 per cent of all dermatological cases.

Imperfect digestion is very common in acne patients. Of 30 cases studied by means of test meals, gastric analyses and fluoroscopy, 93 per cent showed abnormality, as hyperacidity, retention atony and ptosis; while 70 per cent showed intestinal abnormality, as cecal stasis, ptosis of the colon, and right lower quadrant adhesions.

In conjunction with Doctors Kolmer and Schamberg the author performed some complement fixation tests on acne patients using polyvalent antigens isolated from acne patients and also a control colon bacillus antigen isolated from normal persons. Of 57 cases so studied 63 per cent gave a positive fixation with the acne antigen and 32 per cent with the colon normal antigen.

A study of the smears taken from acne lesions shows the acne bacillus in practically all cases in association with other bacteria.

By using special media Gilchrist obtained the acne bacillus in pure culture in 12 per cent but the author has found this very difficult to achieve.

The writer's conclusions are that:

Acne is due, in the vast majority of instances, to the acne bacillus which is normally present on most skins and is activated by other factors than its mere presence in those who develop the disease.

The colon bacillus or its toxins, elaborated from imperfect digestion or intestinal stasis, is an activating cause in a large percentage of cases.

To a lesser degree the staphylococcus—either alone or in conjunction with the colon bacillus—also plays its part.

C. N. HENSEL.

## BOOK REVIEWS

*THE SURGICAL CLINICS OF CHICAGO.* (By various authors. February, 1918. Vol. 2, No. 1. Published Bi-monthly by W. B. Saunders Company, Philadelphia and London.)

This is a very interesting and instructing volume. Of special interest is the clinic of Arthur Dean Bevan, in which he demonstrates the technic of plastic operation on the common bile duct. His several illustrations are self-explanatory and the text is very interesting.

Major Kellogg Speed's talk to the British Expeditionary Force on gunshot wounds of the head reviews the work in that field up to date.

Dr. Watkins has an interesting chapter on radium.

There are several other articles of lesser importance, but which all go to make up a volume which should be very interesting to the general surgeon.

W. M. C. CARROLL.

*LONG HEADS AND ROUND HEADS* or What's the Matter with Germany. (By WILLIAM S. SADLER, M. D. Illustrated. Published by A. C. McClurg & Co., Chicago, 1918. Price, \$1.00.)

This little volume presents one of the most original arguments which has appeared thus far in the rapidly growing literature dealing with the psychology of the war.

It is not to be considered in the same category as, for example, Lè Bon's comprehensive study of the psychological aspects of the great struggle, but taking up a single viewpoint, Dr. Sadler has developed it convincingly.

In brief, his contention is that German ruthlessness and barbarity are traceable not alone to the dictates of a war lord or the inflexibility of a military caste, but to race deterioration, the answer for which is found in anthropology. Because of the preponderance in the German nation today of "round heads" or Alpine stock over the original Teutons or "long heads" of Central Europe, all this world tragedy is unfolded. We find among the Teutons of old, leaders, artists, scientists, and poets, and even our own excellent pioneer citizens such as Carl Schurz, but as

they allowed themselves to be overrun by the Alpine peasants, brutal, stupid and barbaric, they lost their power in the German peoples, and the result is that today the nation is being led by men of the Von Hindenburg type, a characteristic "round head."

It is not difficult for the author then to persuade his readers, of the world menace of such a racial mixture, for the inherent ambition of the Teuton makes him accept the present régime as a means to an end, and he does not protest as we would expect him to at the Alpine fearfulness.

Dr. Sadler has launched some good propaganda, for being sane and serious, he is at the same time entertaining and will undoubtedly be read.

MABEL COOPER.

*MILITARY SURGERY.* (By DUNLAP PEARCE PENHALLOW, S. B., M. D. (Harv.) Major Medical Reserve Corps, United States Army; Chief Surgeon American Women's War Hospital, Paignton, England; Formerly Director of Unit, American Red Cross European Relief Expedition. With an Introduction by SIR ALFRED KEOGH, K. C. B. Director-General, Army Medical Service. Published by the Joint Committee of Henry Frowde and Hodder & Stoughton, at the Oxford Press Warehouse, Falcon Square, London, E. C. 2nd Edition. 1918. Price, \$6.00.)

War surgery differs widely from that which is seen in civil practice even in large hospitals where occasional gunshot injuries are encountered, as the wounds thus seen are usually comparatively simple and are treated early before complications have arisen. Wounds in warfare, on the other hand, are much more severe, and owing to the delay in collecting the wounded from the battlefield and the difficulties in transportation, complications have usually arisen before adequate surgical aid can be given. Again, many of the cases present complex problems in treatment owing to the multiplicity of the wounds and their type (this is especially true of the bones). Therefore, many new problems, both as regards treatment and the types of apparatus to be used, are constantly being brought to the notice of the military surgeon.

In this book an attempt has been made to describe briefly the different forms of projectiles and the nature of the wounds which they cause, and the various complications which result from the different types of wounds. An attempt has also been made to show in a brief manner the principles of treatment which have been found to be efficacious under the various conditions. While much of the work has been compiled from observations made at the American Women's War Hospital, current literature has been freely referred to. An excellent bibliography is appended to each chapter.

The revision of theories and the changes and improvements in methods of treatment of wounds have been so numerous and have occurred so rapidly that a revision of the book was necessitated very soon after its appearance. This second edition includes a

description of that greatest advance in modern treatment of infected wounds, namely, the technique evolved by Carrel. The chapter on "Treatment" has been rewritten.

We find the illustrations excellent and in number they have been increased from 151 in the first edition to 226 in the second. The revision has necessitated adding 117 pages to the work. The edition we have before us is most complete and is a splendid improvement to a valuable work. The mechanical features are of the usual standard of excellence of this well known house.

*INTERNATIONAL CLINICS.* (By Leading Members of the Medical Profession Throughout the World. Edited by H. R. M. LANDIS, M. D., Philadelphia, U. S. A. Published by J. B. Lippincott Co.)

The majority of the clinics given emphasize war lessons and are especially valuable at this time because of that. The method described by Dr. Bevan of handling injuries of the urethra is old, as he says, and yet, cases are continually presenting themselves where neglect of proper sounding over a long period of time following urethral operations has produced bad results. The variety of conditions presented emphasize Anesthesia, Orthopedics, Obstetrics, with special emphasis on Neurological and Orthopedic Surgery.

GEORGE EARL.

*ELEMENTS OF HYGIENE AND PUBLIC HEALTH,* a Textbook for Students and Practitioners of Medicine. (By CHARLES PORTER, M. D., B. Sc., M. R. C. P. (Edin.), of the Middle Temple, Barrister-at-Law; Medical Officer of Health Metropolitan Borough of St. Marylebone; Examiner in Public Health, University of Edinburgh; Member of Board of Examiners, Royal Sanitary Institute and Sanitary Inspectors' Examination Board; formerly Tutor in Public Health, St. Bartholomew's Hospital, etc. With 98 Illustrations. Published by the Joint Committee of Henry Frowde and Hodder & Stoughton, at the Oxford Press Warehouse, Falcon Square, London, E. C., 1917. Price, \$4.15.)

This book is very clearly written and should be a handy work for one interested in the subject. As an "Elements" it is perhaps too full, but it is doubtful if it could have been made much briefer without lessening its value. The chapters on the various transmissible and parasitic diseases are unusual in a work of this sort but are well included. The viewpoint of the author is not the familiar one taken by writers on these subjects but is interesting. It should do much to help the medical practitioner fill the place so definitely his in the public health scheme of disease prevention. While the illustrations are for the most part new, there is much still to be desired in the way of improvement. In this particular branch of medical science, well chosen illustrations help tremendously to elucidate the text. Various

leaflets selected from different health boards are included at the end of the book. This is a much better idea than the common method of including them in the text. A certain amount of attention is given to carriers, missed cases and the "recovered" case as potential sources of disease, but these points should be more emphasized than they are. Altogether, the book has very much to recommend it.

C. E. SMITH, JR.

*THE IMMEDIATE CARE OF THE INJURED.*

(By ALBERT S. MORROW, A. B., M. D., Clinical Professor of Surgery in the New York Polyclinic. Third Edition, Thoroughly Revised. Published by W. B. Saunders Company, Philadelphia and London, 1917. Price, \$2.75.)

This book is intended for reference in first aid work. It is very complete and, at the same time, clear and concise throughout. The work is divided into three parts, part one being taken up with a description of the anatomy of the human body, including bones, muscles, nerves and the viscera. Part two is devoted to bandaging, slings and dressings. Under this heading is included all the different forms of dressings and the particular injury in which each individual dressing can be used to best advantage. Antisepsis is not forgotten but is emphasized in a proper manner. Part three deals with different forms of injuries, including wounds, fractures, dislocations, poisoning of different kinds, as well as burns and frost-bites, and the first aid treatment of each. This part is especially complete and instructive and to the point throughout. It also contains a chapter on improvising a means of transporting injured persons to more convenient locations, also the preparation necessary for the proper care after arrival at this point.

This work is a very useful book of reference for the busy practitioner who does not usually have an extensive library, or if he has, the time to make use of it when called to see a case in a hurry.

C. B. TEISBERG.

*THE PRACTICE OF PEDIATRICS.* (By CHARLES GILMORE KERLEY, M. D., Professor of Diseases of Children, New York Polyclinic Medical School and Hospital. Second Edition, revised and reset. Octavo of 913 pages, 136 Illustrations. Published by W. B. Saunders Company, Philadelphia and London. 1918. Price, \$6.50 net.)

This volume of 913 pages and 136 illustrations covers the subject of pediatrics thoroughly and should be most desirable as a ready reference work, both for the pediatricist and the general practitioner. Each subject is treated concisely and only sufficient space allowed for theory and supposition. The therapeutics reflects the personality of the author and being based on a wide experience would seem to be the most valuable feature of the volume. It should most strongly appeal to the profession at large for this one feature alone.

EUGENE F. WARNER.

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## ORIGINAL ARTICLES

### OBSERVATIONS REGARDING THE DIAGNOSIS AND TREATMENT OF BRAIN INJURIES, WITH OR WITHOUT A FRACTURE OF THE SKULL.

WILLIAM SHARPE, M. D.,

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The mortality resulting from brain injuries is very high. During the period from 1900 to 1910, the mortality figures at three of the large hospitals in New York ranged from 48 to 68 per cent. of all cases of brain injuries. In a report\* published in 1916 of the Cook County Hospital of Chicago regarding 1,000 consecutive patients having fractures of the skull, the mortality was 53 per cent. This death rate is indeed appalling, and it undoubtedly accounts for the attitude of many doctors and most hospitals toward patients having fractures of the skull, particularly those of the base. If the patient recovers, remarkable—he had a fracture of the skull. If he dies—well, he had a fracture of the skull.

It is this attitude of comparative hopelessness in the treatment of brain injuries that has allowed these cases to be almost neglected in the general hospital. I well remember being severely reprimanded as a house officer for having admitted to the hospital from the ambulance a fracture of the base of the skull, and not having sent the patient to Bellevue Hospital. As a house surgeon, my instructions

were to keep the beds free of fractures of the base of the skull, the reason being that so little apparently could be done for these conditions; the patients either improved after a long convalescence, or more frequently they died, the treatment other than the ordinary routine palliative procedures being of little or no benefit.

The diagnosis and treatment of brain injuries have advanced most rapidly within the last few years. The clinical symptoms and signs are so varied and frequently so confusing in these patients that it is a most fascinating field. Apparently, in many cases, the more extensive the skull fracture, the less seriously is the brain injured, and on the contrary, the most dangerous of brain injuries are frequently not even associated with a fracture of the skull. As is well known, the fracture in these cases (if we exclude depressed fractures of the vault which should always be elevated or removed) is possibly the most unimportant part to be considered in the treatment, whereas the presence of a marked increase of the intracranial pressure with or without a fracture of the skull should immediately cause the patient to be withdrawn from that large group of patients properly treated by the expectant palliative method, and the advisability of an early operative procedure to relieve the increased intracranial pressure should be considered.

In the treatment of brain injuries with or without fractures of the skull, if the patient is allowed to develop definite paralysis, a lowered pulse-rate, Cheyne-Stokes respiration, and that appalling group of extreme intracranial pressure signs, then I agree entirely with the opinion so commonly now held that these patients "get along" just as well without operation as with operation at this stage—the mortality be-

\*Besley, F. A.: A Contribution to the subject of Skull Fractures, The Journal A. M. A., Jan. 29, 1916, p. 345.

ing 50 per cent. and over; but patients with brain injuries should not be allowed to reach this stage of medullary compression due to the high intracranial pressure—it should be anticipated by the accurate diagnostic methods now known, and if a marked increase of intracranial pressure is ascertained, then an early relief of it should be advised, not only to save the life of the patient, but to lessen the post-traumatic conditions of changed personality either of the excitable or the depressed type, persistent headaches, early fatigue, occasionally epilepsy and that long train of post-traumatic conditions in brain injuries due in the majority of cases to a prolonged increase of this intracranial pressure.

During the past four years, 1913-1917, I examined and treated personally 487 adult patients having acute brain injuries with or without a fracture of the skull; in only 155 of these 487 patients (that is, 31.8 per cent.) were there marked signs of an increased intracranial pressure, and therefore only these patients were operated upon to relieve this increased pres-



Figure 1 (a).

Lateral view showing extensive radiating fractures of the frontal vault in a boy eight years of age who was brought to the Polyclinic Hospital following an automobile accident. Total loss of consciousness for six hours. No signs of high intracranial pressure—therefore, no operation. Excellent recovery. Although the cerebro-spinal fluid was blood-tinged at lumbar puncture on the day following the accident, after the initial shock had disappeared, yet the slight increase of intracranial pressure resulting from this bleeding was not sufficient to render cranial decompression and drainage necessary.

sure, whereas the remaining 332 patients did not show definite signs of an increased intracranial pressure and were therefore treated by the expectant palliative methods of absolute quiet, ice helmet, and catharsis; if in shock, then the routine treatment of shock. It is thus seen that less than one-third of the patients having injuries with or without a fracture of the skull were operated upon, and approximately this same ratio has continued during the past year. It is this careful selection of patients not only in regard to the advisability of an operation or not, and if indicated, then the type of cranial operation used, but of the greatest importance—the ideal time for performing the operation—these factors have made it possible to lower the mortality of fractures of the skull from an average of 50 per cent. of most hospitals to 28.4 per cent. at the Polyclinic Hospital, and if we exclude the non-operated moribund patients dying within three hours after admission to the hospital from shock, internal injuries, and in many cases the fracture of the skull being but an incident in the patient's general condition, the mortality is lowered to only 17.9 per cent.

We now come to the most important and the difficult question in the treatment of brain injuries with or without a fracture of the skull: "If an operation is advisable, when should it be performed?" This question can more easily be answered by stating the two periods when the operation should **not** be performed. Naturally, we must exclude the majority (about two-thirds) of fractures of the skull that do not have a definite increase of the intracranial pressure and therefore no operation is indicated. (The depressed fractures of the vault naturally should always be elevated or removed).

The two periods in which an operation is distinctly contraindicated in cases of brain injury, are, first, the condition of severe shock in the very beginning, and secondly, the condition of medullary edema and collapse—the death knell of the patient. To advise a cranial operation—no matter how badly the skull is fractured, nor how extensive the intracranial hemorrhage seems—with a patient in a condition of severe shock with a pulse-rate of 120 and higher, takes away whatever chance the pa-



tient may have of surviving the shock: the operation is but an added shock and merely hastens the exitus. No patient having a brain injury should be operated upon in this condition of shock; the mortality is most high, and if a patient does recover from an operation in this period of extreme shock, then he recovers in spite of the operation. Cranial operations for brain injuries in this stage of shock were frequently performed in the past and most disastrously, and thus operations were almost discredited in the treatment of brain injuries. The natural reaction following these early operations in the period of severe shock was to wait until there could be no possible doubt that the patient was going to die, unless, as was thought, a cranial operation was performed; that is, the patient was allowed to reach the period of extreme medullary compression—a pulse rate of 50 and below, irregular Cheyne-Stokes respiration and pulse, and profound unconsciousness—before a cranial operation might be considered. This is a most dangerous stage for these patients to reach, and it is doubtful whether recovery can occur even with an operation at this late period, the mortality being very high. But if the patient has struggled through this period of medullary compression, and finally reaches the stage of medullary edema, when the pulse-rate begins to ascend quickly to 120 and higher, respirations become rapid and shallow, that is, the stage of medullary collapse, then we have the second period when no patient should be operated upon—they all die, operation or no operation. I feel if these two extremes can be avoided (and the latter of these, medullary collapse, can certainly be anticipated in the operative treatment of brain injuries, and their signs cannot be overlooked) that the rational treatment of brain injuries from an operative standpoint depends upon the presence or not of a definite increase of the intracranial pressure, whether there is a fracture of the skull or not; in some of the most serious cases no fracture was present—either to be ascertained at operation in the operated cases, or at autopsy. The aid of the Roentgen rays is important in the treatment of those traumatic cases only in patients with doubtful depressed fractures of the vault, and in latent fractures of the skull, where the bump is so

apparently trivial that the patient might not be so carefully examined and treated as the condition would warrant. On the contrary, no patient with high intracranial pressure should be obliged to wait "over night" or for a period of hours merely to secure a Roentgenogram of the skull; it is of no importance in the treatment of these acute intracranial lesions whether a fracture is present or not; if there is a high intracranial pressure as shown by the ophthalmoscopic examination and by the measurement of the pressure of the cerebrospinal fluid at lumbar puncture by the spinal mercurial manometer, then a cranial operation is indicated to relieve this increased intracranial cavity and by the drainage of possible hemorrhage and cerebrospinal fluid; it is not so much a question of removing the hemorrhage as it is of lessening the increased intracranial pressure—whether that pressure is due to hemorrhage or edema—the operative indication is the same; many cases of head injuries at autopsy have revealed no hemorrhage at all, merely a "wet" edematous swollen brain, but sufficient to cause medullary compression and the death of the patient.

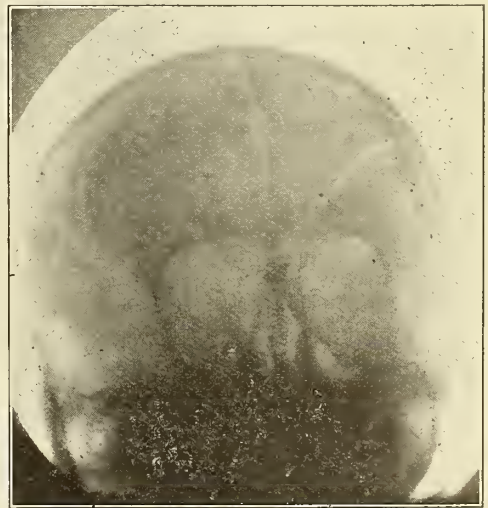


Figure 1 (b).

Front view of same patient as Fig. 1 (a), showing the extensive linear fractures in the frontal area. There being no depression of the vault fragments and no marked increase of the intracranial pressure, naturally no operation was advised. There was bleeding neither from the ears or nose, so that it is presumed that the fractures at the vault did not radiate down to the base, as they usually do.

If an operation is considered advisable to relieve the increased intracranial pressure, then the operation of choice is the subtemporal decompression and drainage;\* if there are no definite localizing signs of the intracranial lesion, then the decompression should always be performed on the right side in right-handed patients in order to lessen thereby any possible operative damage to the motor speech area of the left cerebral cortex; in these cases it is not so important to remove the hemorrhage as it is to offset its pressure effects. In cases of depressed fractures of the vault showing definite signs of a high intracranial pressure, it is better surgical judgment to precede the elevation of the depressed area of bone by a subtemporal decompression so that when the depressed bone is removed there will be little or no danger of the underlying cerebral cortex being damaged by its protrusion upward through the bony opening; as the subtemporal decompression exposes a comparatively silent area of the brain—a portion of the temporo-sphenoidal lobe—its protrusion and possible damage would not appear clinically, whereas a partial paralysis, impairment of sensation or of vision, might occur, and frequently does result from operations performed over the more highly developed areas of the cerebral cortex. Besides, the subtemporal route provides not only an excellent exposure of the middle meningeal artery and that portion of the brain so frequently involved in fractures of the skull, but it affords drainage to the middle fossa of the skull—the chief intracranial cistern—at its lowest point at the base of the skull; again, the thinness of the squamous portion of the temporal bone makes the operation a less difficult one technically. The vertical incision (and not the obsolete curved incision) should be used not only to render the operative hemostasis more effective, in that the trunk of the temporal artery is clamped at its lowest point at the very beginning of the operation, and thus there is no bleeding from its branches, but this incision also permits the removal of the underlying squamous bone as far as is possible beneath the temporal muscle, and yet the attachment of the temporal muscle to the parietal crest is left intact so that a firm closure of its separated muscle fibres is assured;

this is a most important point in cases of high intracranial pressure as in brain tumor, where a cerebral hernia or fungus might result from an imperfect closure of the temporal muscle. The insertion of celluloid plates and other foreign bodies beneath the scalp is to be most strongly condemned.

If the intracranial pressure is so high that the cerebral cortex tends to protrude through the bony opening, it is frequently wiser in selected cases to perform a similar operation upon the opposite side of the head immediately after the first operation. I have been obliged to do this in only five per cent. of the patients. They are the ones having a swollen edematous brain, "water-logged," as it were, where the drainage of blood and cerebrospinal fluid is slight and not sufficient to cause a marked decrease of the intracranial pressure. In some doubtful cases it is better judgment to wait for one or two days and even longer before the second operation is considered advisable. The rubber tissue drains are usually removed on the first or second day post-operative, and the hospital convalescence ordinarily requires at least two weeks. Naturally, these patients should not enter into their former active life for a period of three months and even longer; a too early return to the strain and stress of modern life predisposes them to many complaints, both subjective and objective; repeated examinations of the fundus of the eye and of the superficial and deep reflexes are here most important in estimating the physical normality of the patient.

Gun-shot injuries as well as stab wounds of the brain are usually associated with a penetrating fracture of the skull, and may therefore be considered in the same class as cerebral injuries following fracture of the skull; the greater danger of infection is present, however, and especially is this true when the missile has passed through the naso-pharynx. Unless these patients are treated early, they rarely recover; particularly is this so when the skull and brain have been perforated, there being both a wound of entrance and of exit. These patients should all be treated as brain injuries having an increased intracranial pressure of sufficient degree to warrant the operation of cranial decompression. I have yet to see a gun-shot injury of

\**Amer. Jour. Med. Sci.*, April, 1915, No. 4.

the brain which did not cause a marked increase of the intracranial pressure due to the resulting cerebral hemorrhage and edema, so that not only is the operation of decompression and drainage advisable to lessen this pressure, but also as a means of lessening the danger and even preventing a meningo-encephalitis so frequent in the patients who survive the initial period of shock and active hemorrhage. Naturally, if the missile has passed through the basal ganglia, ventricles, the subtentorial tissues and large intracerebral vessels, then the shock with or without a large hemorrhage is so rapid that these patients rarely survive a period of time sufficient to warrant any operative procedures. Besides, if in severe shock, naturally no operation should be attempted, just as in brain injuries following head trauma. If the patient with a pulse-rate over 120 cannot react sufficiently to overcome this condition of shock, surely no operation will assist him. If the patient does survive the shock, then a decompression should be performed; and, if necessary, a bilateral decompression, and both the skull openings of entrance and exit should be enlarged with rongeurs, "cleaned" as well as possible, and rubber tissue drains inserted. By no means should the brain be probed or "ex-

plored" for bone or bullet fragments, as more damage, such as an increase of the cerebral hemorrhage and edema, as well as a direct destruction of the delicate nerve tissues, usually results from such procedures. There is little danger from subcortical foreign bodies other than that of infection, and the mere removal of the foreign body would not lessen that danger as it would have occurred at the time of the injury. Such meddling procedures, especially when the patient is in the initial shock, merely hasten the death of the patient. Just as in brain injuries following head trauma, if the patient is in severe shock, treat him for shock, and "let him alone,"—not even careful neurological examinations to ascertain the exact cerebral status; such examinations of a patient in severe shock merely do not benefit the patient but undoubtedly they lessen his chances of surviving the shock; if however, the patient can overcome this condition of shock, then he should be most carefully examined and the proper treatment of the local injury instituted as soon as possible.

The symptoms and signs of brain injuries in babies and children are very different from those following similar injuries in adults. In babies, owing to the open fontanelles and to the greater elasticity of the dura, the symptoms and signs of brain injuries are often so mild that they are frequently overlooked. Unless most careful and thorough neurological examinations are made and certain special aids to diagnosis are utilized, such as the ophthalmoscope and the examination of the pressure of the cerebrospinal fluid by the spinal mercurial manometer, then these intracranial lesions may escape serious attention for a period of months in newborn babies, and even years in many children. The remote effects, such as spasticity, mental impairment in many cases, and frequently epilepsy, are merely reminders of the former intracranial damage, so often a supracortical hemorrhage, and we should be most careful in our examinations and treatment to anticipate these frightful sequelae.\* The older the child following a cerebral birth trauma, and the longer the period of time since the injury in the older children, the less hopeful is the prognosis. These late cases are derelicts, as it were,

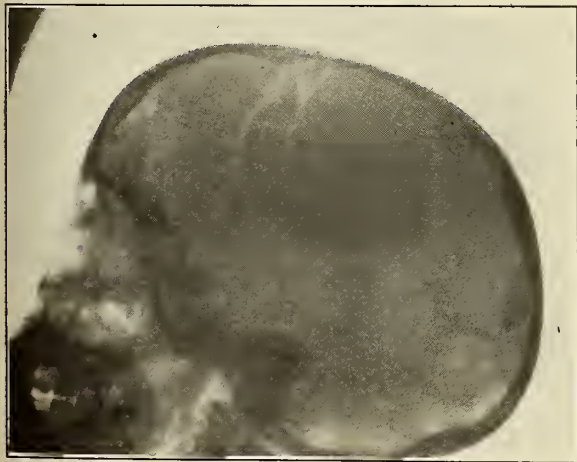


Figure 2.

Showing "bursting" type of fracture of both sides of the vault extending down to the middle fossa of the base, in a girl eleven years of age, following a fall from a one-story window. Oozing of much blood and cerebro-spinal fluid from both ears, and as the intracranial pressure did not become markedly increased, the patient in this manner probably "decompressed" herself so that no operation was necessary. Excellent recovery.

\*International Clinics, Vol. III, Series 27, 1917.

and can merely be improved, whereas if the condition of cerebral hemorrhage and edema is recognized as early as possible after the intracranial lesion has occurred, and if there is a marked increase of the intracranial pressure, and the proper operative treatment of cranial decompression and drainage instituted, then in these cases so treated not only will the ultimate improvement be greater and even a cure obtained, but the immediate recovery of life will be greatly aided. These lesions in babies and children have been so overlooked and even neglected, that it has seemed advisable to report a large number of these cases in detail.\* Naturally, the older the child, the more do the symptoms and signs of an intracranial lesion approximate those occurring in an adult, and yet the brain in children under the age of puberty is so adaptable to changed conditions, and to a certain extent less delicate, that even a high degree of intracranial pressure due to cerebral hemorrhage and edema may present clinically few signs of its presence, and in many cases it can be withstood and undoubtedly is successfully overcome by natural absorption alone. This fact should always be remembered in the treatment of brain injuries in children, so that no operation should be advised, unless the intracranial pressure in these cases is very high and when it is doubtful if the child can "take care of" this increased pressure alone; thus does the treatment of brain injuries in children differ from that in adults. Naturally, just as in adults, all traumatic depressions of the vault with or without a definite fracture of the bone itself should be elevated or removed; in babies, the use of forceps in difficult labors frequently produces a definite depression of the vault without a fracture of the bone itself owing to its greater resiliency, and unless this depressed area of bone is elevated or removed, the danger of future cerebral impairment is great indeed. It is frequently not necessary to open the dura in these cases of local depression of the vault in babies, as subdural supra-tentorial hemorrhage is apparently of rare occurrence. Naturally, in cases of doubtful subdural hemorrhage and cerebral edema, the dura should always be opened through a subtemporal decompression, just as in adults hav-

ing an increased intracranial pressure associated with a depressed fracture of the vault the local bony depression is elevated or removed.

The end results of patients having brain injuries with or without a fracture of the skull have been an interesting study. It has become quite a common belief that once a man has had a fracture of the skull and then recovers, he is never the same person again. In 1912, I examined the records of three of the large hospitals of New York City during the decade of 1900-1910; the mortality of fractures of the skull was 46 to 68 per cent; the mortality of the patients operated upon was 87 per cent; this high percentage due undoubtedly to the operation being postponed until the extreme stages of medullary compression and edema, and also to the fact that the operation performed was the "turning down" of a bone flap (a much more formidable procedure than a decompression) and then the bone replaced so that even the benefits of a decompression were thus prevented; besides, in many cases the dura was not opened, and as the dura is inelastic in



Figure 3.

Huge multiple fractures of the vault, allowing the vertex of the skull to become elevated as the result of the "bursting" type of indirect fracture, in a boy sixteen years of age, following a severe fall upon an asphalt pavement. A very extensive haematoma appeared within an hour beneath the entire scalp of the vault; in this manner, the signs of an increased intracranial pressure did not occur owing to this escape of blood from the intracranial cavity out under the scalp, and therefore the cranial operation of decompression and drainage was avoided. Excellent recovery.

\*New York State Journal of Medicine, Oct., 1916.

adults, no adequate relief of the pressure could possibly be obtained. Of the patients, however, who were finally discharged as "well" or "cured," I was able to trace only 34 per cent, but of these 34 per cent of the total patients found, 67 per cent of them were still suffering from the effects of the injury—that is, two-thirds of them were not as well as before the injury; the chief complaints were persistent headache, a change of personality of the depressed or of the excitable type and thus emotionally unstable, early fatigue making any prolonged mental or physical effort impossible and thus the inability to work, lapses of memory, spells of dizziness and faintness, and even epileptiform seizures in a small percentage of them. In examining the hospital records of the patients having these post-traumatic conditions, it was most interesting to ascertain that these were the patients (and there were but few exceptions who regained consciousness gradually after several days and remained in the hospital for a period of four weeks and longer), whose charts made frequent mention of the severe headache and a low pulse-rate of 60, and in some cases below 60—that is, the usual clinical signs of an increased intracranial pressure; an ophthalmoscopic examination had rarely been made. Many of these patients still showed the results of the increased intracranial pressure in their fundi and at lumbar puncture, and these were the ones upon whom a cranial decompression even at this late date of several years caused a marked improvement; the operative findings were always associated with a "wet," swollen edematous brain. Many of the so-called post-traumatic neuroses are, in my opinion, frequently superimposed upon this definite organic basis as the result of the brain injury. The treatment, therefore, of brain injuries should not be limited merely to the recovery of the patient as far as life is concerned, but it should also be directed toward obtaining a normal individual—approximating as closely as possible the condition of the patient before the injury.

## DIAGNOSIS AND TREATMENT OF TUBERCULOUS ARTHRITIS OF THE HIP-JOINT.\*

H. W. MEYERDING, M. D., F. A. C. S.,  
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Shortening and ankylosis in deformity, after prolonged suffering and disability, are the results of nature's cure of tuberculous disease of the hip. Abscess formation with annoying multiple sinuses frequently complicates the condition and adds to the misery of the patient. To avoid these end-results, early diagnosis and careful, prolonged treatment must be carried out under competent supervision.

While tuberculous disease of the hip is usually found in the first decade, Whitman's<sup>1</sup> report of 88.1 per cent of patients under 10, and 45.6 per cent between 3 and 5 years of age, and a review of cases observed at the Mayo Clinic leads us to conclude that our practice consists principally of long-standing severe or neglected cases. In one hundred consecutive cases there were 23 patients in the first decade, 23 in the second, 24 in the third, 22 in the fourth, 4 in the fifth, and 4 in the sixth. The average duration of the disease before our examination was 20 months, the shortest 2 weeks, and the most prolonged, 46 years. The histories clearly show that early diagnosis and proper treatment was instituted, only to be discarded at the termination of acute symptoms, to be followed by recurrence, the formation of abscess, ankylosis, etc. Fifty-six per cent of these patients were males and 44 per cent females. The right hip was affected in 60 per cent.

A diagnosis should not be made by roentgenograph alone nor should it depend entirely on laboratory findings but rather on a carefully written history, a clinical examination substantiated by the roentgenograph, and the laboratory findings. The fact that Perthe's osteochondritis deformans juvenilis has been but recently differentiated from tuberculous arthritis makes this summarization of findings in diagnosis obvious. The history is of great impor-

\*Presented before the Southern Minnesota Medical Association, Mankato, Nov. 26-27, 1917.

<sup>1</sup>Whitman, R.: A treatise on orthopedic surgery. Phila., Lea., 1901, 650 pp.

tance, bringing out the insidious onset, the exposure to trauma and infection, etc.

Forty-four per cent of our patients gave a history of trauma directly preceding the primary complaint and referred to it voluntarily as the cause of the arthritis. Trauma was the most frequent cause of recurrence of symptoms, those second in importance being illness or pregnancy. Exposure to tuberculosis in the home was noted in 17 per cent.

Among the earliest symptoms are muscle-spasm, limping, pain and atrophy, the patient frequently resting the well foot on the affected one, pushing down in the effort of traction and fixation. Pain is often referred to the knee-joint. Night starts and cries may or may not be present and are not in themselves diagnostic, but associated with other symptoms, aid in the conclusions. Later deformity, shortening, periarticular thickening, and cold abscess formation may become evident.

Roentgenographic findings are dependent on the stage of the disease, varying from synovitis, and thickened or distended capsule, to areas of rarefaction and general haziness or destruction of the entire joint and acetabulum, with upward displacement of the greater trochanter. Even perforation of the acetabulum and sequestrum in the urinary bladder may occur. In our series there were two cases of perforation of the bladder. One patient was operated on, the sequestrum proving to be the femoral head.

Von Pirquet's test is of the greatest value as an aid to early diagnosis in children under 5 years of age. Its value decreases with increasing age. Aspiration and guinea pig inoculation proving the presence of tuberculous bacilli is final evidence. Our observations would lead us to believe that there is, independent of Perthe's disease, a mild and fulminating type of tuberculous arthritis. The blood count is of value as showing increase in lymphocytes and secondary anemia. In forty-eight patients the hemoglobin averaged 67 per cent. The temperature, night sweats, other tuberculous lesions, etc., give further evidence of the disease.

#### Differential Diagnosis.

1. Traumatic arthritis or periarticular injury is differentiated by local tenderness, ecchymosis, the history, and a negative roentgenograph, while impaction fractures, later

causing a limp, and shortening due to loosening up of the impaction, give positive roentgenographs.

2. Chronic hypertrophic arthritis has frequently been confused with the tuberculous type. The condition appears in older persons, and shows characteristic lipping arthritis without rarefaction, etc. The limitation of motion is usually in abduction and rotation due to mechanical obstruction and there is little or no muscle-spasm, shortening, etc.

3. Infectious arthritis is usually multiple, acute and accompanied by high fever, and leucocytosis. A search for focal infection and its removal lead to rapid recovery. Aspiration and bacteriologic examination aid in differentiation. The observation of the patient may be necessary for some time.

4. Perthe's disease, osteochondritis deformans juvenilis, may resemble tuberculosis clinically but may be differentiated by the characteristic epiphysial changes.

5. Infantile paralysis is easily differentiated in the paralytic stage. In the acute stage there may be local pain and tenderness for a short time which soon leaves a typical paralysis.

6. Arthritis of the knee allows motion of the hip without pain when the knee is held immobilized, and the entire limb carefully manipulated. An examination of the hip should always be made when pain in the knee is complained of without local objective findings.

7. Pott's disease of the lumbar spine has as its earliest symptom muscle-rigidity. Careful manipulation of the hip with negative roentgenographs will make clear that the hip itself is not involved.

8. Congenital dislocation lacks muscle spasm, rigidity, atrophy, etc., and is positively diagnosed by the gait, palpation, and the roentgenograph.

#### Treatment.

The general hygienic antituberculous care of the patient is of the utmost importance. Rollier's<sup>2</sup> methods are productive of excellent results. Sunshine, fresh air and simple substantial food are the most useful general aids and preferable to dosing the patient with medicine,

<sup>2</sup>Rollier: The practice of sun-cure for surgical cases of tuberculosis and its clinical results. Tr. Internat. Cong. Med., 1913, Lond., 1914, Sub.-sect. vii, (a), Orthoped., pt. 2. 251-269.

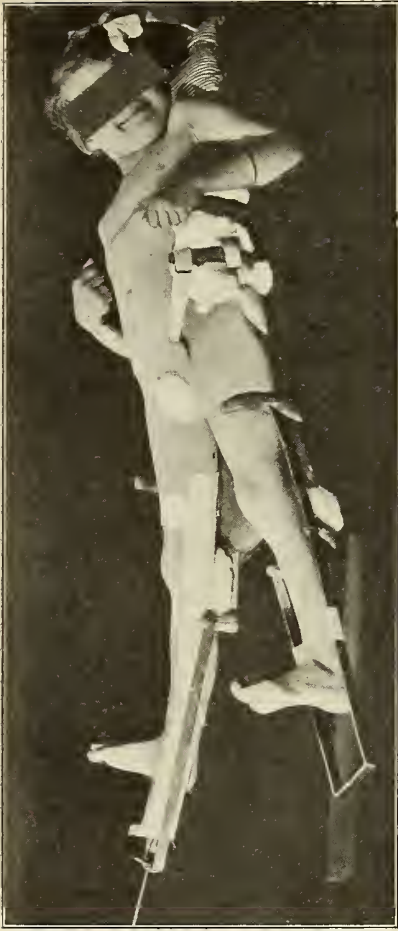


Fig I

1. Child on Jones' abduction frame showing extension and perineal strap.

although tonics and constructives have a value. The use of a sun porch is urged, and patients are instructed to live thereon. They should sleep with windows open, and be properly protected against wind and cold.

The local treatment is dependent on the stage of the disease and the circumstances. We prefer the Jones abduction frame and have used it with much satisfaction during the acute stage (Fig. 1). It allows the fixation and extension; it relieves pain and spasm, while at the same time correcting the deformity. The bed-pan may be used without moving the patient. When necessary, by grasping the bar between the legs and the head piece, the patient and the frame may be transported without discomfort. Pressure sores seldom develop, and then only from neglect. The body may be inspected and



Fig. II

2. Child sitting up first time after treatment on Jones' abduction frame.

if dressings are required, easy access is permitted. The length of time the patients remain on this frame is of little consequence, just so they remain long enough. It is far better to keep them there until all acute symptoms have subsided, the general condition has improved, the deformity has been corrected, and roentgenographic examination shows redeposit of salts. Many of our patients remain on this frame a year or more when the severity of the disease, sinus or abscess formation make it necessary (Fig. 2).

In adults the acute stage may be treated by Buck's extension in bed, the limb being supported by sandbags.

During the subacute stage, if no drainage exists, a cast of the Lorenz type may be used, together with crutches and the elevation of the sound limb by means of a patten (Fig. 3).

The length of time required during this stage of treatment must be determined in each individual case. When weight-bearing is attempted under supervision and no pain ensues, the patient is warned as to the danger of trauma, provided with a Thomas hip splint and advised to continue crutches, gradually applying more



Fig. III

3. Lorenz cast which is used after Jones' frame. The sound leg is given an extension boot and crutches are used.

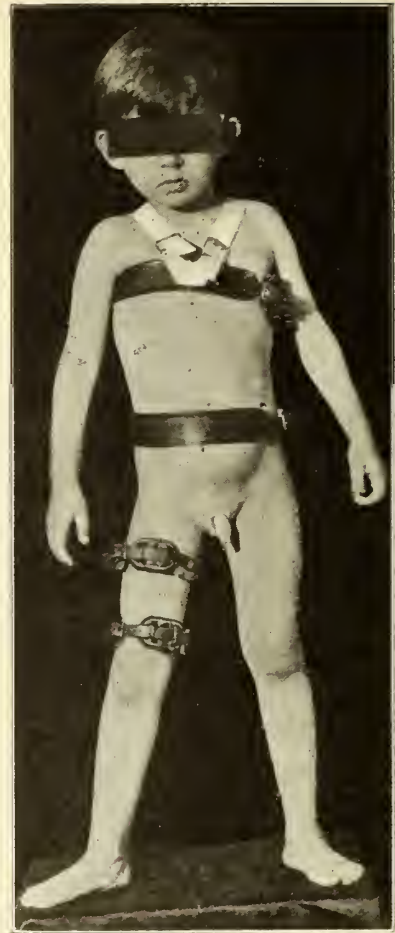


Fig. IV

4. Modified Thomas splint used with crutches after acute stage.

weight to the affected limb for a period of three or four months. Any remission of symptoms should be treated by recumbency and extension (Fig. 4).

At the time of examination 90 per cent of the patients in our series showed deformity, the flexion adduction type being practically always present. Nineteen per cent were ankylosed and the average shortening was  $2\frac{1}{4}$  inches. In 60 per cent the deformity was in the right hip. Ten per cent required aspiration, and 14 per cent curettage or sequestrotomy. The patients with deformities, and those in the subacute stages, were treated by brisement force with ether anesthesia and plaster casts, followed by crutches, etc. Osteotomy of Gant's type was performed in cases in which the deformity had become ankylosed.

#### DISCUSSION.

DR. CHARLES REED, Minneapolis: We all know how difficult it is to read a paper that will be of equal interest to the general practitioner and the specialists, but I think Dr. Meyerding's paper has been very interesting to you, and I am sure it has been to me. He has covered the whole subject in a clear concise manner, and it is quite remarkable.

I wish to speak of just a couple of things. The differentiation from Perthe's disease is easy from the radiogram, yet for many years Perthe's has been overlooked. I think the trouble is that in the beginning stages the X-ray shows very, very little in either tuberculosis of the hip or Perthe's disease, and it has had a great effect upon our statistics, because Perthe's disease has been very often healed in a remarkably short time, and some particular form of treatment has been given credit for the cure; and for that reason the statistics are not correct.

Dr. Meyerding has made a differentiation between many conditions that might be mistaken for tuberculosis of the hip, but there is one condition that I



think should be put in, and that is epiphiseal separation. It is also easily shown with the X-ray, but it comes with the same history of a minor injury, pain, reconstruction, and after some months acquiring the shortening. The general practitioner may not take careful enough radiographs and it may be overlooked.

As to the treatment, there are two schools. The German School, the Lorenz School, which says that the only satisfactory cure of hip disease is an ankylosis, and therefore the quicker the ankylosis the better. Lorenz treats all of his cases with the spica cast, the long spica from the shoulder to the toes in severe cases, and the short spica in milder cases. The American men come with the idea of abduction on traction, with the splint method, the brace method with traction. A few years ago I think the tendency in America was for the pendulum to swing to the German School. I know I did, and Albee in New York did the same thing. While it was very satisfactory in many ways, we certainly did not get the movement that we should have. I think it is pretty thoroughly proven that we can get a cure and still have a reasonable amount of motion left.

DR. A. E. WILCOX, Minneapolis: I just want to ask a question relative to the history of trauma in these cases. I understand that 44 per cent of the cases gave a history of trauma. I want to know if Dr. Meyerding has any information that would give him a definite idea of the length of time following the trauma obtained in the history, after which the suggestive symptoms of tuberculosis developed. I see many cases of trauma and see very few cases of tuberculosis of the hip. The question is, the time relative to the trauma and the development of suggestive symptoms of tuberculosis.

DR. MEYERDING (in closing): In our series of cases with trauma there has been a rather long period before the onset of tuberculosis. We did not find tuberculosis of the hip coming on immediately after the injury. It would seem that probably the bacteria present in the system at the time of the accident or soon after, gained access to the damaged parts, setting up local tuberculosis either at that time or at some later time, when the patient's condition was below par.

## SOME RARE PATHOLOGICAL CONDITIONS OF THE APPENDIX; WITH REPORT OF CASES.\*

GEORGE A. GEIST, M. D.,  
*St. Paul, Minn.*

As the result of chronic inflammation the appendix wall and sometimes the adjacent structures, may become enormously thickened. Such a condition is a pathological entity, known as appendicitis fibro-plastica. The etiology is a chronic irritation, either bacterial or mechanical (the presence of a concretion or foreign body), and usually is a combination of both. Actinomycosis and tuberculosis are not to be regarded as causes since this condition under discussion is a non-specific inflammatory one. This type of appendicitis is characterized by the typical pathological reaction to chronic inflammation, that is, there is a marked increase in the connective tissue with a resulting tumor formation. Since the tumor is inflammatory in origin, it is benign; in most cases, however, it produces either a partial or complete intestinal obstruction.

Läwen describes the inflammatory tumors in the ileocecal region and divides them into three classes:

1. Inflammatory tumors of the cecum and ascending colon, which do not arise from the appendix. Such a case was reported before the Minnesota Pathological Society four years ago by Dr. A. A. Law.


II. Inflammatory tumors which arise from the appendix affecting it but little and spreading through it into (a) the anterior or posterior abdominal walls and (b) the neighboring intestines and mesentery. I wish to report a case which corresponds to this type of inflammatory tumor:

Mr. N. H.; foreman; age, 56, gave the following history:

For many years the patient had occasional pains in the region of the appendix which came on more especially when he was constipated. Blood was never observed in the stool. His weight had remained constant. The bowels re-

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*H. A. Garfield*

U. S. FUEL ADMINISTRATION

\*Read before the St. Paul Clinical Club, January 4, 1918

quired cathartic drugs over a period of years. One week preceding his entry to the hospital he was able to feel a mass in the right iliac region. Dr. Turnacliſſ examined him and established the presence of the mass.

**Examination:** In the right iliac fossa a mass the size of a hen's egg was felt; it was not tender and could be moved laterally though was fixed when we attempted to move it upward and downward.

**Operation:** February 7, 1916. In the retrocecal region a mass was found which appeared to be fibrous in character and showed no signs of carcinoma. Blunt dissection was commenced at the base of the appendix; following the base and dissecting through the heavy fibrous tissue, the entire appendix was freed along its muscular coat. We thus excised the mucosa, sub-mucosa and the muscularis of the appendix leaving the fibrous tissue mass. This patient made an uneventful recovery and examination six months later showed that the mass had completely disappeared.

III. Inflammatory tumors arising from the appendix and confined to the appendix, cecum, ascending colon and lower ileum. This type Låwen regards as appendicitis fibro-plastica in the restricted sense.

Låwen's case was in a woman, age 51, who gave a history of chronic constipation. She had more or less lower abdominal pain which would be relieved for several days by free catharsis. Two weeks before admission into the hospital she had sudden severe pain in the right iliac region which occurred after heavy lifting. At the painful spot she noticed a hard lump. At operation a mass twice the size of the fist was found in the region of the cecum. The appendix was greatly thickened, hard, and contained a large enterolith. Ileocolic resection was done. Microscopically the walls of the cecum and appendix were greatly thickened. The serosa and sub-serosa showed increase in the cellular connective tissue with round celled and leucocytic infiltration. The longitudinal muscles were not abnormally thickened, whereas, the circular muscles were separated by a connective tissue which originated in the serosa. The sub-mucosa was enormously thickened. In the mucosa a rapidly growing connective tissue was found.

I wish to report a case belonging to this class:

Mr. A. M.; age 25; farmer; was admitted with symptoms of intestinal obstruction; a large mass could be felt in the right iliac region. He was operated January 9, 1913, by Dr. A. Schwyzer. A large tumor was found in the right iliac region involving the ileum and cecum; of the appendix the base alone could be seen; an incision was made into the mass and no purulent material was found. Ileocolic resection was done. The patient made a complete recovery. The specimen showed a large fibrous mass in the mesentery within which there was a small abscess cavity. Here we had undoubtedly the tip of the appendix which had become necrotic. Pus of low virulence was present and this chronic irritation resulted in the fibrous tumor which caused a kink of the ileum and by pressure, a narrowing of the lumen of the gut.

The following case operated upon in 1900, while it does not conform with either of the types of appendicitis fibro-plastica described above, illustrates the same pathological process.

Patient: age 25; for many years had attacks of slight pain over the appendix. He gave a history of acute pain of two days duration. Vomited and had slight rise in temperature. At operation a large mass was found retrocecal and adherent not only to the cecum, but also to the parietal peritoneum. The mass was the appendix itself; its walls had become enormously thickened and at one point recent omental adhesions were present. On opening the mass we found a large quantity of pus filling the sac and a concretion. Thus in this case we have the enterolith, the chronic infection with resulting great increase in the connective tissue within the appendiceal wall, ulceration and destruction of the wall at one point and commencing symptoms of perforation. Recovery in this case was uneventful and the patient is in good health—seventeen years after the operation. Diagnosis: Empyema of appendix; fibrous thickening of the wall.

#### **Carcinoma of the Appendix.**

The following case is a very unusual form of carcinoma of the appendix: Patient: Mr. P. M.; age, 55; grocer; complained of chronic constipation which during the past year had grown progressively worse. At no time did he have pain. The past month he noticed blood in the

stool at times; defecation was painless. There was great loss in weight and the abdomen became enormously distended. On examination the abdomen was found to be very tense, making the palpation of a tumor impossible. Per rectum a nodular mass was felt with difficulty. Operation November 18, 1915. The entire abdomen contained about two quarts of gelatinous material which poured out in large and small chunks and was not adherent to the intestine. There was no evidence of inflammatory peritonitis. In the region of the appendix a mass, the size of a grape fruit was found. It was somewhat adherent but on freeing we plainly saw that it was attached to the base of the appendix which could be seen for a length of 1 c. m. The tumor was irregular in shape and its entire surface was covered with necrotic gelatinous material. In the mesentery of the pelvic colon another mass, the size of a peach, was found. This was similar to the primary tumor in consistency. General glandular enlargement was present and the glands were very soft in character. The tumor of the appendix was removed and because of the presence of obstruction which was due to the mass in the pelvic colon, appendicostomy was done. The patient died six months after the operation.

**Description of the Tumor:** Macroscopic: the surface is irregular and covered with gelatinous exudate; on section we find cystic formations containing myxomatous material and areas of hyaline degeneration; fibrous bands can be seen coursing through the growth. There is no remnant of the appendix excepting at the base of the appendix to which the tumor is attached.

Microscopic: Areas of epithelial cells arranged in rows are found with difficulty. Fibrous connective tissue bands are present and along these occasional glandular arrangements of epithelial cells can be found. Myxomatous degeneration is present,

Harte in 1908 collected 92 cases of primary carcinoma of the appendix in a total of 2,322 autopsies for appendicitis; all of the appendices were not examined microscopically. At least 200 authentic cases have been carefully described.

Baldauf states that 1% of all inflamed appendices will be found to be malignant. The

site of the malignancy is in a large percentage of cases in the tip which has been obliterated by inflammatory processes. Many of these cases have been found in the young; four cases under ten, 13 between 10 and 20, 34 between 20 and 30, and 21 between 30 and 40.

Pathologically we have two types: the columnar celled and the basal celled. McWilliams gives the following classification and percentage of occurrence: Columnar, 22%, Spheroidal, 53%, Transitional, 9%, Colloid, 4%. Milner, in 1910, regards these tumors as products of a chronic hyperplastic inflammation, chiefly a hyperplastic lymphangitis and he regards the parenchyma cells as endothelial and not epithelial. Marchand and Dietrich believe the tumors to be epithelial in nature. Because of its benign character in many instances, De Jong compares carcinoma of the appendix with *ulcus rodens* or *epulis*. Aschoff describes growths and swellings the size of a pea, and larger, in the submucosa and extending to the serosa, which appear to be small, solid nests of cells. Tubular arrangements of these cells have been observed. They are, however, not derived from the glandular mucosa. These cell nests (especially in the young) show an absence of active growth. Aschoff regards the growths as "Schleimhautnevi" or mucous membrane naevi, which are comparable to the naevi of the skin. These may or may not become changed into the truly malignant carcinoma. Other authors suggest the term "Carcinoid" for this type of growth. Luce regards true primary carcinoma of the appendix after the "Schleimhautnevi" have been excluded as extremely rare. In 1905 A. O. J. Kelly had collected 40 cases of the Colloid type. I wish to cite a few cases similar to the one present:

1. Weir's case: male; 22; abdominal obstruction with ascites. Appendix was transformed into a mass of mucoid material. A large number of sub-paritoneal metastatic nodules were present.

2. White's case. Discovered at autopsy, in a woman aged 75, in whom death was caused by intestinal obstruction. Appendix was hard and nodular. It had not ruptured. Centrally colloid was present.

3. Kudo's case. A man aged 42 presented a tumor in the right iliac fossa; a mass the size of

a small apple, irregular in shape and its surface having a cauliflower-like appearance was found. The appendix lay within the mass and was not visible. A second tumor, the size of a walnut, at the cecum, was found to be the tip of the appendix, which had ruptured into the secum. On microscopic examination no portion of normal mucosa could be found. The alveolar structure was almost completely myxomatous. The stroma of connective tissue contained in certain areas atrophic muscle fibres and in others distinct hyaline degeneration. In but one area could glandular elements be found. The lumina contained gelatinous material and many goblet cells lined the lumina. Diagnosis: Carcinoma gelatinosum.

4. Neugebauer's case. Man: age 33; abdominal cramps, constipation alternating with diarrhoea, loss in weight. Recent increase in the right iliac, pain and vomiting. No tumor palpable on rectal examination. At operation 1½ liters of fluid was removed. Large mass containing yellowish gelatinous material was present in the region of the appendix. The appendix itself could not be made out. Microscopically, no epithelial cells could be found. The remaining pathology was similar to that of Case 3.

Our case reported above was one of these rare tumors of the appendix which is known as carcinoma gelatinosum.

## ESSENTIALS IN PEDIATRIC DIAGNOSIS.\*

GOLDIE E. ZIMMERMAN, Pd., M. D.,  
Sioux Falls, S. D.

The average doctor in general practice pays little attention to pediatrics. He says it takes too much time; and then, too, the infants and young patients cannot explain their symptoms. So much the better, for it is not from subjective symptoms alone that we are ever to make a diagnosis. In working with children we find that our patients have no imagination. We learn more from the objective symptoms than subjective.

Physical diagnosis relates primarily to the objective study of disease by the four cardinal methods of inspection, palpation, percussion, and auscultation, the successful practice of which depend upon the examiner's senses of sight, feeling, and hearing. There are a great many different methods of examining the patient. Every physician should have some one systematic method which he follows in every case. By so doing it takes less time and nothing is overlooked. Visual examination or inspection of the patient is the first, and in some instances the all important step in a routine physical examination. "We make more mistakes by not looking than by not knowing," is an aphorism of Edward Jenner's well worth remembering.

After finding out the patient's age, weight at birth, present weight, I know of no better way in making an examination than by beginning at the top of the head and going down, but leaving the mouth until the last as the patient usually objects most to that part of the examination.

In examining the head we note first the scalp—any eczema or nodes, scabies, bald spots on back of head; then the skull—any evidences of rickets, as, head enlarged, abnormally large fontanel, square box-shaped head.

The ears are very often the source of much trouble and are just as often passed over unobserved. Discharges from the ear or ears may be the seat of much trouble. This leads the examiner to carefully look for the cause, which

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A teaspoonful means nothing, You say. Yet a heaping teaspoonful saved each meal for 120 days for each of the 100,000,000 persons in the United States makes a pile as big as the Woolworth building—enough to supply the entire armed forces of the nation.



U. S. FOOD ADMINISTRATION

\*Read before the Sioux Valley Medical Association, Sioux City, Iowa, January 22, 1918

is often the tonsils and adenoids. Among all the diseases of children none is probably so frequently overlooked as otitis (Kerley). This is due to the fact that the practitioner invariably looks for pain as a symptom of the disease. It is most interesting to note, however, that in a goodly number there are no signs of pain, as we expect to find it, but the patients are restless and sleep poorly, and evidences of relief follow incision of the drum membrane.

Inspection of the nose: whether a nasal discharge; if any, the character of same. Rhinitis when an early symptom in infants may be an aid to diagnosis of much importance. In order to treat this condition successfully the source of the discharge must be discovered. It may be due to adenoids in the naso-pharyngeal vault; hypertrophy of the turbinated bones, with septal deviations and hypertrophy of mucous membranes; infections due to pyogenic bacteria or the Klebs-Löffler bacillus; malnutrition; diseases of the sinuses; and foreign bodies.

Inspection of the face reveals the expression (adenoid face) and the color. Pallor appears in fat babies over six months of age when incorrectly fed (condensed milk), in atrophic babies, and in cases of prolonged indigestion.

The skin is noticed as to its elasticity (inelastic skin being of bad import), roughness, scaling, prickly heat, furunculosis, and eczema (seen in difficult feeding cases).

Routine examination of the neck and axilla should be made in order to detect glandular swellings symptomatic of such lesions as simple adenitis, tuberculosis and syphilis. The cervical glands are the favorite site of simple acute adenitis, and are met with in specific fevers of childhood and in local infections of neighboring parts. The submaxillary glands are often the earliest site of tuberculous adenitis, which in time implicates the other lymphatics of the neck.

The occipital glands are commonly enlarged in syphilis. They are freely movable masses of cartilaginous hardness and moderate size. Whenever such are found, search should be made for inguinal adenitis, and for supratrochlear kernels just above the internal condyle of humerus.

The posterior cervical glands are peculiarly susceptible to enlargements in rubella, and the occipital glands in irritation of the scalp. Enlargement of the parotid gland, aside from mumps, may be secondary to septicemia, pneumonia, and similar infections. Enlargement of the axillary glands may be secondary to vaccination, infected wounds, and general septicemia. The thyroid gland when enlarged is often due to acute thyroiditis, abscess or tuberculosis.

Myxoedema in the form of cretinism is characterized by atrophy of the thyroid.

Next the examination of the chest. Are there any evidences of rickets, such as beading of ribs, pigeon chest, flaring of ribs, Harrison's groove, soft ribs sickling in on inspiration? The funnel—breast, also, sometimes exists, especially when adenoid and tonsillar hypertrophies co-exist. It is characterized by a depression of the lower part of the sternum, extending from the tip of the xiphoid to the middle of the gladiolus. Unilateral bulging of the chest may be due to one-sided distention with large pleural effusions, to pneumothorax, to neoplasms of the lung and pleura, and to compensatory emphysema of the lungs secondary to lesions of the opposite chest.

The deformity, unilateral contraction, which causes lowering of the shoulder and narrowing of the intercostal spaces on the affected side with some spinal curvature, is caused by chronic pulmonary tuberculosis, interstitial pneumonia, pleural adhesions, and chronic compression of the lung by pleural effusions.

Bulging in the cardiac region, which is most frequent and noticeable in young children, may mean enlargement of the heart, pericardial effusion, or forward dislocation of the heart by pressure of a new growth. Simple rapid breathing, usually attended by shallowness of the respiratory excursion, occurs normally in young children, and is the result of active exercise, although breathing is deep, as well as rapid.

Owing to the different positions of the heart of the child as compared to that of the adult, the various sound areas also differ and vary at different periods of childhood in accordance with the changing position of the heart. Before the sixth year the mitral area corresponds with the apex beat at a point in the nipple line, or not more than one-fourth inch within nipple

line in the fourth interspace. In very young children the aortic area is over the sternum or at its immediate right border, at level of the second or third interspace, while in older children it is slightly to the right of the sternum. In an infant both heart sounds are high pitched and short, the muscle sounds appearing later in life. There are cardiac murmurs in a large proportion of all children without disease of the heart (Cabot). In such cases the heart is perfectly normal in size, sounds, etc., but one finds a murmur.

Abdominal examination: Is there any distension, sunken abdomen, loss of abdominal tone, enlarged spleen and liver, abdominal masses or fluid? "Pot-belly" and umbilical hernia are quite characteristic of rickets.

After we have completed our examination thus far, we return to the mouth and throat, noticing first the teeth, if there are any; next the tongue. By using a wooden tongue depressor or teaspoon we can get a good view of the throat and observe the tonsils. The best view can be obtained by daylight before a window, or a light a little behind and above the attendant's right shoulder furnishes satisfactory illumination.

In taking up the acute diseases of childhood, we should always direct our attention to several signs and symptoms which are prominent. First the respirations. The normal respiratory cycle consists of an active inspiratory effort and a passive expiratory phase followed by a pause, the relative duration of the two movements being thus expressed: inspiration: expiration ::5:6. The respiratory pulse ratio averages about 1:4. In adults the normal respiratory frequency is from 16 to 24 to the minute, while in children, 44 in the new-born to 26 in the five-year-old child.

In children respiration is of the abdominal or diaphragmatic type. Accelerated respiration is met with in acute fevers, in pneumonia and tuberculosis. Dyspnea, cyanosis and distressing cough in catarrhal or broncho-pneumonia are the objective symptoms to which our attention should be directed.

Fever may not be an index of the gravity of a disease. In tonsillitis, stomatitis and acute indigestion we frequently find a temperature of 103° to 105° F. These ailments respond quickly

to treatment, but in pneumonia, scarlet fever, diphtheria and typhoid, a temperature of 104° F. is a symptom of considerable import, as indicating the severity of the infection. We must keep in mind that it is not the fever itself, but the conditions back of it which make it a sign of clinical value.

Obscure elevations of temperature, if persistent, following the acute catarrhal affections of the upper respiratory tract are sometimes explained by a suppurating process in the middle ear without other symptoms than the fever. A small area of encysted empyema may explain a persistent temperature elevation. Obscure temperature for a week or two may prove to be as mild typhoid. Pyelitis, although several specimens of urine do not reveal pus, produces slight temperature.

The gastric symptoms may be the most noticeable of symptoms in these acute conditions. The gastric indigestion is manifested in sudden repeated vomitings, often with fever, always prostration. After a few hours there is evidence of bowel disturbance. A high enema should always be given as the initial treatment in any illness of any nature in which there is acute vomiting with absence of free bowel action.

We should always be on guard as to any of the infectious diseases. Chronic diseases of some standing are frequently overlooked, especially tuberculosis and syphilis. In tuberculosis we must not forget the cervical adenitis, tuberculosis of the bones and joints. The diagnosis of any condition of such great importance to the patient as hip disease or spinal involvement, should not be neglected or passed over lightly. Vigorous bodily resistance is the best insurance against tuberculosis. Although the tonsil is looked upon as a portal for frequent entrance of the disease, this organ itself has been found to be tuberculous in very few instances. In 90 per cent of all cases of tuberculous lymphadenitis the cervical glands are involved, and chronic inflammation in these glands, when well advanced, is usually aggravated by the presence of infecting organisms of the staphylococcus or streptococcus groups.

Syphilis in children is usually due to direct inheritance, although acquired cases are encountered. When we find any evidences of en-

larged epitrochlear glands we are to be on our guard for other findings suggestive of syphilis, such as dwarfed nails which are dry and break easily, the characteristic deformity which has been called the "bird claw" nail. Deformity of the bones, especially of the tibia, and other long bones should at once suggest to us the possibility of late syphilitic changes. Among less frequent bone changes in late hereditary syphilis is a periostitis leading to bone absorption. This is seen on the surface of the cranial bones, causing rough areas on the bone surface. The "saddle nose" caused by a destructive septum is quite often seen in congenital syphilis. Notched, peg-shaped teeth known as Hutchinson's teeth are a fairly characteristic finding. Other bone conditions are rarefactions of bone in the neighborhood of the epiphyses; such manifest themselves to us upon examination by the patient's complaint of pain upon moving the limbs or different parts of the body. The child makes no attempt to change the position of the limb affected. The joints may show some swelling.

We must differentiate between scurvy and "rheumatism." Scurvy occurs under eighteen months, while "rheumatism" is a disease of childhood, not early infancy. There is no fever in scurvy. The absence of other signs of syphilis and a negative Wassermann test, differentiate it from syphilis.

An enlarged thymus gland causing a condition known as status lymphaticus must be kept in mind. The lymph nodes of the tracheo-bronchial region are enlarged. All the lymph tissues about the pharynx and all the lymph nodes of the body are greatly hypertrophied. In early infancy this is one of the explanations of sudden death occurring after slight causes, and often without any apparent cause. Frequently the history is this: a child previously regarded as healthy, is taken with a convulsion followed by a high temperature, preceding which there may have been some pulmonary signs suggesting a beginning broncho-pneumonia. The convulsions recur at short intervals, and death occurs in a few hours, often in convulsions. While this condition may exist for an indefinite time without producing any symptoms, it undoubtedly often determines a fatal outcome of what might otherwise have

been a mild illness or a trivial accident. It is one of the most frequent explanations of unexpected death from such slight causes as exploratory puncture or the injection of antitoxin.

Hernias, no matter how small, should always receive attention. The most common, perhaps, in infants is the umbilical hernia. Treatment consists in retaining the hernia and allowing the opening to close. Usually all that is necessary is reducing the hernia and placing a strip of adhesive plaster two inches wide and sufficiently long to hold fast the skin. This should be changed every fifth day so as to prevent irritation of the skin.

Inguinal hernia is rare in females but comparatively frequent in males. Sometimes double herniae occur. The direct and short course of the inguinal canal predispose to inguinal herniae. In the infant the internal abdominal ring is almost directly behind the external ring, and on the same level. Incomplete closures of the inner opening, combined with weakness of the peritoneum in the region of the ring, thus affords easy egress to the hernia. At the femoral canals, on the contrary, the possible hernial opening is quite protected, owing to the close relationship in the child between the anterior superior iliac spine, Poupart's ligament, and the spine of the pubes. Consequently, femoral hernia is rare in childhood. A direct cause of hernia is the pressure exerted by the abdominal muscles in crying, and in paroxysms of whooping cough. Inguinal hernia in infants is usually readily reduceable and this makes a positive diagnosis. Strangulated inguinal hernia may be confused with hydrocele of the cord, undescended testicle, and enlarged inguinal glands. In hydrocele, the tumor is translucent. In undescended testicle, the testicle is absent from the scrotum and may be demonstrated in the canal as a small ovoid, movable mass.

In girl babies and older children, careful note should be made of the vagina. Inflammation of the mucous membrane of the external genitalia may cause itching and burning of the parts. In some cases there is a discharge resembling that of gonorrhoeal infection, and must be differentiated through bacteriologic examination.

Gonorrheal vulvo-vaginitis is more prevalent than some would have us think. In infants and young girls there may be a redness of the vulva without discharge, or there may be mucous-purulent or purulent discharge. It is a mistake to suppose there must be a visible discharge in each case. The most frequent complications are conjunctivitis and arthritis.

In the physical examination should be included the examinations of the urine in every case wherever it is possible. It takes but a few minutes to examine the urine for albumin, sugar, acidity, and specific gravity. It is not essential that one must have a well equipped laboratory. Any general practitioner can examine a specimen of urine in his office, and know somewhat more about his case than before examination of that specimen.

It is of importance if we find albumin in the urine to keep close watch of that patient. A great many times this may be a purely functional albuminuria. But many patients who for a considerable time were thought to have only functional albuminuria have ultimately developed nephritis.

Pus in the urine, coming from the pelvis of the kidney, may indicate, if the condition is an acute one, pyelitis, pyelonephritis or pyonephrosis; if it is chronic, it points to renal tuberculosis or calculus.

Too often the physician does not take the time to carefully examine the urine. More is learned by the urine examination in many instances than any other way. It should be made a routine practice to always examine a specimen of urine in every case. Fewer mistaken diagnoses will then be made. If we stop to think that it takes only a very few more minutes of our time to make these few tests and all that is needed are a few test tubes with the solutions that any practitioner has in his office, we will begin to try it out if we have not already.

Blood examinations should also be made, but by this I do not mean the difficult time-taking blood examinations. In most cases all that is necessary is to know the hemoglobin, which can easily be determined by the Talquist paper test. Although this test is considered somewhat inaccurate it is accurate enough for all

purposes in our work. Occasionally it may be necessary to have a leucocyte count made.

The importance of the Wassermann test needs much emphasis. In the primary stage a positive reaction may be looked upon as conclusive, and indicates syphilis in practically all cases; if negative it may be syphilis, nor does it exclude syphilis. In congenital cases the reaction is strongly positive even when signs of the disease are absent. The mothers of these children usually give a positive reaction. In infants and young children enough blood, 1 c. c., can be obtained from the big toe or heel of the foot. In older children the vein at the bend of the elbow affords a good blood supply.


In 98 per cent of all cases the general practitioner can do the necessary laboratory work and arrive at a careful diagnosis.

In conclusion I will say that I have taken up briefly some of the more essential points in the physical diagnosis of children. I have tried to bring out the fact that it is not necessary to have a well equipped laboratory and the patient in a hospital to make a careful accurate diagnosis. All that I have mentioned can be easily done in the average equipped office and at home.


Common sense thoroughness is the one essential necessary. I, therefore, make this a plea for more careful examinations of every patient. No matter how trivial the case may seem upon first sight, without your conscientious and careful work you have neither benefited your patient nor yourself.

**LET POTATOES FIGHT**

**They Save Wheat.**  
**When you eat Potatoes**



**don't**  
**eat**  
**Bread**



U. S. FOOD ADMINISTRATION



A BRIEF SUMMARY OF ONE THOUSAND  
CONSECUTIVE CASES OF CONFINEMENT.\*

F. H. KNICKERBOCKER, M. D.,  
*Staples, Minn.*

In carefully going over this record of ten hundred consecutive cases of confinement, I find that out of 980 women, of whom the item was noted, 309 were primiparae. The oldest woman was 47, the youngest 16—and there were several of that age. Four women died. Of the last 500, none died.

I shall briefly review the cases of those who died:

No. 540, age 43, was found well along in labor—mind dull, nearly comatose, very drop-sical—and had had two or three convulsions before I saw her. I had had no knowledge of the case before. I delivered quickly with forceps. Baby all right. Woman became comatose, and, despite the usual treatment energetically carried out, woman, after about 20 hours had several convulsions, and died.

No. 646 was taken suddenly, on the 4th day, with great pain, high fever, and a rapidly developing general peritonitis. I thought it was probably due to a ruptured appendix. She was sent to the hospital in a desperate condition; was operated upon, I think; and died in a day or two. The exact cause of trouble I do not know. Perhaps Dr. Ide can recall the case. Possibly an earlier operation, without the disturbance of removal, might have given her a better chance.

No. 385 was gasping her last as I entered the room, and blood was everywhere from placenta previa. Child was cross presentation but easily turned, and was delivered quickly, but could not be revived.

No. 685 I found with a very severe smallpox, which they had been concealing. It was confluent, in the pustular stage. The woman

looked hardly human. Pulse small, weak, and rapid. Delivered without trouble twins of 6 and 6½ pounds. Woman succumbed, as might be expected in such a condition, about an hour after labor. I vaccinated both babies. It worked in one, but not in the other. The one whose vaccination did not work had smallpox in about two weeks, but in mild form, and I think recovered.

Two women had measles in severe form at the time of labor, No. 77 and No. 80—both 1917 cases and within a few days of each other. The baby of No. 77 contracted measles in about a week or ten days, and died in a few days. The child of No. 80 did not contract the disease. Both women did very well.

Two women had fever and were pretty sick from some sort of infection. No. 167 had an irregular fever, at times very high, and more or less pain. No unusual discharge, no swelling. The trouble seemed to be in the veins of the pelvis. Dr. Thabes saw this case with me. No. 602 had a more constant and steady fever, not much pain except headache. Both women recovered perfectly, and are well now. The first one was sick three or four weeks, the last one about two weeks.

Woman No. 645 had a ruptured appendix, and was operated upon by Dr. Thabes the third day after labor. She was in a desperate condition—almost pulseless, and full of stinking pus, but recovered, and has had children since. The operation was at the home by lamp-light, or the lantern dimly burning.

No. 900 had a small accessory placenta which caused some flowing a few hours after labor. It was a perfect little placenta about the size of a small cookie, and with a slender cord, which I think must have run into the larger cord.

No. 188 when two or three months pregnant had an operation for appendicitis and hernia. She had no trouble in labor, and has another baby since that pregnancy. Dr. Ide will recall the case.

There were six cases of eclampsia. All recovered except the one whose history has been given. One woman had a wooden leg, and an-

\*Read before the Upper Mississippi Medical Society, at Brainerd, Minn., January 8, 1918

kylosed hip with adducted thigh. Delivery was not impossible, but mighty awkward.

There were 1,010 babies—eight pairs of twins, and one bunch of triplets. I want to tell you about the triplets case. The woman was very large, Swedish, 41 years of age. The uterus was dilated, and breech of No. 1 presenting—soon delivered—about 7 months, and small. This one lived for a few weeks. The bag of waters of No. 2 appeared, which I ruptured, and nearly drowned out the premises—I never saw such a large quantity. No. 2 was rather blue, and lived but a day or two. No. 3 came along in his little sac, but was dead on arrival. The woman must have had labor prematurely on account of the great quantity of amniotic fluid. She was enormously distended, and something had to give.

There were 21 breech presentations, of which 5 were born dead. There were 3 footlings with none born dead. Three face with one born dead—not because it was a face presentation, but because a rather short cord was wound three times tightly around the neck. A very short cord will sometimes impede labor—I have had two such cases. You can only guess at the trouble before the baby is born.

There were two cross presentations—one already mentioned, where the woman was dying from placenta previa, and one a very difficult podalic version. In one case the shoulder presented, but the woman had borne many children, and it was not difficult, by getting her in the right posture, to get it out of the way and the head engaged. Posture is a very important matter to study.

There was one brow position. The baby had a bulging forehead—looked like LaFollette. I fancy that he was a brow case—unfortunately not still-born—nor still since.

The occiput was posterior once, and born in that position without forceps, pituitrin, or a ruptured perineum.

In the last five or six hundred cases chloroform was used in practically every case. Pituitrin at times, but only when the pains were unsatisfactory, the os dilated, the passenger in proper position, and the way clear; and then rarely in a primipara. The forceps were used 22 times—in 3 cases on account of eclampsia. In the last 500 cases the forceps were used 8

times. Two of the forceps babies were born dead. The forceps were used with great satisfaction without chloroform three times. This was before pituitrin was heard of. One difficult forceps case had a complete central rupture of the perineum. It was in the country, and I had nothing with me but a big perineum needle and some very heavy silver wire. I used it, putting one deep suture, being careful not to enter the rectum, and catching the vagina just above the tear. It was not pulled very tight—just enough to bring everything together. I did this with some confidence because I had done it once before many years ago with success. It wasn't a scientific, nor artistic job, but the result was perfect. I have attended the woman twice since, and she has a good perineum.

Besides the five breech cases, the two forceps cases, and the face case, there were eight still-born babies—16 in all. Two of the breech cases had a right to die. They were large and very difficult to get. The legs were extended up over the belly and chest, and both arms were over the back of the neck. Two babies died on account of prolapsed cord, impossible to replace when I saw them. No. 981 was covered with dark spots, and had a large, hard tumor of the liver—syphilitic, I think. No. 328 was a seven months still-born baby with rigor mortis—the only case of the kind I ever saw. It was as stiff as a stick. One baby was born dead because the woman had glycosuria. The others just died—I don't know why. Five or six died in a few days from feebleness—usually due to prematurity. One died on the second or third day from cerebral hemorrhage—hemiplegia. It began with convulsive twitchings of one side soon followed with one-sided paralysis and death in a few hours. The labor had not been difficult. Nos. 148 and 933 had spina bifida with club feet, etc.,—one of them hydrocephalic somewhat at birth. They both lived several months. No. 830 had double hare-lip and cleft palate. No. 992 had congenital cataract. No. 720 had six fingers and six toes. I wanted to prune him, but the parents seemed to think it a distinction to be proud of, and the boy is still going about with his six fingers.

Of the last 500 babies the average weight was 7.94 pounds. This is heavier than the average

as given in the books, but is right, for I weighed them. The heaviest was 13 pounds, and the lightest, that lived, was 3 pounds. In a German community where I lived for seven years, the average weight was about the same as that given in the books. The women were hard out-of-doors working animals. They did not have to work, for all had plenty of money, but they had the habit. I find that male and female babies are about equal in number—there being a few more females.

Of 500 babies, 264 were born between 6 P. M. and 6 A. M., and 236 from 6 A. M. to 6 P. M. The average time spent by me from the time of arrival at the house until the child was born, was, in the last 500 cases 1.07 hours. In looking over this record I was astonished when I came to the earlier half of it to see how much longer time I spent with cases then than now; and astonished to read "no chloroform" in case after case—or "a little chloroform," which meant a little as the head was about to pass the perineum. I am sure that the last 500 women have felt better after labor, and have been up sooner and in better condition than the first 500. It is the tedious infernal pain of the first stage that wears a woman out. I don't let it last half as long as I used to. It is all nonsense to let a woman walk about, and suffer for hours during the dilatation period. When I find a woman with the os beginning to dilate, and with good pains, instead of having her walk about, I have her go to bed. If it is a first pregnancy and labor just beginning, I give a hypodermic of morphine and atropine. I heard a professor of obstetrics give a clinical lecture at Harper's Hospital in Detroit, a year ago last July, and he said that in some cases it was justifiable to give from 1/10 to 1/8 of a grain of morphine in the very early stage. I do not know what he expects to accomplish with just a stimulating dose. When you give it at all, you want enough to make the woman feel "dopey"—perhaps she may fall asleep for half an hour, or sleep, between pains. If labor has really started, the pains will not cease. Don't stay away too long—in about two hours you will find the os completely dilated, and the woman will tell you

that the pains did not leave her. If you stay too long the whole business may be over—and you'll miss your fee. If the os is dilated a little and the pains good, have the woman go to bed, and give chloroform. It is in this stage that the woman needs chloroform, if ever. Give enough to make her doze between pains or you will not accomplish your object. As a pain comes tell her to bear down. She can do so because it will not hurt so atrociously. If the presentation and position are right, and the os the size of a dollar, break the sac. This will make the pains harder, and with your chloroform there will be no danger of damage to the cervix. It is well enough to *know* that the woman is bearing down, for often, even one who has had children will have the appearance of the most intense straining, when in reality she is holding the thing back. You cannot tell by looking at her or by the way she pulls with her hands. Keep your finger on the head for a while until you are sure that she has learned just how to do it. If she will lift her hips an inch or two from the bed with a pain, the head will push down better. If the woman lifts her back during a pain the effort is wasted. They like to do this because it takes off the pressure. When the os is nearly dilated, often in an ordinary L O A case it will go better with the woman on her left side. The lip of the cervix will not pinch against the symphysis, and sometimes with your gloved finger you can push the cervix back and hold it there while a pain slides the occiput down over it. The head will then soon be on the perineum when the woman feels impelled to push, and no chloroform is needed until the last few pains. The first stage of labor can be greatly shortened and made easier by the proper use of chloroform. It is of no account unless you give enough, and the woman will not help if you give too much. I have wondered if my last 500 were not more free from forceps cases because I gave chloroform in the way described. Many women will be exhausted and nervous after a long first stage.

As a matter of trivial interest, I might say that I advise my women to be bolstered up in bed about the third or fourth day, to be helped

into an easy chair on about the fifth or sixth day, but not to walk about under two weeks.

Mastitis with abscess has been extremely rare in this series of cases. I try to impress the importance of having any soreness of the nipples treated at once.

I have never had any serious trouble with the umbilicus. Sometimes after separation of the cord there will be a little granulation tissue. The best application for this is a little powdered nitrate of lead. Dust on, and in 12 to 24 hours the granulation will be gone and the surface

dry. It will not irritate the skin unless applied several times.

All of the cases in this series were Staples cases. I lived once in a Norwegian community where the people were largely new-comers, and did not live very well—I had there 56 cases with 4 pairs of twins. In the German community mentioned there were two or three hundred cases with many malpositions. I think you will find that most of the mal-positions occur in women who have borne many children, where the child is small, or with a large quantity of amniotic fluid.



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## EDITORIAL

### THE ANNUAL MEETING OF THE STATE MEDICAL ASSOCIATION.

On August 29th and 30th, the Annual Meet-  
ing of the Minnesota State Medical Association  
will be held in Duluth. In these strenuous  
times when matters pertaining to the future are  
so much in doubt, when to the physician's regu-  
lar duties—ordinarily sufficiently arduous— in-  
numerable unusual tasks are added, when phy-  
sicians, like others, feel the pressure of the high  
cost of living and the necessity of conservation  
of time and energy, it is perhaps well to pause  
and consider whether or not individual, na-

tional, and even world-wide interests are served  
and supported by withdrawing for a few days  
from our busy routine to rub elbows and ex-  
change ideas with our fellow practitioners.

Never before in the history of medicine has  
the necessity for scientifically trained physi-  
cians been so manifest. The great war has  
evolved demands upon the resources of scien-  
tific medicine which are insistent. To every  
member of the Minnesota State Medical Asso-  
ciation the following propositions must present  
themselves: Is it practically a duty to attend  
this particular convention, or should I remain  
at home? In what way would the interests of  
my community, locally and at large, be best  
served? Would I be adequately repaid for the  
outlay in attending a well conducted and en-  
thusiastic state meeting with the benefits of the  
social intercourse with my fellows as well as  
the opportunity to participate in the discussion  
of scientific and military propositions which  
present themselves at this time?

To these questions there can be but one an-  
swer. The benefits resulting from a congress  
of this kind are so far-reaching that, whether  
considered from the standpoint of duty, policy  
or personal pleasure, the answer is the same.  
While our brothers in the service are making  
such heroic sacrifices it behooves us who are  
still at home to keep the fires burning and to  
advance the cause in every way possible: As  
regards policy, one need only to glance over the  
list of registrants of former years to be con-  
vinced that it is here that the successful (using  
the term in its broader sense) doctor is met.  
The stay-at-home is usually the fellow who is  
"unlucky,"—"Fate has interfered" with his  
success. Considered from the angle of per-  
sonal pleasure, in addition to the feeling of gra-  
tification in having done his duty and improved  
his time, he has the advantage of a recess from  
the work at home, for, although attending med-  
ical meetings is a strenuous undertaking, it  
varies the regular routine to such an extent  
that one usually drops back into the harness  
with added vigor and zest.

The scientific program which is published in  
these columns is one of special excellence and  
importance. Particular attention is directed to  
the announcement by the Committee of Ar-  
rangements that a monster patriotic meeting to  
be addressed by speakers of national impor-

tance will be held on the evening of August 29th. The profession of Duluth judging by past performances can be trusted to furnish entertainment for the visiting physicians and their companions that they cannot well afford to miss. The condition of the highways is such that undoubtedly a large number of physicians in the state will travel to Duluth by motor this year, and those who take the opportunity to visit the great mining centers at Eveleth, Hibbing, and Virginia will be well repaid for the extra day or two so spent.

The organization of the American medical profession is now of such a nature that it has become one of great influence. The close relation between the county, state and national societies makes for cohesion and brings to the individual physician the opportunity to make his influence felt. Our State Society ranks high, and is one of the leading associations in this country. Let us make it also second to none in enthusiasm and zeal. "*Minnesota Medicine*" will be present at an annual meeting for the first time. She greets you and hopes that your attendance will show that you believe, as she does, that it is worth while.

## MINNESOTA STATE MEDICAL ASSOCIATION

### ANNUAL MEETING

August 29th and 30th, 1918

DULUTH, MINNESOTA

### Provisional Program

### SECTION ON MEDICINE.

Henry L. Ulrich, Chairman, Minneapolis.

T. R. Martin, Secretary, Duluth.

1. "The Problem of Humidity Indoors."  
E. P. Lyon, Dean of Medical School,  
University of Minnesota, Minneapolis.
2. "The Principles of Foreign Protein Therapy."  
W. P. Larson, Prof. of Bacteriology,  
University of Minnesota, Minneapolis.
3. "Effects of Underfeeding and Refeeding upon Growth."  
C. M. Jackson, Prof. of Anatomy, University of Minnesota, Minneapolis.
4. "Toxic Dermatitis."  
E. L. Brown, Prof. of Pharmacology,  
University of Minnesota, Minneapolis.
5. "A Medical Service with the British Expeditionary Forces in France."  
E. T. F. Richards, Asst. Prof. of Medicine, University of Minnesota, St. Paul.
6. "Hemolytic Icterus."  
John P. Schneider, Asst. Prof. of Medicine, University of Minnesota, Minneapolis.
7. "The Therapeutic Effects of Overfeeding in Pernicious Anemia."  
T. A. Peppard, Instructor in Medicine,  
University of Minnesota, Minneapolis.
8. "Poliomyelitis."  
E. C. Rosenow, Mayo Clinic, Rochester.
9. "The Thyroid and Metabolism."  
H. S. Plummer, Mayo Clinic, Rochester.
10. "The Blood Picture in Exophthalmic Goitre."  
W. A. Plummer, Mayo Clinic, Rochester.
11. "The Nervous Symptoms in Pernicious Anemia."  
H. W. Woltmann, Mayo Clinic, Rochester.
12. "Poliomyelitis in Minnesota."  
W. P. Greene, State Board of Health,  
Minneapolis.
13. "Neuro-Circulatory Asthenia (Irritable Heart), Study of 35,000 Draft Recruits."  
E. L. Tuohy, Duluth.
14. "Rickets."  
C. A. Scherer, Duluth.
15. "Pellagra."  
N. L. Linnemann, Duluth.
16. "Acidosis."  
S. H. Boyer, Duluth.
17. "The Diagnosis of Early Tuberculosis."  
Geo. Douglas Head, Minneapolis.
18. "Problems Arising in Local Draft Boards."  
John W. Bell, Minneapolis.

**Social Medicine for the Combined Sections.**

19. "The Second Line of Defense."  
Prof. Arthur Todd, University of Minnesota.
20. "Papers on Public Health, Aspects of Venereal Diseases."  
(a) Program of Control of Venereal Diseases by Board of Health.  
Harry Irvine, Director of Bureau of Venereal Disease, State Board of Health.  
(b) What it May Accomplish.  
Mabel S. Ulrich, Director of Education, Bureau of Venereal Diseases, State Board of Health, Minneapolis.

**SECTION ON SURGERY.**

Archibald MacLaren, Chairman, St. Paul.  
A. W. Ide, Secretary, Brainerd.

1. "Prostatic Stone."  
E. S. Judd, Rochester.
2. "Transverse Incisions in the Upper Abdomen."  
R. E. Farr, Minneapolis.
3. "Fractures."  
L. E. Daugherty, St. Paul.
4. A. Schwyzer, St. Paul.
5. "The Causes of Disability Resulting from Industrial Accidents to the Lower Extremity."  
J. R. Kuth, Duluth.
6. "Hernia with Undescended Testicle. Report of Five Cases."  
W. J. Cochrane, Lake City.
7. C. B. Lewis, St. Cloud.
8. A. C. Strachauer, Minneapolis.
9. W. J. Mayo, Rochester.
10. Wm. R. Bagley, Duluth.
11. "Surgical Results in the Removal of Spinal Cord Tumors."  
A. W. Adson, Rochester.
12. A. N. Collins, Duluth.
13. "Value of Enterostomy in Acute Peritonitis."  
H. C. Cooney, Princeton.

14. "The Medical Man in War."  
Col. Henry S. Greenleaf, Ft. Snelling.
15. "On Gall-bladder Work."  
J. S. Holbrook, Mankato.
16. J. C. Masson, Rochester.
17. H. P. Ritchie, St. Paul.
18. E. S. Muir, Winona.
19. J. A. Thabes, Brainerd.

The Committee of Arrangements announces that there will be a Patriotic Meeting on the evening of August 29th, which will be addressed by speakers of National Prominence.

**NOTICE.**

Dr. Ralph St. J. Perry, of Minneapolis, will be in Duluth at the meeting of the Minnesota State Medical Association, August 28, 29, and 30, to represent the Board of Examiners for the Medical Reserve Corps, and any physician wishing to be examined can see him during this meeting.

**SILVER NITRATE SOLUTION.****Sent Free to Physicians.**

Since 1916 the law of Minnesota has required attending physicians and midwives to treat the eyes of every new-born infant with a one per cent. solution of silver nitrate.

The legislature of 1917 provided funds for the purchase and free distribution of convenient outfits for such treatment, and at least one outfit was sent to each physician in the state in August, 1917, by the Minnesota State Board of Health. Each outfit consists of six ampules of the solution with needle for puncturing the ampule. The ampule is made of paraffin wax and the solution contained in it will not lose its strength for some years. Further supplies of these ampules will be sent free of charge to any physician or midwife, on application to the State Board of Health in the State Capitol, St. Paul.

Very few requests for these ampules are being received from physicians. This must be either because the law is being ignored or because it is not understood that ample supplies of these ampules are to be had for the asking.

## TO THE PHYSICIANS OF THE STATE OF MINNESOTA.

The Director of the Children's Bureau of the State Board of Control is anxious to have the attention of all physicians of the state drawn to the fact that the problems involved in the care of the illegitimate child are numerous and perplexing and that in helping to solve them the very complete co-operation of the profession is very much to be desired. Numerous reports have come to the attention of the Board of Control that physicians and others throughout the state are taking infants from their mothers and parents and placing them in foster homes, or are assisting mothers to place out children without the required legal formalities. These reports come with special reference to the children of unmarried mothers. No doubt this procedure is due to lack of information concerning the new laws which govern the matter. Under Chapter 212 of the Laws of 1917, a mother or a guardian can no longer give away a child, either by verbal agreement or by written assignment. Permanent rights in a child can only be transferred from the mother, the father, or guardian, by an "order or decree of court." This order can be procured in three ways:

1. A petition on the part of the proposed foster parents to the probate court for letters of guardianship.
2. A petition in the juvenile court to have the child declared dependent or neglected, and asking that the petitioners be made guardian.
3. A petition in the district court to adopt the child.

All persons are advised to take up with a duly authorized child-placing agency, or with a county child welfare board, or with the State Board of Control, any matters relating to the transfer of rights in children and their placement in homes other than that of the parent or legal guardian.

## GOOD WORK BY THE AMERICAN RED CROSS IN FRANCE.

France is finding in tuberculosis one of the worst of war's by-products. Before the conflict had continued two years her hospitals were filled with soldiers suffering from the plague, and facilities for adequate care of them were lacking. The following facts as to measures invoked are extracted from a recent report by Dr. William Charles White, Chief of the Bureau of Tuberculosis, of the American Red Cross in France:

When the American Red Cross, in co-operation with the Rockefeller Foundation, entered the fight against tuberculosis in France, the Service de Sante of the Army was utilizing all the main French institutions, and there was little room available for the women, children and old men suffering from the disease. Last October there were 8,879 tuberculous French soldiers not yet discharged from service, and for these 6,521 beds had been provided in thirty-seven hospitals. Between August, 1914, and November, 1917, there were 80,551 soldiers discharged from the army on account of tuberculosis and the French Department of the Interior undertook to provide for their care by means of Stations Sanitaires and departmental committees.

Until recently practically no provision had been made for the repatriates—that portion of the population which had been engulfed by the German advance into France and Belgium, and, being no longer of any economic use to Germany, the aged, the young, and the diseased had been sent back into France. A large proportion of these are consumptive. The wretched housing conditions in which many refugees were compelled to live in Paris and elsewhere made them peculiarly subject to tuberculosis.

A careful survey of the field indicated that the Red Cross could render most effective assistance among these groups. The first opportunity for usefulness came in the survey of conditions in the tuberculosis barracks which had been provided by the Assistance Publique in connection with the large hospitals and almshouses in Paris. There were 1,052 beds in them, yet only 174 were occupied. Unattractive conditions seemed to explain, in large part,



the failure of the sick to make full use of this institution. The American Red Cross thereupon increased the nursing force, established diet kitchens and recreation rooms, and provided additional clothing and materials, such as bed covers and flowers. The institution quickly became more popular and soon was caring for 657 patients. Later, new cure halls, dining rooms, and recreation rooms, were constructed by the Red Cross.

A survey of the institutions outside of Paris showed that these provided 11,000 beds for a population of 39,500,000 persons, with a total death rate from tuberculosis in 1913 of 84,443. Many of these institutions required additional bedding, food, and equipment, which the American Red Cross undertook to furnish at a cost to it of approximately 100,000 francs a month.

Another plan similar to the Home Hospital plan in New York City now is being used in France, especially for those refugee and repatriate families with tuberculosis members. These, if allowed to go into ordinary houses well might spread infection. The new plan contemplates placing such families in small houses especially constructed for the care of a tuberculosis member. Each house is composed of three rooms—two sleeping rooms and a living room—with a small porch for the patient. The children will be placed in open-air schools, and those able to work will be given vocational training in such trades as gardening, carpentry, tailoring and shoemaking. The domiciliary care of the consumptive, it is believed, is one of the most important factors in the war against tuberculosis in France, as elsewhere.

After studying the question of the relation of tuberculosis to the various armies, it was decided that the American army, no matter how careful the exclusion of tuberculosis cases in the draft, would still have to deal with a group of cases which would develop tuberculosis from existing lesions not possible of diagnosis in earlier examinations. It was thought that this was a field of work in which the American Red Cross could give assistance to our own army in France. It seemed obvious that there would appear certain pneumonic types of tuberculosis, certain acute military cases, severe hemorrhagic and pleuritic cases, and probably a number of cases of tuberculosis in parts of the body other than the lungs.

An offer to the Army Headquarters to provide a hospital near the shipping ports where the Red Cross would be given permission to take care of such cases needing attention prior to their return home, has been accepted. The American Red Cross will undertake the provision of one such hospital which then will be turned over to the army. A similar institution may be provided at a second point.

Four tuberculosis hospitals in France are now maintained and conducted solely by the American Red Cross and ninety-six French hospitals are aided with funds and supplies, and in addition much educational and visitational work is being done.

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## OBITUARY

Lieut. Col. Frank C. Todd, commandant of the base hospital at Camp Dodge, Iowa, one of Minneapolis' best known surgeons and recognized as among the foremost hospital authorities in the world, died July 4th, in the Presbyterian hospital at Chicago of pneumonia. He was 49 years old. The widow and four children, who were with him at the time of his death, survive.

Lieut. Col. Todd's illness was of short duration. He had contracted a heavy cold while on an inspection tour of cantonment hospitals for the government, and in Chicago, a few days later developed pneumonia. He immediately went to the Presbyterian hospital in that city for treatment.

Dr. Todd was one of the first of Minneapolis' medical men to volunteer his services when war was declared and was given the rank of major. His reputation as a hospital authority resulted in his being placed second in command at the base hospital at Camp Dodge.

Federal experts, inspecting military hospitals a year ago, pronounced the Camp Dodge hospital the most perfect organization of its kind in this country. Lieut. Col. Todd recently had been recommended for the command of a hospital in France.

At the time of his active participation in the war, Lieut. Col. Todd was chief of the eye, ear, nose and throat department of the University of Minnesota.

Dr. Todd was born in Minneapolis, October 15, 1869, and graduated from the dental col-

lege of the university in 1892, later taking the full course in medicine. Post graduate work in New York, London, Paris, Vienna and Berlin followed, and in 1899 he became professor of diseases of the eye, ear, nose and throat in the university and assumed the duties of chief of staff of that department in 1902, a post he held at the time of his death. The same year Dr. Todd, who had been active in the general work of his profession, was elected president of the Hennepin County Medical Association.

During the national convention of the American Medical Association in Minneapolis in 1913, Dr. Todd was chosen second vice president of the organization for the ensuing year.

The body was brought to Minneapolis for burial, and the funeral was held July 6th, at 2:30 from the Church of the Redeemer.

**A MEMORIAL TO DR. FRANK C. TODD,  
CHIEF OF THE DEPARTMENT OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY, ADOPTED BY THE ADMINISTRATIVE BOARD OF THE MEDICAL SCHOOL OF THE UNIVERSITY OF MINNESOTA, JULY, 5, 1918.**

It is with profound sorrow that the Medical School of the University of Minnesota receives the tidings of the sudden death of Frank C. Todd. These tidings stir the depths of affectionate memory, welling up through many years of intimate association, in the minds of his colleagues. They touch the spring of thoughts of him which "lie too deep for tears."

All they would say of him sums itself up in this: As student, teacher, surgeon, executive officer, and soldier he has done honor to his Alma Mater, to his community, to his state and to his country. As a friend he has been faithful alike in large and in little things. As a counselor and organizer his particular genius shone. He has always been at the point of progress in the development of his school and his profession and both have recognized, and have been fortunate in, his leadership.

To his family the faculty would tender the sympathy of its members in their untimely bereavement. Theirs is the rich legacy of the memory of a good father and a rare companion.

He has died in the service of his country as truly as though he were actually at the front. Gratefully and loyally his associates of this school salute the spirit which from that service has passed on to the immortality of those who greatly and simply serve.

E. P. Lyon, Dean.

R. O. Beard, Secretary.

## OF GENERAL INTEREST

Word has been received of the safe arrival overseas of Capt. J. C. Ferguson, St. Paul.

The present address of Lieut. C. M. Robilliard, M. C., Faribault, is 136th Inf., Camp Cody, Deming, N. M.

Dr. J. F. Lynn of Waseca has received his call to active service in the medical reserve corps, following his recent appointment as captain. He was ordered to proceed to Fort Oglethorpe, Ga., and report to the Commandant Medical Officers' Training Camp, Camp Greenleaf, about July 15 for a course of instruction for the army service.

Dr. Jules Gendron of Grand Rapids has been awarded a captain's commission in the medical reserve corps.

Dr. C. W. Woodruff of Chatfield has been commissioned a first lieutenant in the medical reserve corps, and was ordered to report for duty on July 14th.

Dr. William R. Murray, Minneapolis, has been appointed Acting Director of the Department of Ophthalmology, University of Minnesota.

Dr. Alexander R. Colvin of St. Paul has been commissioned a major in the medical reserve corps.

Dr. E. W. Buckley of St. Paul has arrived safely in France. He is supreme physician for the Knights of Columbus and has been sent over to France by that order to inspect their activities on the battlefield.

Dr. Ernest T. F. Richards, St. Paul, has been appointed Acting Chief of the Department of Medicine, University of Minnesota, during the absence of Dr. L. G. Rowntree, who has been commissioned a lieutenant-colonel in the national army.

Dr. Arthur Sweeney, St. Paul, is consulting neurologist, examining board of physicians, Camp Dodge, Iowa.

We are glad to announce that word has been received of the safe arrival in France of Dr. Walter Ramsey, St. Paul.

Dr. D. S. Fleischhauer has returned to Wabasha from San Antonio, Tex., where he was stationed at Camp Travis as a lieutenant in the medical reserve corps. Dr. Fleischhauer resigned because of ill health and has resumed his practice in Wabasha.

Dr. Van H. Wilcox, 3023 Dupont Ave. S., Minneapolis, has been made a captain in the medical reserve corps.

Dr. W. L. Palmer of Albert Lea has left for Camp Pike, Ark., where he will assume his duties in the medical corps with the rank of captain. Dr. Palmer is the third Albert Lea doctor to leave for army service, Major Rudolph and Captain Kamp having preceded him.

Using the captain's bridge as an improvised rostrum and the upper deck as a substitute auditorium, 13 University of Minnesota Medical School seniors, on their way to France, received their diplomas aboard ship. They were members of Base Hospital Unit No. 26 and they were the first class from the university to get their collegiate degrees on the high seas.

They had the distinction, one of them pointed out, not only of having the cap and gown exercises above the bounding billows, but of having the fateful "13" mixed up in their destinies. There were 13 in the contingent that received the 13 diplomas, they had left their training camp the 13th of the month, and they were members of unit 26—which is just twice 13.

Dr. Arthur C. Strachauer, Minneapolis, has been appointed Acting Director of the Department of Surgery of the University of Minnesota.

The following Northwest physicians were amongst those commissioned during July in the Medical Reserve Corps:

Captains—Edwin C. Anderson, East Missoula, Mont.; Willard A. Bates, Northville, S. D.; John E. Brinkman, Waterloo, Iowa; Edward J. Clark, Minneapolis; Louis H. Fales, Stevensville, Mont.; Sylvester E. Hinshaw, Newton, Iowa; John V. Johnson, New Duluth, Minn.;

Norman W. Johnson, Cedar Rapids, Iowa; Charles A. Kearney, Dubuque, Iowa; William F. Keller, Sioux Falls, S. D.; Charles S. Kennedy, Logan, Iowa; John V. Keogh, Dubuque, Iowa; Charles A. Lester, Sr., Winona, Minn.; Nicholas L. Linneman, Duluth, Minn.; Thomas B. Marquis, Livingston, Mont.; Harry E. McCall, Clearfield, Iowa; John F. McKie, Westington, S. D.; Frederick H. Rollins, St. Charles, Minn.; Alva M. Sherman, Clarinda, Iowa; Eugene M. Stansbury, Vermillion, S. D.

First Lieutenants—Ludwig W. Anderson, Atwater, Minn.; William D. J. Cremin, Sioux City, Iowa; William H. Daniels, Crookston, Minn.; Frank W. Davis, Alden, Minn.; Arthur W. Drew, Swanville, Minn.; Harry D. Earl, Jamestown, N. D.; Arthur W. Erskine, Cedar Rapids, Iowa; Gustav M. Helland, Spring Grove, Minn.; Vernard R. Hodges, Terry, S. D.; Selmar M. Johnson, Buhl, Minn.; William H. Johnston, Muscatine, Iowa; Charles A. Manahan, Marengo, Iowa; Archibald D. McCannell, Minot, N. D.; Chester A. Miller, Nevinville, Iowa; Rezin Reagan, Garretson, N. D.; Frank L. Secoy, Sioux City, Iowa; Rollin W. Wood, Newton, Iowa; John R. Wright, Knoxville, Iowa.

A dispatch from the Associated Press announces under date of July 18th that the government is about to assume control of the entire medical profession in the United States to obtain sufficient doctors for the fast growing army, and at the same time to distribute those remaining to the localities or services where they are most needed for civilian work.

This mobilization is to be accomplished either by enrolling all doctors in a volunteer service corps, or, if the voluntary plan is not successful, by legislation providing for drafting them into government service.

Medical officers of the government believe compulsory conscription will not be necessary.

Organization plans for the volunteer medical service corps already have been made and enrollment started in a few states under authority of the Council of National Defense.

Instead of enrolling in this corps only those physicians not suitable for military service, either because of age, physical infirmity, dependency, or institutional or public need, as planned at present, the government is expected shortly to throw open the membership of all

doctors and to bind them with a pledge "during the present emergency to accept service, military or civilian, wherever, whenever, and for whatever duty he may be called by the central governing board."

Under this projected plan, the army and navy would take those physicians and surgeons best fitted for active duty, and who can be spared from civilian requirements. At the same time the government would maintain a continuous survey of the country, and assign doctors to those communities in which there are too few practitioners.

Of the 143,000 doctors in the United States, it is estimated between 80,000 and 95,000 are in active practice, and 23,000, or about one-fourth, are in the army or navy.

Nearly 50,000 will be required eventually for the army. The active practitioners remain, together with those who have retired, but who can be persuaded to resume active work, must carry on the health maintenance work in this country.

Surgeon Generals Gorgas of the army, Braisted of the navy and Blue of the public health service are considering a plan for commissioning all teachers in medical schools and assigning them to their present duties. This would constitute a means of preventing further disruption of medical teaching staffs, and at the same time recognize the public services of these men.

The Federal Trade Commission has adopted the following official names for the drugs listed below and recommends that such official names be used in connection with all written articles and advertisements, and if the proprietary brand name is to be used, to place this side by side with the official name:

Arsphenamine for the drug marketed as: Salvarsan, Diarsenol and Arsenobenzol, etc.

Nearsphenamine for the drug marketed as; Neosalvarsan, Neodiarsenol and Novarsenobenzol, etc.

Barbital for the drug marketed as Veronal.

Barbital-Sodium for the durg marketed as Medinal and Veronal-Sodium.

Procaine for the drug marketed as Novocaine.

Procaine Nitrate for the drug marketed as Novocaine Nitrate.

Phenyleinchoninic Acid for the drug marketed as Atophan.

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At its regular meeting, July 9th, the State Board of Health created a Division of Child Conservation and appointed Dr. E. J. Huene-kens, of Minneapolis, as director. Two nurses who are experienced in public health work, have been employed by the Board for field work in this division.

This division will supply an agency for bringing about the permanency which is necessary to make a success of the recent campaign for examining and weighing babies. This movement as recently inaugurated by the National Children's Bureau is not intended to be more than a first step in the permanent campaign for the reduction of infant mortality.

Dr. Huenekens plans to interest local physicians and organizations in starting clinics in the larger communities throughout the state. Such a clinic is already in operation in Little Falls, and the feasibility and practical results which can be obtained have already been demonstrated. The success of this independent movement in Little Falls had much to do with the determination of the Board to undertake the organization of a Division of Child Conservation. It is felt that what has been accomplished in this one instance, can be successfully imitated in every town of 2,500 or more in the entire state.

The existence of such a clinic in any community will bring about the discovery of many babies whose health can be improved by proper suggestions as to feeding and care. Parents will be given an opportunity to secure much valuable education in the proper feeding and care of infants, and many cases will be brought to light which will need the attention of the family physician.

The successful execution of the plans of this division makes the co-operation of the members of the medical profession absolutely essential, both for getting the work under way, and for the proper treatment of the cases which these clinics will bring to light.

The work of this division is to begin at once.

## NEW AND NON-OFFICIAL REMEDIES

During June the following articles were accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

### Cutter Laboratory:

**Antipneumococcic Serum, Type I.**

### Mead, Johnson & Co.:

**Mead's Dextri-Maltose, No. 2.**

**Mead's Dextri-Maltose, No. 3.**

### H. K. Mulford Co.:

**Antipneumococcic Serum, Type I.**

**Antipneumococcic Serum, Polyvalent.**

## NEW AND NON-OFFICIAL REMEDIES.

**Antipneumococcus Serum.**—A serum obtained from horses immunized with virulent pneumococci. Each lot of antipneumococcic serum is submitted by the manufacturer to the U. S. Hygienic Laboratory for potency test. Early massive (from 50 Cc. to 10 Cc.) intravenous doses of a highly potent serum prepared from the type of pneumococcus present in the case to be treated are necessary. The serum used should be obtained from an animal immunized with pneumococci of the type corresponding to that present in the special case under treatment. Thus far Type I serum alone seems to be on reasonably secure clinical grounds.

**Antipneumococcus Serum, Type I, Lederle.**—Marketed in a pressure syringe containing 50 Cc. Schieffelin and Co., New York.

**Antipneumococcic Serum, Type I, P. D. & Co.**—Marketed in a piston syringe containing 50 Cc. Parke, Davis & Co., Detroit, Mich.

**Antipneumococcic Serum, Type I, Squibb.**—Marketed in vials containing 50 Cc. E. R. Squibb & Sons, New York.

**Acid. Phenylcinch.-Morgenstern.**—A brand of phenylcinchoninic acid, U. S. P. It is sold as Tablets Acid. Phenylcinch.-Morgenstern containing 0.5 gm. acid phenylcinch., and as Sodium Phenylcinch.-Water-Morgenstern, a solution of sodium phenylcinchoninate containing sodium bicarbonate and sugar and representing the equivalent of 1 gm. acid phenylcinch.-Morgenstern per fluid ounce.

**Procaine-Rector.**—A brand of procaine complying with the N. N. R. standards. Procaine is the substance which was first introduced as "novocaine." The Rector Chemical Co., Inc., New York.

**Barium Sulphate-Brady for Roentgen Ray Work.**—A brand complying with the N. N. R. standards for barium sulphate for Roentgen ray work. Geo. W. Brady & Co., Chicago. (Jour. A. M. A., June 1, 1918, p. 1599).

**Antipneumococcic Serum, Type I, Cutter.**—Marketed in vials containing 50 Cc. Cutter Laboratory, Berkeley, Cal.

**Antipneumococcic Serum, Type I, Mulford.**—Marketed in double ended vials containing 50 Cc. H. K. Mulford Co., Philadelphia, Pa.

**Antipneumococcic Serum, Polyvalent, Mulford.**—Prepared by immunizing horses with dead and living pneumococci of the three fixed types (Types I, II, III). Marketed in double-ended vials containing 50 Cc. each, with sterile needle and tubing for intravenous injection. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., June 22, 1918, p. 1923).

## PROPAGANDA FOR REFORM.

**Sodium Versus Potassium.**—When the embargo was declared on Germany, the price of potassium salts in this country began to soar. Now steps are being taken for the production of potassium in this country. In the meantime the plentiful sodium salts may, in most cases, be used instead. There is no evidence that potassium salts are superior therapeutically to sodium salts, and they are very much cheaper. Sodium acetate, sodium bicarbonate, sodium bromid, sodium chlorate and sodium hydroxid are among the sodium salts which may with advantage replace the corresponding potassium salts. (Jour. A. M. A., June 1, 1918, p. 1601).

**Misbranded Nostrums.**—The following preparations have been investigated by the federal authorities and their proprietors convicted of misbranding under the Federal Food and Drugs Act: Dr. Swan's Liver and Kidney Remedy, containing alcohol, sugar, glycerin, sodium salicylate, strychnin and some laxative plant drug, with indications of juniper.—Stuart's Calcium Wafers, containing strychnin, despite the claim that it contained no poisonous ingredient.—Turpentine Man's or Tyding's Remedy, a glucose syrup containing potassium iodid, alcohol and traces of salicylic acid, phosphates, calcium and alkaloids.—Henry's Red Gum Compound, containing heroin, chloroform, alcohol, glycerin and sugar.—Athlophoros, a solution of glycerin, sodium salicylate, oil of cinnamon and water.—Dr. Thatcher's Cholera Mixture, containing alcohol, morphin, a laxative drug, sugar and aromatics.—Dr. Thatcher's Amber Injection, containing alcohol, opium and zinc sulphate to which acetic acid had been added.—Abbott Bros. Rheumatic Remedy, containing 24 per cent. alcohol with 5 grains potassium iodid to each teaspoonful with extracts of drugs such as sarsaparilla and dandelion. (Jour. A. M. A., June 1, 1918, p. 1624).

**Orchis Extract.**—A postoffice fraud order has been issued against Fred A. Leach, doing business as the Packers' Product Company, Chicago. The business which the postoffice has declared a fraud consisted in the sale of Orchis Extract, claimed to be a remedy for lost sexual powers, etc. The federal chemists found that Orchis Extract tablets consisted of milk sugar, orchitic animal tissue, and agents

used in compressing the tablets. (Jour. A. M. A., June 8, 1918, p. 1786).

**Care in Administering Arsphenamine.**—More than the ordinary severe reactions from arsphenamine have been reported lately; hence there is need of special care at the present time in the administration of arsphenamine. The question may justly be raised if it is wise to repeat the administration at very short intervals. There also are indications to suggest the wisdom of beginning with small doses. Also, while heat may be used in dissolving the arsenobenzol brand of arsphenamine, it should be avoided in the case of the other brands which are readily soluble in water. (Jour. A. M. A., June 15, 1918, p. 1867).

**Cotarnin Hydrochlorid.**—P. J. Hanzlik reports that while the description of the actions and uses of cotarnin hydrochlorid given in New and Non-Official Remedies tentatively accepts certain current statements in the absence of definite published data, experiments with animals carried out by him demonstrate that the drug is devoid of hemostatic action. He holds that cotarnin hydrochlorid is entirely worthless as a local aemostatic. (Jour. A. M. A., June 15, 1918, p. 1883).

**Several "Mixed" Vaccines not Admitted to N. N. R.**—The Council on Pharmacy and Chemistry publishes a report announcing the rejection of a number of "mixed" vaccines. In publishing its report the Council explains its attitude toward this class of products: In view of the rapid development of bacterial therapy, the possibility for harm that attends the use of bacterial vaccines and the skepticism among experienced clinicians as to the value of vaccines representing a combination of organisms, the Council has felt that it should scrutinize the claims for such agents with exceptional care and admit to New and Non-official Remedies only those vaccine mixtures for which there is acceptable evidence to indicate that the particular mixture is rational. Experienced clinicians have generally come to the conclusion that mixed vaccines have no specific action and that any effect they may produce is due to a non-specific protein reaction. The preparations rejected in the accompanying reports are only a few of the many that are being sold by some biological houses. The report explains in detail the considerations which led to the rejection of the following preparations, all of which were considered because of inquiry received. 1. The Abbott Laboratories: M. Cattarrhalis-Combined-Bacterin, B. Coli-Combined-Bacterin, Pertussis-Combined-Bacterin, Streptococcus-Rheumaticus-Combined-Bacterin and Streptococcus-Viridans-Combined-Bacterin. 2. Eli Lilly and Company: Catarrhal Vaccine Combined and Influenza Vaccine Combined. 3. H. K. Mulford Company: Influenza Serobacterin Mixed. 4. G. H. Sherman: Sherman's Mixed Vaccine No. 40. (Jour. A. M. A., June 22, 1918, p. 1967).

**Micrococcus Neoformans Vaccine.**—This was admitted to New and Non-Official Remedies in 1910

since at that time it gave some promise of therapeutic value. It has now been omitted because at the present time there is no evidence that the vaccine is of the slightest value and because its lack of value is demonstrated by the fact that during these years it has not made a recognized place for itself in therapeutics. The available information indicates that the micrococcus neoformans does not differ materially from ordinary skin cocci which are described in New and Non-Official Remedies under staphylococcus vaccine. (Reports of the Council on Pharmacy and Chemistry, 1917, p. 152).

**NuTone.**—This "nutritive tonic" is said to have the following complex composition: Cod Liver Oil, Pure Norwegian, 25 per cent., Malt Extract, 9 1/3 per cent., Beef Juice, Glycerine, Hypophosphite Lime, Hypophosphite Soda, Chemically pure, 1 1/2 grs. each to the oz., Fl. Ext. Nux Vomica, 3/64 of a minim in each teaspoonful. It is advertised with claims that will lead thoughtless physicians and a confiding public to depend on it in cases in which fresh air, hygienic surroundings and nutritious food are prime importance. Adults are to take this preparation as a "nutritive" in doses which represent from 3 to 12 grains of sugar and 8 to 30 minims of cod liver oil with unstated, but probably equally small, amounts of beef juice. The Council on Pharmacy and Chemistry declared NuTone inadmissible to New and Non-Official Remedies because it is an irrational, shotgun mixture advertised indirectly to the public with unwarranted therapeutic claims and a non-descriptive therapeutically suggestive name. (Reports of the Council on Pharmacy and Chemistry, 1917, p. 154).

**Unctol.**—This is a paste stated by the R. R. Rogers Chemical Co., San Francisco, Cal., to contain approximately 40 per cent. metallic mercury in a soap base. It is sold as a substitute for mercurial ointment with the claim that it is more efficacious. The Council on Pharmacy and Chemistry declared Unctol inadmissible to New and Non-Official Remedies because the claim for superiority over mercurial ointment is not substantiated and constitutes an unwarranted therapeutic claim; the name does not indicate the composition of this pharmaceutical mixture and because the circular wrapped with the trade package advertises proprietary preparations not accepted by the Council. (Reports of the Council on Pharmacy and Chemistry, 1917, p. 162).

**V-E-M Products.**—The Schoonmaker Laboratories, Inc., New York, market V-E-M Unguentum Eucalyptol Compound, V-E-M with Ichthyo!, V-E-M with Stearate of Zinc, V-E-M with Camphor, V-E-M with Boric Acid. The Council on Pharmacy and Chemistry declared these preparations in conflict with its rules because unwarranted therapeutic claims were made for them; because the public was advised to depend on them in the treatment of diseases and because these combinations of ingredients in fixed proportions under proprietary names are irrational. (Reports of the Council on Pharmacy and Chemistry, 1917, p. 163).

## REPORTS AND ANNOUNCEMENTS OF SOCIETIES

### THE WABASHA COUNTY MEDICAL SOCIETY.

The 50th annual meeting of the Wabasha County Medical Society was held in Lake City on Thursday, July 11. The society convened at the City Hall at 11 A. M., with the following physicians in attendance: Dr. Thomas McDavitt, St. Paul, Secretary of the State Medical Association; Dr. J. H. Simons, of Minneapolis; Drs. M. J. Shaughnessy, D. S. Fleischhauer, and L. E. Sutton, of Wabasha; Drs. Cremer and Claydon, of Red Wing; Dr. E. A. French, of Plainview; Dr. A. A. Rankin, of Zumbro Falls, and Dr. R. C. Radabaugh, of Mazeppa, in addition to the local physicians.

In the absence of the president, Lieut. W. F. Bleifuss of Elgin, who is absent in military service, Dr. E. H. Bayley was chosen president pro tem. The usual routine of business was transacted. The following officers were elected for the ensuing year: Dr. E. H. Bayley, President; Dr. J. A. Slocumb, Vice President; Dr. W. F. Wilson, Secretary-Treasurer; Dr. M. J. Shaughnessy, Delegate to State Association; Dr. W. J. Cochrane, Censor for 3 years.

On invitation of Dr. Radabaugh, the society voted to meet next July at Mazeppa; and the matter of arranging for a joint meeting to be held with the Goodhue County Society in October of this year, was left to the Secretary.

Letters were read from members of the society who are in military service, viz.: Major W. B. Heagerty, who is now thought to be in Europe, and Lieut. W. F. Bleifuss now at Fort McHenry, Md., who expects to go across before winter.

Under the heading of "Medical Mobilization in this County," Dr. McDavitt of St. Paul made a few remarks stating that it was the desire of the officers of the state and national medical associations to have every physician in the country enrolled at Washington; to be called upon whenever and wherever needed, either in active military duty, as assistant in some military hospital, substitute for some physician who left his practice to enter the medical reserve corps, or to look after the civilian practice in places poorly supplied with doctors; in short, a redistribution of the medical profession to meet present needs. Blanks were distributed for this enrollment.

The Secretary read a "Five Minute Historical Sketch" of the society which follows:

"The Wabasha County Medical Society was organized in 1869. A meeting was held that year in Lake City, and counting that as the first meeting, this would be the 50th annual meeting, although of course, this society will not have completed fifty full years of its life until next year. Copy of the minutes of this first meeting, after organization.

"The Wabasha County Medical Society met at the call of the President and listened to an able address

entitled 'Why Should Doctors Disagree,' by the President, F. H. Milligan. A motion to print the address was unanimously carried. On motion Dr. S. Willey of St. Paul, Dr. G. R. Patton of Cincinnati, Ohio, and Dr. S. H. Garrard of Frontenac were elected honorary members of the society.

"Drs. Waste and Teft of Plainview, were elected as active members when they shall have signed the constitution and paid their membership fee.

"Dr. Milligan was appointed as a committee with discretionary power to confer with the County Board.

"Drs. Murray of Lake City, Wells of Wabasha and Teft of Plainview were elected delegates to State Medical Society, which meets in St. Paul, February 2, 1870. Adjourned."

In those early days, membership was not limited to the profession of Wabasha county, but included doctors in Wisconsin (Dr. Axtell of Pepin was an early member), and such men as the Mayos, Dr. Staples of Winona, Dr. Hewitt of Red Wing, Dr. McDavitt of St. Paul, and others.

During that period, Drs. Milligan and Lincoln of Wabasha, Adams and Patton of Lake City, Teft and Waste of Plainview, and Adams of Elgin were among the leading spirits in this organization, and I doubt not the influence of the society was felt in the medical councils of the state. Many papers have been contributed to medical journals by members of this society. The records all along show that this society counselled and upheld a high standard of medical ethics.

In 1903 at Elgin, we reorganized to affiliate with the State Medical Association, adopted the constitution outlined for component societies, and received a charter from the State Association. This action automatically limited our active membership to practitioners in the county.

On March 10, 1906, this society tendered a banquet to Dr. J. C. Adams of Lake City on his 75th birthday, and he was presented with a gold-headed cane from his medical friends.

In 1910 at Millville, the first steps were taken by this society toward securing a tuberculosis sanitarium for this county, which culminated in the establishment of the Buena Vista Sanatorium at Wabasha.

Early in its history, the society adopted a county fee bill, but it long ago became obsolete, and so far as I know, all copies have been lost; and it was not until last year that an up-to-date fee schedule was adopted, and under present conditions, it looks as if this one should soon become as obsolete as the other.

On May 19, 1917, there was a special meeting held in Lake City, which probably will prove to be the most notable of all, a meeting for the purpose of encouraging the eligible members to enlist in the Medical Reserve Corps. Four of our members enlisted in the service, and it is probable that more of our number will soon offer their services. Before we meet next year, we may have names adorning our country's hero page, and it is not unlikely, we may be sadly touched by the casualty list."

The society then adjourned to the hospital where an appropriate and tasteful dinner was served by the Superintendent, Miss E. M. LaVerney, assisted by the corps of nurses. After dinner the scientific programme was taken up as follows:

"The Etiology of Genital Prolapse," Dr. J. H. Simons, Minneapolis.

"Observations this Summer at the Boston Clinics," Dr. M. J. Shaughnessy, Wabasha.

"Circumcision, Male and Female," Dr. G. Schmidt, Lake City.

"Regimental Infirmary in Depot Brigade," Dr. D. S. Fleischhauer, Wabasha.

A vote of thanks was heartily tendered to all those who had a part in these exercises, and entertainment of the society; especially to the members belonging to the medical Reserve Corps who afforded the society their interesting letters; to Dr. J. H. Simons of the medical faculty of the University of Minnesota, for his able address, and to Miss LaVerney and assistants for providing so agreeably for the social session. After which the meeting adjourned.

W. F. WILSON, Secretary.

#### SIoux VALLEY MEDICAL ASSOCIATION.

The Twenty-Third Annual Session of the Sioux Valley Medical Association was held at Sioux Falls, S. D., Wednesday, July 24, 1918. The scientific program was as follows: "Hay Fever and Asthma," Dr. J. G. Parsons, Sioux Falls, S. D. "The Artificial Anus as a Life Saver," Dr. F. S. Hough, Sibley, Iowa. "A Few Facts in Regard to Modern X-Ray Therapy," Dr. R. F. Bellaire, Sioux City, Iowa. "Treatment of Syphilis," Dr. E. W. Meis, Sioux City, Iowa. "John Smith," Dr. C. E. McCauley, Aberdeen, S. D. "Observations from Two Hundred and Fifty Autopsies at Camp Dodge, Iowa," Major Daniel J. Glomset, Camp Dodge, Iowa. "Shall Operation for Hypertrophy of the Prostate Be Done in Two Stages?" Dr. Franklin R. Wright, Minneapolis, Minn. "Some Practical Considerations in Diagnosis of Diseases of the Skin," Dr. J. F. Auner, Des Moines, Iowa. "Some Aspects of Anaphylaxis," Dr. Evan S. Evans, Grinnell, Iowa.

## CORRESPONDENCE

### THE NEED OF INSTRUMENTS IN FRANCE AND BELGIUM.

Duluth, Minn., July 17, 1918.

To the Secretary of the State Association,

St. Paul, Minn.

Dear Doctor McDavitt:

I enclose an abridged copy of a letter received some time ago from Dr. Keen; it needs no explanation. I have been slowly collecting some odds and ends in the instrument line for Dr. Keen's collection. If by the end of August the exhibit has become

worthy enough, possibly I may feature it at the State meeting with the sanction of the St. Louis County Medical Society. It has occurred to me that when the State meeting programs are sent out a small separate slip might be enclosed which would call attention to the matter, and give the visiting members an opportunity to slip three or four knives and artery forceps in their pockets when they start for Duluth. It would please Dr. Keen and certainly be a start toward helping out our needy colleagues in France and Belgium. Most of us are willing, but have only a few things to spare, so that it hardly seems worth while to send on only a very few instruments. Here, however, is an opportunity to drop a few instruments in a box which we shall send by freight.

Very truly yours,

J. M. Robinson.

### PROCAINE AND NOVOCAINE IDENTICAL.

To the Editor:

It appears that in certain quarters the attitude is taken that the local anesthetic sold as Procaine is not identical with that marketed as Novocaine. The Subcommittee on Synthetic Drugs of the National Research Council believes it important that this misunderstanding should be corrected and hence offers the following explanation:

The monohydrochloride of para-amino-benzoyldiethyl-amino-ethanol, which was formerly made in Germany by the Farbwerke vorm. Meister, Lucius and Bruening, Hoechst A. M., and sold under the trademarked name Novocaine, is now manufactured in the United States. Under the provisions of the Trading with the Enemy Act, the Federal Trade Commission has taken over the patent that gave monopoly for the manufacture and sale of the local anesthetic to the German corporation, and has issued licenses to American concerns for the manufacture of the product. This license makes it a condition that the product first introduced under the proprietary name "Novocaine" shall be called Procaine, and that it shall in every way be the same as the article formerly obtained from Germany. To insure this identity with the German Novocaine, the Federal Trade Commission has submitted the product of each firm licensed to the A. M. A. Chemical Laboratory to establish its chemical identity and purity, and to the Cornell pharmacologist, Dr. R. A. Hatcher, to determine that it was not unduly toxic.

So far, the following firms have been licensed to manufacture and sell Procaine:

The Abbott Laboratories, Ravenwood, Chicago.

Farbwerke-Hoechst Company, New York, N. Y.

Rector Chemical Co., Inc., New York, N. Y.

Calco Chemical Company, Bound Brook, N. J.

Of these, the first three firms are offering their products for sale at this time, and have secured their admission to New and Non-official Remedies as brands of Procaine which comply with the New and Non-official Remedies standards.



While all firms are required to sell their product under the official name "Procaine," the Farbwerke-Hoechst Company is permitted to use the trade designation "Novocaine" in addition, since it holds the right to this designation by virtue of trade-mark registration.

In conclusion: Procaine is identical with the substance first introduced as Novocaine. In the interest of rational nomenclature, the first term should be used in prescriptions and scientific contributions. If it is deemed necessary to designate the product of a particular firm, this may be done by writing Procaine-Abbott, Procaine-Rector, or Procaine-Farbwerke (or Procaine [Novocaine brand]).

Yours truly,

JULIUS STIEGLITZ, Chairman,  
Subcommittee on Synthetic Drugs,  
National Research Council.

## PROGRESS IN MEDICINE AND SURGERY

**SPINA BIFIDA OCCULTA:** Brickner (Amer. Jour. Med. Sci., Vol. CLV, No. IV) reports a series of cases of spina bifida with five cases operated. He divides spina bifida occulta into four clinical groups:

- (1) With external signs, with symptoms;
- (2) With external signs, without symptoms;
- (3) Without external signs, with symptoms;
- (4) Without external signs, without symptoms.

Externally, this condition may manifest itself by a distinct hypertrichosis over the cleft, less often by a congenital lipoma, by a nevus, telanglectasis or a scar. It is usually located in the lumbosacral region but may often occur even in the dorsal and cervical regions. The congenital lipoma associated with spina bifida occulta is not freely movable, somewhat attached to the underlying aponeurosis, and usually circular in outline. It is not encapsulated and finely lobulated. The clinical symptoms usually appear during adolescence and they may develop during childhood, but can remain absent till middle life. The commonest are urinary incontinence, sensory or motor paralysis, reflex changes, trophic ulcers and gangrene. Roentgenograms should be taken in every suspected case. The presence of a lipoma often prevents definite findings on palpation.

Although the surgical results have not been brilliant, Brickner believes that every case with symptoms should be operated with the hope of improving the condition or at least preventing further progress. Those cases in which there is a hernia of the spinal roots probably offer the best chance for a good result. The reduction of the hernia will relieve the contained nerve roots of traction and pressure.

E. M. HAMMES.

**ACUTE LOBAR PNEUMONIA:** F. C. Shattuck and C. H. Lawrence (The Boston Med. and Surg. Jour., Vol. CLXXVIII, No. 8) report that in the four thousand odd cases of lobar pneumonia treated at the Massachusetts General Hospital, from 1822 to 1917 (inclusive), the mortality has gradually increased from 10 per cent in the first decade to 28 per cent at the present time.

Since 1881 there has been no significant change in the death rate.

The number of cases classed as delicate or intemperate has been decreasing during the same period.

The apparent increase in complicated cases is probably due to increased accuracy of diagnosis and recording.

The relative number of foreign-born patients is increasing, the mortality among them diminishing.

The death rate among American-born patients has increased slightly, as has the mortality among men as compared to women. This may be due to a corresponding increase in vascular diseases during the period studied.

The mortality rate for pneumonia in the entire series has shown no permanent important change.

Treatment has done nothing toward diminishing the mortality from pneumonia in the past ninety-five years. Bleeding, purging, fresh air—the result has been the same. Of particular interest is the evidence offered upon the effect of alcohol. Its habitual use, during health, in more than moderate amounts, is shown to diminish the patient's chances of recovery. But the mortality rate among those patients who were given large amounts of alcohol during their illness, is no higher than among those given no alcohol and large amounts of fresh air. The writers' figures do not indicate that alcohol is harmful to those sick with pneumonia. They suggest that the effect of the drug varies with the conditions under which it is given, and that it is not poisonous to those who have high temperatures and are taking insufficient nourishment.

No change is to be expected in the results of treatment until a specific is discovered which will neutralize the toxins of the pneumococcus.

The results from the serum now in use are encouraging but limited, and until its use becomes accepted, the treatment of pneumonia must be that best suited to the individual. No routine treatment has been justified by its results.

E. T. F. RICHARDS.

**SUTURELESS SKIN SLIDING METHOD FOR THE RADICAL TREATMENT OF LUNG ABSCESS AND CHRONIC OSTEOMYELITIS:** Emil G. Beck (Surg., Gyn. and Obs., Vol. XXVI, No. 3) considers the treatment of chronic suppurations of bones and joints and the chest cavity. The suggestions in this article are based on an experience gained in treating several thousand cases of chronic suppuration. Beck believes this treatment would be very effective in war injuries. Nearly all of the war wounds are

infected from the very moment the missile penetrates the tissues. Guillot and Woimant, who recently published their experiences with infected fractures in the French base hospitals, state that probably 50 per cent. of all fractures of the thigh still suppurate after ten months' treatment.

The author divides the subject into two parts: 1. The treatment of chronic empyema and lung abscess after prolonged suppuration. 2. The treatment of chronic suppuration resulting from bone infection.

In order to arrive at a rational and consistent treatment of chronic suppuration of the lungs and pleura, we must first ascertain in each case the etiology and pathology. The diagnosis of empyema is a rather simple matter. It must be differentiated principally from a serous effusion and from a lung abscess. Quite different and difficult is the diagnosis of lung abscess. A patient may be ill for weeks or months, carrying an abscess in his lung without its detection by the most painstaking search of the ablest diagnostician. Even repeated puncture may fail to reveal its presence.

Beck regards the stereoroentgenogram of the entire chest as the most helpful aid in the diagnosis of lung abscess. When the lung abscess once ruptures into a bronchus the diagnosis is as a rule easy.

Some lung abscesses do not have any odor but the patient will give a history of spitting up a cupful of matter. In these cases it is hard to localize the abscess, as the abscess sac is collapsed and it never fills sufficiently to give a distinct shadow in the roentgenogram or a large enough area of dullness to make out by percussion.

In treating empyema, the author emphasizes the fact that drainage should be established as low as possible and preferably posterior. When there is no tendency to spontaneous closure the problem becomes a very difficult one.

Before attempting operative measures, Beck advocates the use of bismuth paste and points out that repeated injections during several months are often necessary. When the discharge continues to be purulent, more radical surgical procedure should be considered. Beck feels that a cavity holding more than 200 grams is less likely to heal by bismuth injections. During the past 7 years Beck has employed a surgical procedure in these cases, which is far less dangerous and he thinks more effective than the Estlander or similar operations.

Before making the incision, a catheter is introduced into the existing sinus and kept there as a guide during the first part of the operation. The skin incision varies according to the location of the abscess or empyema. He uses a Y-shape, X-shape and trap-door incision. These incisions furnish one or more flaps of skin of various lengths which are intended for implantation into the lung abscess after it has been exposed. After exposing the abscess, the cavity is swabbed with dry gauze, or a mild curettage is done for the purpose of producing a favorable condition for the adhesion of the skin flap. The tips of the skin flaps are drawn into the very deep-

est recesses by means of forceps. Gauze is packed tightly against them. No sutures are used. When bronchi communicate with the cavity, the actual cautery is used to destroy the mucous membrane and thus insure complete obliteration of the opening.

The gauze pack is removed in 48 hours and care must be used that the flaps will not be dislodged during this process. No irrigation or medication is necessary, merely careful packing. The reduction of the size of the cavity is not due to filling of granulation tissue but to the expansion of the underlying lung.

The author has had good results in treating chronic suppurative osteomyelitis in 35 cases during the past 5 years. In these cases he advocates the use of the bismuth paste in order to save the patient an operation if possible. Sequestra must not be allowed to remain in bone cavities, otherwise the bismuth treatment will not be effective. The injection of bismuth paste in these cases is most essential in the diagnosis. Beck condemns the probe. Curettage of bony cavities without ocular inspection is inefficient. In operating upon these cases, the diseased bone is thoroughly curetted or chiseled away. Thus one has a deep groove, and this must be converted into a very shallow one or even into a flat surface by cutting away a sufficient quantity of healthy bone on either side sufficiently large to cover almost the entire denuded bone surface, care being taken, however, that no subcutaneous fat is carried with it. The flaps are then shifted into the depth of the cavity and retained there by packing gauze against them.

It is not necessary that every part of the bone cavity be covered as the skin will grow from the edges of the flaps until every portion of the raw bone surface is covered with true skin.

This method of skin sliding was used in osteomyelitis of the femur, tibia, in hip joint disease, in knee joint disease, in the removal of the os calcis and of the metacarpal bones in osteomyelitis of the ribs and sternum and in other cases, including infected fractures and other injuries.

E. M. JONES.

**FIVE YEARS EXPERIENCE WITH IRIDOTASIS:** David Harrower (Arch. of Ophthalmology, Vol. XLVII, No. 1) reports his results in a series of twenty-three cases both for the relief of pain and improvement of vision in eyes where vision was still manifest in chronic glaucoma.

The author followed closely the technic which Borthen described in 1911 for the operation of iridotaxis in lieu of trephining and the other operations for the relief of glaucoma: namely, one drop of a 1 per cent. solution of atropin is instilled fifteen minutes before operation, followed by 4 per cent. solution of cocaine every few minutes for ten minutes before operation; the conjunctiva is grasped 10 mm. from the limbus and an incision 10-12 mm. is made parallel with the

corneal line. The whole conjunctival tissue should be included down to the sclera-corneal junction, care being taken not to button-hole. If conjunctiva is punctured a new field should be selected. With the eye fixed, the patient looks down and an incision 4 mm. wide is made behind the corneal margin. With forceps the pupillary margin of the iris is withdrawn into the opening in the sclera. The conjunctiva is smoothed and the operation is completed.

It is imperative that the conjunctival tissue be included down to the sclera, and according to Borthen, the iris should be stretched, as the traction on the iris draws the pupil from the centre and the increased drawing through Fontanna's spaces plays the important role.

Harrower believes the importance is in a properly protected infiltration bleb formed with the largest amount of conjunctival tissue.

In cases reported, by the operation the tension has fallen as low as 10 mm. and the vision greatly improved.

Reviewer's Note.—As in Elliot's trephine operation for glaucoma late infections have occurred, so, too, reports are now recorded of late infections following iridotaxis due to the formation of an insufficiently firm cicatrix and too large an incision made at the sclera-corneal margin with an insufficient amount of iris withdrawn to close the opening.

GEORGE C. DITTMAN.

**DEEP PALMAR HAND INFECTIONS:** Howard L. Beye (Ann. of Surg., Vol. LXVII, No. 20) believes infection deep in the hand may be localized in one or more definite anatomical positions by, first, the local areas of tenderness; second, the pain elicited by passive movements of the fingers and hand; third, the history or presence of a wound which is probably the initial source of the infection.

Tenderness will vary greatly, depending upon the acuteness of the infection—usually being very marked in the rapidly spreading virulent types, and may be insignificant in those produced by organisms of low grade virulence.

Characteristic is the position in which an infected hand is carried. It is with the fingers and thumb partially flexed at all the joints, and with the hand partially flexed at the wrist. This allows of the greatest relaxation of the muscles, and the least amount of tension between the tendons and their sheaths.

Increase of the partial flexion of the fingers will cause some pain, but extension is the movement which elicits the greatest amount, because it puts all the structures of the palm under tension. Each finger and the thumb must be examined separately, methodically, and, if necessary, repeatedly, in order to determine accurately the relation of movements of the digits to pain.

Edema is usually limited to the back of the hand and is often so marked that the outlines of the knuckles are lost. Redness of this area is also pres-

ent, and these two evidences of local inflammation are responsible for numberless incisions on the dorsum of the hand in cases in which not a drop of pus is present except in the palm. In marked contrast to the edema and redness of the back of the hand is the relative absence of tenderness over this area.

If there is a doubt in the mind of the surgeon as to whether infection is present in a certain space, it is safer to explore that space than to wait to see what is going to happen. Especially is this true if one is dealing with an acute infection. If an exploration is made of a space in the hand, and no pus is found, the chance for carrying infection into the space by the operative procedure is relatively slight. If a space is watched for several hours, and it already contains pus, considerable damage may be done during the delay.

A general anesthetic should be given in the vast majority of cases, because complete relaxation is essential to careful work, and ether is by all odds the anesthetic of choice. Nitrous oxide and oxygen may be given satisfactorily by a skillful anesthetist.

A constrictor should be used unless there is a contra-indication to its use. It allows of careful scrutiny of the blood-free tissues and the detection of small amounts of pus which might be easily overlooked. Its use is contra-indicated if there is a lymphangitis which extends up as high as the elbow or above. The most common complication attributable to its use is a thrombophlebitis of the superficial veins of the forearm.

After Treatment: Hot, moist dressings are usually discontinued after forty-eight hours and are replaced by plain gauze dressings spread thinly with sterile vaseline to prevent injury of the granulations. In applying the bandage to the dressing the unincised digits should be left free so as to allow active and passive movement of them, as well as giving the patient more comfort. The drainage material is removed also at the end of forty-eight hours, for if the incisions have been ample there will be sufficient drainage through them from now on. Particularly in the infections of the radial and ulnar bursae it is desirable to remove the drains just as soon as possible, so as to obviate any danger of injury to the synovial lining of the tendons by pressure from the drains.

Beginning on the third day, the hand is soaked every day for fifteen minutes in a hot bath to which is added tincture of iodine. At first just enough of the latter is added to color the water, and each day more is added so as to make the soaking more stimulating to the granulating areas. As early as the third day, while the hand is soaking in the hot iodine solution, passive motion of the fingers is very gently begun and the patient is encouraged to attempt active motion. This is continued each day, more and more force being used, but always being careful not to do more harm than good by excessive injury to the granulation tissue. In infection of the ulnar and radial bursae, early mobility of the second, third and fourth fingers must be worked for, for the fingers are

often annoyingly stiff, due to long continued immobilization as well as the inflammation of the bursae.

It should be emphasized that an infected hand which has been drained should be examined carefully each day in order to make sure that all of the infected areas have been opened and that the drainage has been ample. If an infected area has been sufficiently drained, tenderness should no longer be present over that area. If tenderness develops over a space which has not been drained, involvement of that space must be at once suspected. The pulse, temperature and leucocyte count are valuable adjuncts as they are in infection in any part of the body. But in an old, neglected hand infection, pus may be present or may even spread to involve a new area without variation in the pulse, temperature or leucocytes giving a clue.

GEORGE EARL.

**DIATAXIA CEREBRALIS INFANTILIS.** The Ataxic Type of Cerebral Birth Palsy: Hunt (American Journal Medical Sciences, Vol. CLV, No. IV), gives a most interesting discussion of the various types of cerebral palsies. The common clinical type is the spastic form and usually spoken of as Little's Disease. It may involve either one or all extremities and may be associated with ataxia, tremor, athetosis, mental defect or epilepsy. This condition was first described by Little in 1862. Förster in 1909 described a type which he termed the atonic-astasic type. This group is characterized by flaccid motor paralysis associated with difficulty in articulation and a marked mental defect. In 1913 Pierce Clark reported a similar condition and on clinical grounds only believed the lesion to be a combined one involving both the cerebrum and the cerebellum.

Batten described a congenital cerebellar ataxic type with decided tendency toward recovery. There is little or no mental defect and clinically the main symptom is ataxia of the cerebellar type.

Hunt, in this article, calls attention to the ataxic type of cerebral origin. There is neither paralysis nor spasticity and the ataxia may be regarded as the sensory equivalent of cerebral diplegia. The vascular lesion is probably situated behind the fissure of Rolando in the sensory sphere of the cortex, thus implicating the centers and commissural systems which are engaged in the reception and transmission of the memories of movement. He reports three cases of this type.

E. M. HAMMES.

**SARCOMATOUS DEGENERATION OF UTERINE FIBROIDS.** Report of two cases: H. W. Mills (Interstate Medical Journal, Vol. XXV, No. 3), states that his reason for writing on this subject was a statement in an article by Dr. S. M. Bones in July, 1917, to the effect that "Sarcoma as a complication of uterine fibroids has been reported, but is so rare that it need

not be given further consideration." Mills states that, like many others, he has been content with a cursory microscopic examination of fibroids removed by hysterectomy and has only submitted to microscopic examination those specimens which, to the naked eye, appeared suspicious.

The fallacy of opinion based on such cursory examination is exemplified by the reports of Winter, who found a percentage of 3.2% only in the former class in a series of 500 cases, but discovered in a further series of 253 cases that the proportion rose to 4.3%.

Professor R. Peterson, of the University of Michigan, found 21 cases of sarcoma in an examination of 6,084 cases of pelvic pathology and 18 of these resulted from degeneration of uterine fibroids. He points out that this degeneration may occur:

1. By proliferation of the intermuscular tissue.
2. By proliferation of the connective tissue of the vessel walls.
3. By direct changes in nonstriated muscle cells.

He labors the necessity of early operation and systematic examination of all fibroids.

W. A. Neuman Dorland, 1916, quotes Giles to the effect that sarcomatous degeneration occurs frequently and that the diagnosis cannot be made before operation and gives the following list of authors, with the percentages in which they found this sequale, attached.

W. J. Mayo, 1½%; Miller, 2%; Warnekros, 10%; Bland Sutton, only 1 in 1,000 cases; Pfannenstiel, none in 1,000 cases; Mackenrodt, 4%; Geist, 4.8% in 250 cases; Deaver, 1.2% in 342 cases; Noble, 2%; Martin, Cullingworth, Scharlieb, Haultain, McDonald and Hirst, 2% in 1,714 cases.

Mills reports two cases. One is that of a woman 68 years of age who had a sarcomatous degeneration of a submucous fibroid of the uterus. Death occurred five months after operation from a generalized abdominal sarcomatosis. The second case was a woman 48 years of age, on whom a supravaginal hysterectomy was done February 24th, 1916. Microscopic examination showed a sarcomatous degeneration of a uterine fibroid. On Dec. 7th, 1917, the patient was examined and found to be well and free from evidence of recurrence.

E. M. JONES.

**A STUDY OF ANTE-OPERATIVE AND POST-OPERATIVE BLOOD COUNTS IN NON-INFECTIVE SURGICAL CONDITIONS:** Frank L. Meleny (Annals of Surgery, Vol. LXVII, No. 20) reports on 51 cases studied in the wards of the Presbyterian Hospital. These cases were chosen at random, the only cases not accepted in the series being those in which an acute infection was present before operation or a marked infection expected after it.

In each case the following data were obtained: The age, sex, and type of individual; the character, length and severity of the operation; the degree of trauma of the tissues and the number of foreign bodies introduced; the estimated blood and other

body fluids lost by sweating and vomiting (in some cases also the fluid intake and urinary output); the method and kind of anaesthetic and the length of anaesthesia; and the general condition of the patient as indicated by appearance, respiration and pulse during the anaesthetic. In the post-operative course of the patient, notes were made on the condition of the wound found at dressings. Also the maximum and minimum temperatures for each day were charted as long as the blood counting was continued. Individual charts were made and curves plotted for the total white and red cell counts and the per cent. of polynuclears.

An ante-operative (A. O.) count was made on the afternoon before the morning operation (in a very few cases just before operation). A second count was made on the afternoon of the day of operation, approximately six hours post-operation (P. O.). Another count was made every afternoon following until it returned either to normal or to the initial count. In making averages, those cases which fell to normal before the twelfth day were considered to maintain their final count until that day.

In all of the 51 cases a daily white cell count was made. In 39 a daily differential count was made. In 26 the red cells were counted A. O. and P. O., and on alternate days thereafter.

His conclusions were:

1. In surgical cases undergoing operation without infection, the white cells increase in number, and about six hours after operation have more than doubled.
2. The response is due almost entirely to the outpouring of polymorphonuclear cells.
3. There is a trivial rise in red cells after operation, but in the subsequent ten days this is followed by a progressive anaemia with an average loss of about one-half million cells per c. mm.
4. The white cell count may be expected to fall rapidly in clean cases and reach normal on the fourth day. In infected or contaminated cases it will fall much more slowly.
5. Infection and contamination have nothing to do with the initial rise, but on the second or third day after operation they will tend to keep the count high.
6. Other things being equal, the count will be higher in those cases in which there are severe trauma to the tissues, many sutures and ligatures used, considerable loss of blood and long anaesthesia, especially with ether.
7. Normal individuals will produce a higher leucocytosis than abnormal types.

GEORGE EARL.

#### THE NERVOUS SYMPTOMS OF POLYCYTHEMIA VERA:

Henry A. Christian (Am. Jour. Med. Sc., Oct., 1917) thinks it is worth while to emphasize the nervous symptoms presented by these patients, because failure to keep them in mind has led,

in some instances, to cerebral operations with the idea that the symptoms were the result of brain tumor.

Furthermore, he warns that sometimes these patients may be neither abnormally blue nor red, but pale.

The most frequent nervous symptoms are: vertigo, fullness in the head, headache, pain and prickling sensations in the extremities, ringing in the ears, loss of consciousness, thickness of speech, staggering gait, blurring of vision, etc.

He reports ten cases which have come under his personal observation—all but two showed nervous symptoms, and in most cases the nervous disturbances were the chief cause of the patients' symptoms.

Headache and dizziness were the most frequent. Other common symptoms were disturbances of vision, such as easily induced fatigue of the eyes, blurring of vision, scotomata often scintillating, transient blindness, hemianopsia and diplopia, paresthesias and paralyses.

Autopsy findings in a number of these cases showed cerebral thromboses and hemorrhage to account for the symptoms in some cases and areas of cerebral softening with no thrombosis in other cases. Half the cases failed to show color in the skin to suggest the diagnosis and all the cases were over 50 on admission. In the earlier stages such nervous symptoms probably result from simple circulatory disturbances—in the later stages cerebral softening or hemorrhage and local vascular lesions such as thrombosis are found.

Case 4 is interesting enough to include in this abstract. Male age 55; recurring headache for 20 years. For 10 years eye symptoms consisting of fatigue and poor vision, scintillating scotomata and blind spots in field of vision. For 6 years recurring sensations of tingling in left arm and leg, causing wrist drop, and one month before admission sudden complete paralysis left arm—lasting 24 hours. Ten days before admission severe headache and paresis left side of body. Left arm became weak and muscles twitched. Three days ago left side of face became weak and complete loss of motion in left arm. Two days ago left leg weak and speech difficult and marked photophobia.

These symptoms, together with the confirmatory neurological findings and the detection of homonymous hemianopsia and edema and hyperemia of the optic disks suggested the probability of brain tumor, in spite of a cyanosis of ears, fingers and mucous membranes and a haemoglobin of 180 per cent. and a red count of 6,960,000. He died following a cerebral decompression. Autopsy findings showed bilateral thrombosis of the cerebral arteries with areas of cortical degeneration in both cerebri; mural thrombosis of the aorta, thrombosis of the coronary arteries, infarcts in the heart and spleen splenomegaly.

C. N. HENSEL.

**CLINICAL OBSERVATIONS ON SO-CALLED LA GRIPPE:** B. M. Randolph (N. Y. Med. Jour., Feb. 17, 1917) discusses an epidemic with the following clinical characteristics: sudden onset, fever, muscular and neuralgic pains, depression, and usually, exudative inflammation of some portion of the respiratory tract. Twenty-two cases were studied by bacteriological control.

In not a single case was the Pfeiffer bacillus, the supposed causative agent of influenza, found; but in every case the streptococcus hemolyticus was demonstrated.

The leucocyte count was relatively low, from 5,000 to 10,000, only two or three cases showing 13,000 and 16,000.

This study is quite interesting for we know the effects of the streptococcus hemolyticus and this may account for the marked prostration and slow recovery from attacks of so-called La Grippe.

C. N. HENSEL.

## BOOK REVIEWS

*ON MODERN METHODS OF TREATING FRACTURES.* (By ERNEST W. HEY GROVES, D. S., M. D., B. Sc. (Lond.), F. R. C. S. (Eng.). Published by William Wood and Company, 1916.)

This little book of 278 pages, containing 136 cuts, is divided into nine chapters, as follows:

- I. Introductory: The Myths of Yesterday and the Problems of Today.
- II. Massage and Mobilization.
- III. Extension by Adhesive Appliances.
- IV. Mechanical Modifications of the Extension Method.
- V. Operative Treatment: Experimental Observations.
- VI. The Operative Treatment of Fractures: General Consideration of Indications and Technique.
- VII. On the Operative Treatment of Special Fractures.
- VIII. Open Fractures.
- IX. On Ununited Fractures.

The introductory chapter, "The Myths of Yesterday and the Problems of Today," calls attention to the marked change in the attitude of the medical profession regarding what may be considered a good result following the treatment of a fracture. The author very tritely considers the relation between Form and Function—"Cases of Good Form with Bad Function," "Cases with Bad Form and Good Function," "Cases with Bad Form and Bad Functions;" "The Kind of Deformity which Leads to Disuse," "The Relation of Age, Occupation, and Lapse of Time to the Importance of Bone Deformity." He calls attention to the nature of the modern problem and the modern methods of solving the problem. These

methods he divides into three classifications: First, Methods of Massage and Mobilization; second, Extension Methods; third, Operation Methods. He also calls attention to the need of co-operation between the different systems.

In chapter two massage and mobilization are considered in detail. The author describes the difference between massage as advocated by Lucas-Championniere and his pupils and the ordinary massage "with all its manifold pressures and kneadings."

Those who have not practiced scientific massage will be surprised to learn that by its use complete relaxation of the muscles in the region of the fractured bone may be obtained and reduction accomplished, without pain to the patient, in a considerable proportion of cases. The author states that in the treatment of a fracture, after reduction has been accomplished, massage and passive motion are of the utmost importance, and that it is no longer permissible securely to bandage a limb, immobilizing the joints in the region of the fracture for any considerable period without the use of this therapeutic measure. Reduction of pain and early return of function are its salient features.

Chapter three deals with Extension by Adhesive Appliances. Advantages as well as difficulties of applying extension are discussed, and the work of Bardenheuer is commended. The necessity of massage, as well as passive motion of the associated joints, is once more insisted upon. The different forms of wire splints of the Thomas variety are warmly advocated in fractures of the femur. Many ingenious mechanical devices are shown.

Chapter four deals with Mechanical Modifications of the Extension Method. The methods of Codivilla and Steinman, with their application, are carefully described. In this chapter a double transfixion method developed by the author is shown. This consists of external extension applied between the ends of two metal pins which transfix the bone fragments at some distance from the point of fracture. This apparatus has given excellent results both experimentally and clinically.

Chapter five takes up Operative Treatment and Experimental Observations. In this chapter the work of MacEwen is verified to some extent, and the Lane plate very distinctly discredited. Briefly, this experimental work shows that the important points which make for success in open treatment of fractures are perfect immobilization and asepsis; that foreign substances are tolerated by the tissues; that the size of a foreign substance is relatively unimportant; that it makes little difference whether the internal splint is used as a plate or a dowel. "Firmness of fixture is the dominant factor which determines most often whether a plate will remain in position or become loose." Nickel-plated steel is recommended as the most satisfactory foreign material. Circular or spiral fixation with wire or a band was found to interfere with the circulation by destroying the periosteum. In the author's experimental work are cases in which the fixation appa-

ratus became loose and suppurated. Small, ill-fitting bone chips should not be used to fill defects between the bone ends. The author's experiments all bear out this contention. Attention is also called to the discussion whether the periosteum produces bone, and the author says this depends largely upon what we consider the periosteum to include, the outer or fibrous layer being a simply limiting membrane, the inner layer containing osteogenetic elements. He also calls attention to the fact that bone will always reproduce new periosteum, adding "if, then, the bone is certainly the mother of the periosteum, it is very unlikely that the periosteum is also the mother of the bone."

Chapter six deals with the Operative Treatment of Fractures, and gives a very comprehensive review of the important points one must consider when deciding between the open and closed treatment. In this regard the author is very conservative, and calls attention to the fact that great haste is unnecessary, giving, therefore, plenty of time in which to try out the closed method. Metal and bone fixation are described, and many clever devices developed by the author are shown. One cannot help but be impressed by the excellent results obtained by the use of foreign material.

Chapter seven considers the Operative Treatment of Special Fractures, and the most satisfactory incisions are outlined. Wire is recommended as the material par excellence in fractures of the patella and olecranon. The author has never been called upon to try a fracture of the clavicle by the open method. For fracture of the neck of the femur extension and abduction treatment are condemned. Senile cases are gotten up early, and in younger people a square bone peg taken from the tibia is driven into a round hole, uniting the neck to the head of the femur. These patients are allowed to place weight upon the limb six weeks after the operation. The open operation is believed to be indicated in the majority of complete fractures of the shaft of the femur in adult life. Fractures into the joints, if accompanied by much displacement, should be operated upon.

In chapter eight open fractures are discussed at some length, and in cases of infection it is recommended to turn the bone ends outward, thus angulating the limb for the purpose of drainage. An excellent wire cradle-leg splint is shown for the purpose of treating and transporting cases injured in war. Transverse incision of the muscles of the leg, dividing, however, only a portion of each muscle, is recommended on account of the opportunity for drainage. In compound injuries into large joints the removal of loose pieces of bone is recommended. The placing of plates or screws in infected fractures is deprecated.

Chapter nine deals with Ununited Fractures. Chief causes of non-union are: (1) Interposition of soft parts; (2) Unrestricted mobility; (3) Eburnation of the bone ends before maturity of the callus; (4) Loss of bone substance.

Under operative treatment, efficient fixation, stimulation of callus production, and bone-grafting are the methods considered. Eburnated ends are treated by freshening and by longitudinal multiple sawcuts or drill holes in the ends of the bone. It is in this class of cases that bone-grafting has its greatest application.

Since reviewing the book of MacEwen upon the Growth of Bone the reviewer has not had the pleasure of reading anything upon the subject which seemed to present so many practical points. Any one who essays to handle this class of cases cannot well afford to be without this work.

ROBERT EMMETT FARR.

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*THE SURGICAL CLINICS OF CHICAGO.* (By various authors. With 80 illustrations. April, 1918. Vol. 2, No. 2. Published Bi-Monthly by W. B. Saunders Company. Philadelphia and London.)

Orthopedic cases predominate in these reports. This specialty with the treatment of head injuries has assumed a new and great importance since the war. Especially interesting is the work of Dr. Dallas B. Phemister on Bone Transplantation for Repair of Defects of the Mandible.

GEORGE EARL.

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*A POCKET FORMULARY.* (By E. QUIN THORNTON, M. D., Assistant Professor of Materia Medica in the Jefferson Medical College, Philadelphia. Eleventh Edition, Revised. Published by Lea and Febiger, Philadelphia and New York. Price, \$2.00.)

This pocket volume of 292 pages contains an enumeration of diseases arranged alphabetically and under each are given what are believed to be the most efficacious prescriptions for simple cases as well as for various stages and complications.

The reviewer feels that this volume is a good one of its kind. For one who, from lack of time or knowledge, finds it necessary to resort to predigested drug theory this work may serve a useful purpose.

PAUL D. BERRISFORD.

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*IMPOTENCE AND STERILITY WITH ABERRATIONS OF THE SEXUAL FUNCTION AND SEX-GLAND IMPLANTATION.* (By G. FRANK LYDSTON, M. D., D. C. L. Published by the River-ton Press, 25 E. Washington Street, Chicago. 1917. Price, \$4.00.)

The thorough way in which the author presents the subjects described in the title of his book, places it in the front rank as first class reading for the practitioner as well as the specialist. Not a detail is overlooked. The chapter on Sex Gland Implantation is especially interesting and scientific, not only for its originality, but because it opens up a new field in the line of therapy.

H. N. KLEIN.

*COLLECTIVE PAPERS OF THE MAYO CLINIC, Rochester, Minn.* (Edited by Mrs. M. H. MELISH. Published by W. B. Saunders Company, Philadelphia and London. 1918.)

This collection of 1917 papers from the Mayo Clinic is even more complete than the papers collected in former years. Like the preceding volumes composed of papers from this Clinic it is full of "meaty" articles on interesting surgical subjects as handled at the Mayo Clinic, together with voluminous references and bibliographies. In addition the book deals with research work at the Mayo Clinic in conjunction with the University of Minnesota.

While the whole volume is well worth reading even by those who have previously read most of the articles in the different journals, special mention should be directed to the article "War's Influence on Medicine," by Col. C. H. Mayo.

After one has read the whole volume he should again turn to the articles by Col. W. J. Mayo, which for pure scientific discussion of surgical conditions, rhetoric and clear presentation cannot be surpassed by any medical writer in the country.

H. J. O'BRIEN.

*THE THIRD GREAT PLAGUE.* A Discussion of Syphilis for Everyday People. (By JOHN H. STOKES, A. B., M. D., Chief of the Section of Dermatology and Syphilology, The Mayo Clinic, Rochester, Minnesota; Assistant Professor of Medicine, The Mayo

Foundation Graduate School of the University of Minnesota. Published by W. B. Saunders Co. 1917. Price, \$1.50.)

This little volume is certainly deserving of the widest circulation. The subject of syphilis is very cleverly handled and presented in such a manner that the layman can easily understand the different phases and dangers of this disease. It serves a great purpose inasmuch as the knowledge gained from reading this book will aid materially in starting a crusade against syphilis. No doubt the author had this in mind.

H. N. KLEIN.

*MEDICAL SERVICE AT THE FRONT.* (By LIEUT.-COL. JOHN McCOMBE, C. A. M. C., and CAPT. A. F. MENZIES, M. C., C. A. M. C. Published by Lea and Febiger, Philadelphia. 1918. Price, \$1.25.)

For those physicians who are anticipating entrance into the Medical Reserve Corps this small book will prove of inestimable value. The subject matter is arranged under the following heads: A Division in the Front Line, The Regimental Medical Officer, The Ambulance, The Field Ambulance in Peace Warfare, The Field Ambulance in Battle, The Selection of Field Ambulance Positions, The Casualty Clearing Station, etc. The work is amply illustrated with diagrams and the text written by men who have been "through the mill."

PAUL D. BERRISFORD.

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# Minnesota Medicine

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## ORIGINAL ARTICLES

### CHANGES AHEAD.\*

M. L. BURTON,

President of the University of Minnesota.

Minneapolis, Minn.

Mr. President and Members of the Southern Minnesota Medical Association:

I believe it was Cicero who once said that the first duty of a public speaker is to place his audience in a benevolent frame of mind. Don't be disturbed. I am not going to propose that we take up a collection. (Laughter).

Before I begin to speak on "Changes Ahead," I would like to say this: From my point of view, the only motive which can ever control the decision of any man in the use he makes of his time, in the motive which concerns himself, his personal interest, is that it is the supreme duty of every man to look at himself through his abilities, his capacities, his powers, and do what needs to be done in such a crisis as that which now confronts our nation. I have absolutely no sympathy with, or admiration for, individuals, parties, or institutions that in these days of stress would seek to make their interests paramount to those of the federal government. (Applause).

I believe that you and I are living in the most stupendous moment of all history. I believe the old order has passed away and a new order is in the making. There is absolutely no place for the present methods or policies of the imperial German government. (Applause). In other words, changes of all kinds are ahead of us regardless of what has transpired recently

on the Italian front. We cannot live for a single hour without being conscious of the changes that have come upon us.

I am not a prophet or the son of a prophet. I am not particularly concerned about whether what I say ever comes to pass or not. I do not mean to be encouraging or threatening, optimistic or pessimistic; but I do propose to get before you, if possible, one very clear proposition, namely, that we are in the midst of overwhelming changes. Whether we like it or not, whether we are part of it or not, whether we approve of it or not, the fact remains that the old civilization is being torn into shreds, that the old order is rapidly passing away, and that a new order is in the making. The question is precisely what part you and I are going to play in the making of this new order.

Please observe that the issue I am trying to get into our minds is this: That just as sure as fate, the things which made our civilization in recent decades are passing away and totally new and unexpected and unanticipated and uncomprehended situations are going to arise. We are in the midst of forces which we neither understand nor can comprehend. The whole world is in a state of flux, and no previous generation of men and women has ever faced the problems that you and I must face in the decade just ahead.

I want to discuss for just a moment the most intimate details of our life, and to have you see that if you and I this afternoon are loyal and patriotic American citizens, we must almost instantaneously, over night, make changes in our methods of living. Take the question of food, something that relates itself very closely to the things that you and I do every day of our life. You and I are not loyal unless we

\*Address delivered without notes before the Southern Minnesota Medical Association, Winona, Minn., June 24, 1918.

have recognized at once our responsibility to our government and to our associates in that we should eat less wheat, less meat, less fats, and less sugar. If you and I are eating the same breakfast foods and as much white bread as we ate before our entry into the war, then we are not making the response we ought to in the midst of the present crisis. Likewise, there ought to be a change in another matter of our daily living, namely, our clothing. I am not talking against the tailors, or the clothing shops or the millinery shops, but I do believe that in these war times it becomes our duty to recognize that possibly we ought not to spend so much money, and certainly not so much time, on the question of clothes, as many people in our generation have been spending in recent years. I believe that all of the things which come closest to us and affect in the most intimate way our daily living ought to become objects of very careful consideration. More and more in every community there are homes from which the husband or the son have gone forth to war, and it is not going to be possible for those families to maintain the same standard of living as they maintained in the past. It is for you and me to make sure that we create a genuine social approbation of those people. You and I ought to be able to say to them, "We respect you, yes, we congratulate you, for the contribution that you have made to your country in this hour of crisis." Instead of gathering together somewhere and gossiping about how Mrs. Smith cannot live and dress just the way she used to, we ought to make it clear to her that in our hearts we have a profound regard for what she is doing, for the suffering and the sacrifices through which she is going, in order that there may be a better world for us to enjoy.

Men, you and I are less than human if we permit for one instant any of these persons to suffer because they cannot live just as they used to live. (Applause). So, I say, there must be a change in our food, in our clothing, in our standards of living, and also in that thing which concerns all of us—our work.

Now and then I hear a man say, "My business is not what it was before the war began." Of course, it is not. It is not the same with

any of us. My work is not what it was before the war began. Every day brings to us new problems and situations, because we are at war. All of our work must inevitably change, for we are not living in times of peace but in times of war. And the same thing applies to recreation. It is a significant fact that the President of the United States has not seen fit to take a vacation since our entry into the war. You and I have no right to think so much of rest as we used to think.

Again, every atom of our strength, physical and nervous, must be given to the end that the United States and her Allies may win this war. (Applause). Eating, drinking, living, working, playing—these are the things that make up our daily life.

But there is one other thing that concerns all of us more intimately than any of these. I do not care what your attitude is to it, I am not particularly concerned about how you define it; I am not concerned as to what may be your thought about the external manifestations of it in our common life, or the organization which represents it; you may even scoff at it if you please, but it is only because we do not understand it or the organizations which represent it. I have reference to religion. I believe that this war is going to make more change in religion than in almost any other phase of our common life. Are you a father and did you march beside your boy to the station the day he took the train to go away to the camp? If you did, or if you saw some other man that you loved do the same thing, how did you feel? And didn't there go up out of your heart that day some silent, unformulated hope that that boy might do his duty, that he might have the strength to resist the awful temptations which gather about the soldier, that he might be faithful and loyal to the United States flag, and that he might come back when the war is over? (Applause). Yes. And when he goes across the ocean and enters the trenches, and then when that crisis comes and he goes out over the top in No Man's Land, and then possibly when he slips into the Great Beyond, I am a little inclined to think that that realm which for a generation has seemed less real than before, will again be more vital and of more significance in American thinking and

American living. When you think of all the stern realities that we are facing, when you consider the sacrifices and the suffering and the death which are to come to us as a nation, I believe that unselfishness and righteousness and justice and peace and goodness will be more real in American living than they are today. (Applause). Yes, in some way I believe that religion, too, is going to change, or, rather, that our attitude to religion is going to change, and that our appreciation of it is going to be less formal and more vital because of the war.

Now, if that be true, let us pass on to the realm which is perhaps more significant, if that is possible, namely, the realm of business. I was in England all of the summer of 1914, and I observed in the papers there that they were endeavoring to develop loyalty to the slogan "business as usual." I believe that if we are going to be successful in this war, it is absolutely essential that the financial and economic and commercial life of our country should be just as normal and just as strong as it is possible for us to keep it. But the loyal, discriminating American citizen today is not harping on the slogan "business as usual," because it cannot be defended. Why, men, we are living in war time and not in times of peace, and many things which we can do and tolerate and enjoy in times of peace cannot be done or tolerated or enjoyed in times of war. And I think if there is any one thing in American life today that ought to give us serious concern it is this, that there is the sullen appeal to class discrimination and class distinctions, which after all, are diametrically opposed to the very thing which we must develop in our country if we are going to win this war in the way we intend to. For we are neither business men, nor merchants, nor bankers, nor professional men, nor commercial club men, nor farmers, nor laboring men—we are all Americans. (Applause). And so it seems to me that it becomes the duty of the business man to understand, if he has a forward looking mind, that his work and the organization of his business must actually be related to the war conditions in which we find ourselves.

I am of the impression that one tremendous change in business is going to come in connection with luxuries. Less money will be spent

on luxuries if you and I are the citizens we ought to be. But, on the other hand, it means that more money must be spent for necessities. When we think of what the United States government has upon its hands in the organization and the development of a great navy and of a great military force, then do we not see that there must be a great expansion of the business of the country. Think of the demand for food, for clothing, for munitions, for repair materials, for motors, and for all of the accessories that are absolutely essential to the successful maintenance of a great military establishment. Do we not see that business must expand, that more money must be spent, and that all this money our Allies are borrowing in this country must be expended here for those necessities which makes possible the carrying on of the war?

But I want to come to another point which I conceive to be a fundamental principle in the business world and which I feel our commercial organizations must help to develop. I think we have been altogether too satisfied with producing large quantities of raw materials and have not been sufficiently concerned with the production of the finished article. I am told that the tonnage that goes out of the harbor at Duluth is greater than that which goes out of any other harbor except New York. But the difference is this: What they send out of Duluth is huge quantities of raw material. Let us be proud of the things we can do; let us utilize all the resources and potentialities of our great state, but there are other possibilities which we must not overlook. Take an illustration, to drive home the principle I am trying to enunciate. I think I can find one which will not offend anyone in the middle West. Let us go to New England for an example. In the state of Connecticut there is a city by the name of Waterbury. I suppose you have carried a Waterbury watch or joked about it. As you go into Waterbury on the railroad train you see a great big sign which says, "Waterbury has something on everybody." (Laughter). I suppose you know, too, that Waterbury is the center of brass. (Laughter). I speak materially, not spiritually. Perhaps I should say it is the center of the brass industry. There is where the Ingersoll watch is

made; and you remember the signs along the railroad lines that read, "The watch that made the dollar famous." As you read that little sign at the top you learn that they have sold about 45,000,000 of those Ingersoll watches. The point I am trying to make is this, that Waterbury has something on everybody when you think of those millions of watches. Now, what was true in Waterbury in 1914 when this war began? The truth is the Waterbury Clock Company was not making its watch crystals. It was importing them from Switzerland; but when the war began they found it absolutely necessary to equip their own factory for the manufacture of watch crystals, with the result that today they are making all of them. The American business man, if he is shrewd, will see to it that we not only produce large quantities of raw materials, but also that we produce finished articles in our country. That applies to the central West just as much as it applies to New England or the far West. I believe that it is a part of our duty to the world to see to it that the full scope of American inventive genius is brought to bear not only upon the production of raw materials but also upon the making of the finished product. It seems to me that there are almost unlimited possibilities for the development and expansion of business just because of our war conditions. It is true, business is expanding. We are experiencing tremendous shiftings in the business, financial and economic world. The patriotic, loyal American is not the one who bemoans the fact that business is not precisely what it was before the war, but he is the one who is looking ahead and trying to see what business is going to be ten years from now. There will be changes in the most intimate concerns of our daily life and changes in business which must affect every person here and every person in the communities over which you preside.

If there are to be changes in business, we recognize at a glance that there must be far more serious changes in government. You are all more or less familiar with the problems of government. I suppose that there is no field in which we need greater scholars at the present moment and persons who have not only theoretical knowledge but practical experience than in the work of democracy. I think all of

us must recognize that one tremendous change which has already come in government in America is the change towards the centralization of enormous powers in the federal government. Whether we like it or not, the fact remains that there is not a person present who would have ventured to prophesy the things which have actually come to pass in the way of the development of our federal government. Think of the fact that there is not a man in existence in whose hands has been lodged so much power as is lodged at the present moment in the hands of President Wilson. (Applause). Could you have dreamed, even a year ago, of the federal government fixing the price of wheat for the entire country, and the price of coal, and the regulation of food? Think of how we have again and again put larger powers into the federal government. What does this mean? It means that you and I, as representative American citizens, must be prepared in the years just ahead to decide whether or not this process shall go forward or go backward. We shall be called upon to decide whether or not it is right that the federal government should hold all of these powers, or whether we should go back to those days of rampant individualism before the war, when every person did just as he pleased.

When we speak of changes that are ahead, the most serious question which you and I must meet is, can the democratic American government be made efficient? That is the question that has been raised about democratic government from the days of Plato to the present. You and I know that it is a little difficult for us at times to assert, without any qualifications, that democracy can be made efficient. I think it is well for us to observe that when you and I get together in a family circle such as this, where we can discuss things with frankness, that under such circumstances it is well for us to speak with perfect candor, and understand there is some basis for our foreign critics in passing comments upon the United States and the efficiency of our government. I am not going to weary you with any long portrayal of the shortcomings and limitations and failures of American government. When one thinks of the scandal of American politics, of the corruption, the bribery, the intrigue, and

the duplicity, then it is not possible for him to consider with great composure some of the things that are said by the keen, discriminating persons who try to find out whether we are wise, economical, and efficient in the administration of our affairs. Think of the Philadelphia gas ring, think of the Tweed ring, think of New York City at the present moment. Think of the magnificently beautiful capitol of the great Empire State of New York, costing hundreds of thousands of dollars, with its magnificently carved mahogany ceiling, until one day a janitor accidentally slipped off a rafter and his feet went through brown paper.

You and I are perfectly aware of the fact that these are only superficial observations and comments upon politics and statesmanship and municipal administration in America. You and I must admit, candidly and frankly, that all of these things can be said with remarkable accuracy about our government. But you and I know something that most of our foreign critics never sense. They always interpret us in the terms of our successful and superficial materialism, and they do not come to see that back of all of these external things there is here the finest spirit of idealism that permeates any nation of the world today. (Applause).

Think of the fact that we have brought 60 per cent. of the 400,000 government employees under civil service. I grant that the other 40 per cent. include the most important offices, but this task is simply not completed. Think of how by various methods the American people have been working gradually, quietly, incessantly, and persistently towards better and more practical methods of legislation. In some places they have had state constitutional conventions; in other places, they have introduced the initiative and referendum. When you think of the recall and the primary and all of these other methods, what do they mean? Simply this: that the American people are absolutely determined that this American democracy shall be made efficient. (Applause). The significant thing about any individual or group or organization is not what it is, but what it is becoming; not so much what it may have been in the past as what it is going to be in the future, for after all one of the fundamental tenets of my thought is this, that only that

exists which ought to be. You and I know that American government is not what the carping critic says it is, but we know that it is what you and I dream in our best moments it shall be when we have brought to pass the things for which we are striving, that is what American government really is. It is just what you and I determine it shall be. (Applause).

To my mind the supreme evidence of the growing efficiency in this country is to be seen in one of those magnificent accomplishments of President Wilson. I believe when the historian of the future writes the history of President Wilson's administrations, he will recognize that one of his greatest elements of strength was found in the fact that so quickly and so speedily he realized that since August, 1914, the old methods of military tactics had been transformed and that the volunteer system was doomed. (Applause). He recognized that in unmistakable tones we must proclaim to the Kaiser of the imperial government that from nine to ten millions of the flower of American youth stand ready to prove to the Kaiser that democratic government, a government of the people, for the people, and by the people, shall not perish from the earth. (Loud applause). That is the efficiency which we are manifesting to the world now. We are saying to the world, "Yes, we will show you that democracy can be successful and efficient." I believe, beyond the shadow of a doubt, that we are going to win this war. I believe that one way we are going to win it is just through this tremendous change that has come over us, this development of a greater efficiency in the organization of our government. (Applause). Those are the changes which will come perhaps without much effort on our part now.

But there is another change which we must meet, and it is the thing which gives me pause and serious concern. Somehow we must get to the 100,000,000 of our people a new conception of what democracy really is. You and I have imagined in the past that democracy is a form of government which is responsible to the people. That is true. Oh, if Germany had only had such a government! But with all of our thought of the blessings and privileges and opportunities of democratic government we have interpreted freedom largely as license, and we

have failed to see what in essence a democratic government really is. We must see that there are two sides to this shield. We must recognize on the one hand that the government which we make is responsible to us. But more and more, particularly in these times, we must understand that the people are responsible to the government.

How are we going to get that? How are we going to have the people see that once they have constituted government, then it is their duty to be loyal to that authority and to place at its disposal absolutely everything they have? For in this time of war our duty is not simply the making of a great army, but it is recognizing clearly the principle of the selective draft, that every man, woman and child within the confines of the United States of America must deliver his full strength for the government. It is a question of putting an entire nation of one hundred million people under arms. Some how, some way, you and I, as those who are responsible for communities, must see to it that our people get a deepened consciousness of their individual responsibility. How are we going to secure such a result? One way we are going to get it is to have them see the clearness, the seriousness, and the finality of the issue in which we are now engaged.

Men and women, I beg of you not to think I am losing my temper. I am not. What I am going to say I shall say with perfect deliberation. I do not mean to speak with disrespect for any person. I do not mean to say a word which will create false motives or unreal springs of action. I do not mean to do anything which would generate hate or revenge or vindictiveness. But I do mean to say something which will stir you to your very depths, which will burn into your souls, the necessity of making the American people understand that there is only one side that can triumph in this conflict. I think that one way we are going to get this change that we want in our American government, this deepened sense of individual responsibility is by having the people see the ultimate nature of the issue in which we are engaged. It is absolutely final. We are witnessing the death grapple of two of the most gigantic ideas that have ever animated conflicting nations. Dr. Lyman Abbott, a very

dear friend of mine, is the editor of "The Outlook." He has been a frequent guest at my home. He is not given to swearing or to the use of profanity. He is a man whose very presence is a benediction and who has a reverence for everything that is fine and beautiful. But I wonder if you read his editorial in the August (1917) number of "The Outlook." In that editorial he said that the best speech that had been made for the Kaiser was made by an unknown orator at a peace meeting in New York. I remember that speech word for word. This man exclaimed, "To hell with America!" That is precisely the issue. You say, "What do you mean?" Frankly and brutally, I mean this: You know and I know that in the summer of 1914, when the Kaiser practically dictated the note to Austria that went to Serbia, the Kaiser simply said to all the civilized nations, "To hell with arbitration! To hell with the appeal to reason for the settlement of international disputes!" When the Kaiser sent his armies through Belgium what did he do? Why, his own chancellor fell to a depth from which he had to reach up to touch bottom! He described a treaty as "a scrap of paper." What did the Kaiser say? He said, "To hell with treaties,"—the most sacred and solemn engagements of civilized peoples. And when he sent out his submarines and sank the "Falaba" and the "Gulflight" and the "Lusitania,"—think of the little children and the women—what did he say? He said, "To hell with international law"—among the best fruits of centuries of civilization. When in the wake of his armies maidens and matrons were raped and ravaged, and altars were desecrated, and homes were violated, and everything that you and I hold sacred and precious and inviolate was trampled in the mud, what did he say? He said, "To hell with America!"

On the one side is ruthlessness and frightfulness and barbarism and militarism and autocracy, and on the other side is good will and brotherhood and freedom and equality and education and opportunity and democracy. Is there any question as to where we ought to stand? Are there two sides to this issue? Sometimes a man has the stupidity to say to me that he is not pro-German, but that he is against the war. Before he can get his mouth

shut I say to him, "You are pro-German, for he that is not for us is against us."

If ever there was any truth in the sayings of our Master there is truth in this one, "Ye cannot serve God and mammon." If there was ever a holy war, this is a holy war.

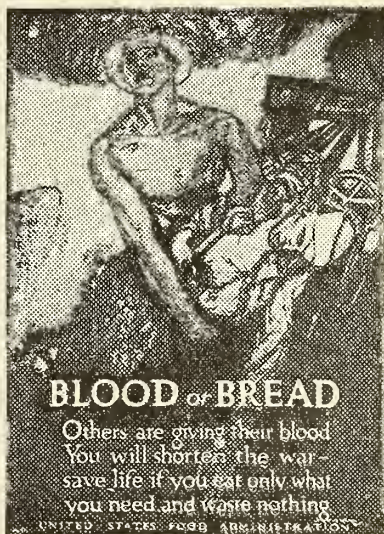
I believe that war is the most infernal, diabolical, insane, damnable method that was ever devised for the settlement of international disputes, but I believe this war offers to this generation the greatest spiritual opportunities that any nation has ever had extended to it. It is the death grapple. This is a fight to the finish. When I think of Count von Bernstorff and of the things he did while enjoying the hospitality of a friendly nation, and von Luxburg in Argentine who sent that telegram saying sink them "without a trace," and von Zimmerman trying to occasion war among Mexico, Japan, and the United States, and deliberately planning the dismemberment of America, I wonder how we endured so patiently the egregious conceit and the utterly dastardly conduct of Germany's officials. How long can you and I as Americans be willing to tolerate such things as these in the world? Germany has been a menace to civilization, and she has made for enmity and friction throughout the world. We have tolerated it as long as we could. I believe with all my soul that there is no possibility of making any peace with the present German government. Only when we can deal with responsible parties representing the German people is there any possibility of concluding peace.

So I say that there must come a tremendous change in America, in our government, dependent upon a deepening sense of responsibility, arising out of the fact that you and I see with clearness the seriousness and the finality of the war in which we are engaged.

Do you imagine that anyone can possibly misinterpret our motives in this war? I challenge anyone to show conclusively that America's motives are false. Sometimes they say it is a dollar war; sometimes they say it is a war for the profiteers, but it will take more evidence than has been submitted up to the present time to convince the country of the truth of that accusation, because I believe no people ever went into a struggle with higher motives than

those with which we have gone into this war. (Applause.)

I might speak about the changes that are necessary in education for the realization of this great program. I might have you see that in American democracy, yes, in any democracy, its ultimate development depends upon the intelligence and the character of its citizenship. I might discuss with you what education must do if we are to rise to the full meaning of these large problems. We must save more of the time of our boys and girls. Education must be developed so that more and more it fits our boys and girls for American citizenship. I might have you see how our education must be developed and changed so that it may meet the conditions of the new world order, but every one of us can see that changes in all phases of our life have come and are coming—changes so overwhelming, so stupendous, so kaleidoscopic, that it is impossible to anticipate them, and that, as a consequence, probably the highest duty we have to perform as American citizens is to prepare our hearts and minds for the changes that are bound to come, in order that thereby we may not only save ourselves but that we may come to the full fruition of American life in being of service to all mankind. (Loud applause.)



DIFFERENTIAL DIAGNOSIS AND MOD-  
ERN TREATMENT OF IDIOPATHIC  
PERNICIOUS ANAEMIA.\*

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In a period of rapid transition it becomes increasingly difficult to classify in a satisfactory manner pathologic states formerly grouped under primary anaemias, idiopathic and otherwise. For just in proportion as we succeed in getting away from the blood-cell morphology view of Ehrlich and uncover causal pathology in certain organs, just in that degree must we ablate a member of the idiopathic group and place it in an etiological one.

Barker, in his recent monograph, clearly recognizes the present difficulty and partly circumvents it by dividing the anaemias into: 1, anaemias due to hemorrhage or increased blood destruction, and 2, anaemias due to defective or decreased blood formation. That such a division is not entirely practical, is evident at once when we remember that Addison-Biermer anaemia is a later stage of a primary blood destroying process—the blood picture, however, not presenting its true face until the conditions obtaining in the second classification supervene—namely, hypohematopoiesis. The difficulty lies inherent in the fact that the blood is not a tissue, but a secretion.

Harking back to Barker's classification, we find under 1, the subdivision "Anaemias due to hemorrhage." With this group we have no concern—and yet so far as the blood and even clinical picture is concerned, during the past year I have seen four such regarded for many months by competent men as primary pernicious; they were all carcinoma of the stomach, producing chronic post-hemorrhagic anaemia. The second subdivision, "Anaemias due to increased blood destruction" embraces the following:

- (a) Hemolytic anaemias of unknown etiology.

1. Acute form, with leukocytosis.
2. Chronic type (Addison-Biermer type).

- (b) Dibothriocephalus anaemia.
- (c) Hemolytic anaemias occurring in lues, carcinoma and in the puerperium.
- (d) Chronic hemolytic anaemias—nitrobenzol phenylhydrazine, potassium chlorate.
- (e) Anaemia pseudoleukemia infantum.
- (f) Acquired and familial hemolytic jaundice.

Under II, we find subdivisions:

1. Chlorosis.
2. Anaemias accompanying tumor or sclerosis of bone-marrow (the myelopathic anaemias).
3. Anaemias accompanying hypoplasia of bone-marrow.
  - (a) In state of inanition and cachexia.
  - (b) In conditions of unknown origin (aplastic or aregeneratory anaemias).

For the present discussion we will dismiss chlorosis with the remark that there is, in all human probability, no such condition. To be sure, there is a blood-state of chlorotic type but it is not an entity—purely secondary to chronic infection, reacting upon the glands of internal secretion. Clinically, it could not overshadow the properly unearthed underlying pathology—frequently glandular type of phthisis. The other members of this group are to be recognized by the concomitant evident disease—and in the blood, absence more or less completely of the characteristics of accelerated blood regeneration—erythroblasts, polychromia, anisocytosis, and the presence of a leucopenia.

Of the members of the group of anaemias due to increased blood destruction, there is no debatable ground concerning that due to dibothriocephalus, etiologically, clinically and therapeutically. Similarly in the severe anaemias accompanying fulminating trepanema infection, that of advanced carcinoma intoxication, and of the septicemias of the puerperium, there is every reason, clinically, to recognize their true source and proper treatment.

With infantile anaemia I am not acquainted. The chemical intoxications are well recognized. Of the group there remain, for our consideration, pernicious and hemolytic jaundice, by

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far the most interesting types, in view of the intensive study given these types by workers in many lands.

Congenital hemolytic icterus, as its name implies, is distinctly a family disease; presents frequently so mild a symptomatology as to deserve rather the appellation of "affliction." There is present a low grade of exquisitely chronic, variable icterus, which may be accompanied by itching, quite as in biliary stasis, a moderate anaemia with a tendency to microcytosis, a markedly reduced resistance of these cells to hypotonic salt solution, a constant urobilinuria, with a large relatively hard spleen. These patients come frequently for relief of the dragging pain in the left hypochondrium; less often for a correction of the cosmetic disturbance. There is a subdivision of this type of anaemia—acquired hemolytic icterus due to peritonitis producing a thrombosis of the splenic vein where all of the above features are present with the added one of formation of oesophageal varices via the left diaphragm (hematemesis may occur and a variable secondary anaemia appear in consequence). I have had such a case under observation now for several years. From Gaucher's type of splenomegaly it is to be clinically distinguished by the absence of definite brownish skin discoloration, and the absence of the lessened blood resistance test and of microcytosis.

While such is the pattern type of case, as so frequently occurs in nature, there are many border-line cases—and I have seen one such in which there were many features of the pernicious anaemia complex. From the therapeutic standpoint, the great interest for us resides in the fact that splenectomy is positively curative and that in a remarkably short space of time. To Banti, probably, belongs the credit of stimulating this therapeutic endeavor; to Eppinger the credit of establishing the objective evidence of a cessation of blood destruction—namely, by his first quantitative study of the stool blood-derived pigment—urobilin. The removal of spleens permitted a proper microscopic study of splenic pathology. Owing to the exigencies of the war, I have still in my possession microphotographs of sections of splenic tissue from the spleens removed by Ranzi for Eppinger in 1913 and 1914. From a study of these spleens

and a similar, although quantitatively less urobilin output in pernicious anaemia, Eppinger suggested splenectomy for the latter, advancing the hypothesis of hypersplenism.

Therapeutically, therefore, there is none but a surgical treatment for hemolytic icterus. For idiopathic pernicious, there is a greater necessity for caution.

In the first place, the clinical picture of pernicious is, at the stage of our recognition of it, that predominatingly of an anaemia—and yet, thanks to Syllaba's studies in 1904, we have had our attention drawn to the frequency of the pre-anaemic icteric stage—and that definitely in cases at operation showing no gall-bladder involvement—cholelithiasis occurring in a certain percentage of cases. I have particularly watched for such suggestive past histories in these cases, and from my records, embracing now one hundred cases, find that sixty per cent give a definite history of repeated attacks of jaundice as long as seven years prior to the onset of a glossitis. In three instances there appeared to be an hereditary tendency, mother and daughter successively acquiring the disease. Of the one hundred patients, seventy were males showing an incidence not unlike that of lues. The youngest patient was sixteen, a female; the oldest, sixty-two. Ninety per cent occurred at the degeneration period of life, namely, fourth and fifth decades. And this, I would remind you, is in perfect accord with the nature of the pathological findings in the spleen, namely, obliterative endarteritis.

Seventy-three patients sought medical advice because of progressive weakness with, in variable degree, the symptoms of anaemia in general, namely, palpitation, dyspnoea, dizziness, ringing in the ears and pounding of the vessels of the neck. Fifteen complained of no particular weakness but bitterly of paresthesia of the hands or feet, or both. Of the remainder, eleven came primarily because of gastric distress with or without diarrheal attacks. One, a female aged sixty-two, was brought by her daughter with the statement that "mother spent many months, several times a year, for the past three years in bed"—was she lazy or ill? An advanced ataxic type of pernicious cord lesion, with a relatively good blood count

but with the usual morphological characteristics, was present.

The cord features were of such distribution in these cases and so out of complete harmony with the degree of anaemia, that I have rather confirmed my impression of three years ago, namely, that, directly, the cord lesion has nothing to do with the anaemia *per se*, and that the same noxus producing the vessel lesions in the spleen produces similar vessel lesions in the cord, the incidence of one or the other being explainable by the "Abnutzung" theory applied to the localization of lues. Accordingly, as the posterior or lateral column are involved, the picture will be that of the ataxic or spastic paraplegic.

The cord symptoms will ordinarily not improve once the stage of ataxia or paraplegia is arrived at, notwithstanding that the blood may go up wonderfully and the general health of the patient become normal. However, the parasthesia stage may disappear to reappear later. On one splenectomized patient, this perversion of sensation has not recurred to date, one and one-half years later.

Relative to glossitis, there are many cases in which this feature is not determined, owing to its being missed in the history, there frequently occurring an interval of several weeks to several months from its incidence to the approach to the acme of a crisis bringing the patient to the physician for relief from his weakness, etc. Each succeeding blood crisis may be so ushered in.

In one case of this series, there occurred a complaint in a shoemaker, of tenderness of the lower sternum. In the average case the tenderness sign is of considerable diagnostic value with reference, particularly, to the degree of taxation of the bone-marrow.

The treatment of the state of pernicious anaemia will, in view of the fact that we miss the stage of pure increased blood destruction and see the patient in various time and cycle periods of his disease, when there is both increased destruction and insufficient supply in variable degree, rest upon every possible help to determine where the major fault lies.

Is the infectious agent the spirochete, the streptococcus, or the tubercle bacillus still

operative? Then by all means, let us look for and root out primary foci.

Is the anaemia of moderate degree, the pigment production relatively low, the marrow not irritable and overtaxed, and the cord changes in the foreground? Then let us also clean the house of primary foci, and cautiously, as one would on a jaded horse over a last hard pull, use the arsenic whip. Fowler's solution, properly given, will do probably as well as caeodylate of soda or salvarsan, with less chance of damage.

Is the anaemia of *rapidly* increasing severity—for it must be remembered it is the *rapidity* of the blood fall that is of serious import to the patient as there is not then the possible readjustment occurring in the slowly progressing type, where it is frequently astounding how low a count an ambulant patient will prove to have and how few will be the collateral symptoms of anaemia *per se*? And is this rapidly downward trend approaching a hemoglobin of thirty (Sahli)? Then the treatment by transfusion from a suitable donor is in order. Aside from certain points of compatibility, a suitable donor is a matter of pure gamble, for it is not the quantity of blood transfused, so much as a certain bone-marrow stimulating substance present in the serum alone, which brings up the blood picture with gratifying immediate results (usually immediate only). While the early splenectomies were done on practically moribund patients, it would be deemed best with transfusion to bring the blood picture and general condition to a fair state, and then, if favorable, as measured by the length of disease, age of patient, size of spleen, degree of leukopenia and the H-H index,\* splenectomy will do temporarily, for three or six months, more than any other remedy we possess, and will promise a possible complete cure.

Is the anaemia of moderate degree—a severe leucopenia not present, the duodenal pigments of such value as to give a heavily plus H-H index, and perchance the spleen hard and markedly enlarged? Then, in the absence of cord changes, have a splenectomy done, and the patient will be given a chance to prove that the world does progress.

\*Schneider, J. P.: Further Quantitative Study of the Duodenal Blood-Derived Pigments, the Archives Int. Med., 1917, pp. 19, 156.

## A COMPARISON OF THE VARIOUS TUBERCULIN TESTS IN CHILDHOOD.\*

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The primary object in making a tuberculin test is to determine first of all whether the patient is actually suffering from tuberculosis and if so, whether the lesion is active and to what probable extent it has progressed.

It is now generally conceded that a very high percentage of children from infancy to puberty have experienced an infection with the tubercle bacillus. In this connection it should be clearly understood that an infection does not necessarily mean clinical tuberculosis. In fact an implantation of the tubercle bacilli may never give rise to clinical disease because an immunity may be developed sufficient to overcome the slighter degrees of infection. It is claimed that the large proportion of the tubercle infections of childhood are beneficial inasmuch as an acquired immunity is developed sufficient to confer protection on the child against adult tuberculosis. On the other hand, it is quite possible that the child is never afforded the opportunity to completely overcome the infection on account of constant exposure in unhygienic surroundings, or because the infection may be massive and repeated, the virus more virulent, or the resistance of the individual of a low degree.

It occurred to the writer that there are a large number of children living in close contact with open cases of tuberculosis who never acquire complete immunity and who under unfavorable conditions break down in later life. Granting this to be the end result, and there is already proof enough in existence to warrant us in accepting this position, it is very obvious that the campaign for the control and eventual eradication of tuberculosis should begin with the proper care of the children. In order to achieve any large amount of success in this field there should be close co-operation on the part of, first, the tuberculosis division of the local department of health; second, on the part of

every physician who makes a diagnosis of tuberculosis in the adult so the case can be reported and the exposed children put under observation; and thirdly, there should be some standardized test used to classify these children as to the extent and activity of their infections. Most important of all, those children who show by test an active infection should receive the benefit of institutional care, preferably in preventoria, until their condition is improved sufficiently to allow them to cope with any future infection. Preventoria are now established in several communities, as well as fresh air schools, and once the children are discovered to have active infections they should receive the benefits of these institutions.

As far as the writer knows no efforts have been made to single out those children who are in especial need of help. Can this be done by means of tuberculin tests? The writer thinks it can.

It would be impossible in a short paper on such a subject to go into the minutiae of the different tuberculin tests, such as the preparation of the different solutions used, their mode of application, time and appearance and nature of the various reactions elicited. The main object of this paper will be to mention a few of the better known tests in as far as they have any importance in pediatrics.

It might be appropriate before describing the tests to inquire into the nature of the tuberculin reaction, viz., what brings it about when the specific substance is brought in contact with the skin or introduced subcutaneously. Without going into a long dissertation on the biological and chemical process entering into the production of a reaction, it might be broadly stated that the reaction is a specific response on the part of an organism already sensitized to the excretions and secretions of the tubercle bacilli that have at some time gained entrance within the body of the host. The previous or present contact of the bacilli render all of the body cells sensitive to application of tuberculin by stimulating the formation of antibodies or lytic substances which combine with the tuberculin at the point of introduction resulting in inflammation locally in the case of a skin test. In other words the tuberculin is split up into two fractions, one of which is a toxic proteid,

\*Read before the Central States Pediatric Society, Twin Cities, December 10-11, 1917

and the other non-toxic. The toxic element is bound by the cells, and inflammation ensues. In the case of a subcutaneous injection there is not only the specific local inflammatory reaction but also a systemic one shown by fever, malaise, headache, body pains, etc. The tuberculous focus within the body has been stimulated and a large amount of toxin thrown into the circulation. This toxin is attacked by the lytic substances already present in the blood and tissues, and as these substances are not in sufficient amount to digest the tuberculin in its entirety, the poisonous fraction of split proteid left over gives rise to the above mentioned symptoms.

The following tests have been selected by the writer as the ones most practicable for use in testing children: The subcutaneous, the Von Pirquet, the Mantoux or intradermal, and last, the Ellis multiple papillary cutaneous.

A positive subcutaneous reaction requires that at least one degree of fever be registered over and above the normal after an injection of a specified amount. The temperature record should be taken for at least two or three days preceding the injection. In children the beginning dose should be small, at least not over one-tenth milligram. If there is no response to this amount within forty-eight hours one milligram is given, increasing the next two doses to three and five milligrams, respectively, in case there is no response, always, however, allowing an interval of forty-eight hours between doses.

In twenty exposed children recently tested by the writer eight reacted with one degree of fever to one milligram of tuberculin. Four of these were discharged cases from the Ramsey County Preventorium and had received tuberculin previously. Excluding these, there were four reactors out of twenty tests, or 25 per cent. If the 25 per cent of reactors in this small group should obtain in a group of say 500 similarly situated children it would point the way to the urgent need of some active measures in prophylaxis. Suffice it to say that a thoroughly conducted subcutaneous test in children under the proper precautions in the selection of cases and previous temperature control, together with the history of the case, is considered by the writer one of the most valuable, if not the most valuable, tuberculin test for the purpose of separating the active from the latent cases. The

subcutaneous test has been too much neglected by pediatricians perhaps on account of the time it involves and because of the unfounded fear of violent reactions. These are not to be feared in glandular cases and when they do occur, besides the information they afford, they are beneficial in a therapeutic sense.

### The Von Pirquet Skin Test.

Since this test is the most familiar one to pediatricians and the one in most common use there is no need to sketch its history or describe its technique. It always gives a negative reaction in the acute exanthemata and mostly always in miliary tuberculosis, meningeal tuberculosis, tuberculous serous effusions in the pleural and abdominal cavities, and in moribund cases. A positive Von Pirquet simply implies that the child has at some time or another become infected with tubercle bacilli. It does not tell us if the case is active or latent. It does however prove of great importance when occurring repeatedly negative as indicating the non-existence of a prior or present infection. When positive it should be supplemented by some other test to determine whether the case is active.

Von Pirquet<sup>1</sup> and Hamburger's<sup>2</sup> results in testing children from infancy to fourteen years of age show that in the congested centers of population, such as Vienna, the percentage of positives is as high as 95 per cent. Fishberg<sup>3</sup> in his series of tests made on 588 apparently healthy children from the tenement quarters of the east side of New York found 52.72 per cent positive. In 692 children of tuberculous parentage tested by the same author the percentage of positives reached the high figure of 83.79 per cent. These figures are closely paralleled by autopsy records made by Harbitz<sup>3</sup> on 484 children dying from various causes. His findings show during the first year of life, 10 per cent tuberculous; second year, 26.2 per cent; third and fourth years, 31.8 per cent; fifth and sixth years, 67.9 per cent; seventh to tenth year, 79 per cent; eleventh to fourteenth year, 83 per cent; and in the fourteenth year, 86 per cent. F. Amenta<sup>4</sup> of Palermo, Italy, applied the Von Pirquet to 800 non-clinical cases of tuberculosis and his results are practically the same as the above. Manning and Knott<sup>5</sup> applied the Von Pirquet to 228 children coming to the tubercu-

lous division of the Seattle Department of Health; 166 of this number had known exposure, of these 50.6 per cent were positive. The remaining 62 children had no known exposure; 14 or 22.8 per cent reacted. The total per centage of reactors in the whole group was 42.9 per cent. The discrepancies in these figures with those of Fishberg, Hamburger and Von Pirquet are due in the opinion of the authors to community characteristics of climate, housing and sanitation. Cattermole<sup>8</sup> made the Von Pirquet test on 66 Colorado children and found 38 per cent positive. Only 50 per cent of these children's parents were tuberculous. According to the locality from which the material is drawn we may expect reactions varying from 38 per cent to 52 per cent in different sections of the United States.

### The Intradermic Test.

The intradermic test has not received much attention in its application to children inasmuch as the Von Pirquet has been better understood and its results in a general way very satisfactory. Sometimes it is used to supplement the Von Pirquet when that reaction was found negative. Its advantage over the Von Pirquet consist in its certain absorption and to its elasticity in regard to the size of the dose desired. Very high dilutions of tuberculin can be administered intradermally and the amount injected controlled accurately. Its greatest application has been made use of in determining the degree of hypersensitiveness of actual cases of tuberculosis when it is desirable to regulate the dose of tuberculin with which to commence treatment. For instance, Meyer Solis Cohen<sup>7</sup> used the test to determine hypersensitiveness in 28 cases of tuberculosis in the different stages of the disease. He used dilutions of 1-10,000,000, 1-1,000,000 and 1-100,000. If no reaction were observed from these dilutions he next injected 1-10,000, 1-1000 and 1-100 milligram and so on up to 10 milligrams. The injections were made one above the other commencing distally with the weakest solution. He regarded an induration or a papule as a true reaction. He gauged his dose of tuberculin according to the degree of hypersensitiveness and concluded that the appropriate therapeutic dose corresponded to the dilution

that gave the minimal reaction when injected intracutaneously.

In 1910 White and Van Norman<sup>8</sup> introduced a cutaneous test controlled by an intradermal, to measure the patient's sensitiveness to tuberculin for the purpose of finding the initial dosage with which to commence treatment. They employed 0.01 c. c. of a 1 per cent solution dropped on a 2 mm. scarification. If the reaction after 48 to 72 hours did not exceed a 4 mm. cutaneous area of inflammation they gave after four days the same amount intradermally, and if the reacting area did not exceed 5 mm. they considered this a safe dose to administer for treatment. In case the above measurements were exceeded they used a weaker solution for the test. In a recent report on the use of this combined cutaneous intradermal test by Sieber<sup>9</sup> in 40 cases of surgical tuberculosis the author had better success in treatment than by any method he had ever employed. Including 28 cases previously reported by Cashman, with his own 40 there were 57 cases in which the treatment extended over a reasonable period of time. Of these, 30 were discharged as cured and 27 as improved. The cases covered tubercular adenitis and various bone and joint tuberculosis.

### The Ellis Multiple Papillary Cutaneous Test.<sup>10-11</sup>

A test which has recently come to the attention of the writer and which seems to promise well in its application to children was brought out about a year ago by Ellis, the tuberculosis medical officer for the County Borough of Middlebrough, England. The author claims to be able to detect the various stages of tuberculosis from the latent to the advanced forms by means of the test. Further, the test indicates the amount of tissue involved, and points the way to an accurate prognosis and treatment. He has called the test, the Multiple Papillary Cutaneous or M. P. C. After much experimentation he concluded that the papillary layer of the skin of all the layers was the one most sensitive to tuberculin in contradistinction to the Von Pirquet which penetrates only to the lymph layer. A prerequisite of the M. P. C. demands that the scarifications shall open the papillary layer of the skin so as to draw blood.

The scarifications are made with an ordinary vaccination lancet through each of seven drops of the solutions placed in a row on the inner side of the forearm. The solutions used are Bovine full strength for Mark No. I. The other five solutions are made from old tuberculin, human type. Mark No. II is a 1-10 solution; Mark No. III is 1-100; Mark No. IV, 1-500; Mark No. V, 1-1000; Mark No. VI, 1-10000 and Mark No. VII is the control. Reactions are divided into four classes; those reacting to 1-500 or Mark No. IV are hypersensitive. Those definitely responding to 1-100 or Mark No. III are sensitives. Those classed as subsensitives and insensitives respond to dilutions under 1-100. A highly colored edematous reaction denotes an active lesion, a dark colored reaction signifies an old or quiescent lesion. If nearly black with no swelling the case is going to the bad. No reaction is shown if a large amount of tissue is involved or if the case is far advanced. Incipient cases involving only one small lung focus yield a reaction to Mark No. I or II. Probably the amount of lung yielding a "VI" reaction would be a very small fresh patch, just definitely detectable by the stethoscope at one or both apices, and covering at most an area of two inches, larger areas and older disease giving fewer reactions. The usual moderate area gives "III" or "IV" on the descending scale, having passed their most sensitive condition. As a usual thing bone and eye cases give lower reactions. Gland cases usually give higher reactions. Two or more lesions of dissimilar tissues give the highest reactions. A No. III reaction is the most important mark for the pediatrician as it is the dividing line between active and latent infections. When the author gets a No. III reaction he considers that there is always active disease present. This opinion that "III" means an active focus has become very definite since the military recruiting examinations, when "III" have always been withheld for observation, and they have almost universally shown that the warning was correct, and that danger to their resistance was considerable. Up to the present no cases that had been passed have been returned; on the other hand, two cases examined who gave a definite warning reaction, but who had no very definite lung symptoms and

who without the knowledge of the author succeeded in enlisting, have been returned because of tuberculosis. In 333 children sent in by the medical school inspector, the author found only 74 absolute negatives, whereas, in 167 adults sent in by various physicians as being suspicious there were only 6 negatives.

The following tables show the results of the Ellis test in 500 cases, 333 children and 167 adults:

Per cent results to total tests in the 500 cases.

Negatives .....	18.0%
Reacting to 1 in 10, Group I and II.....	20.4%
Reacting to 1 in 100, Group III.....	8.6%
Reacting to 1 in 500, Group III and IV.....	38.6%
Reacting to 1 in 10,000, Group V and VI.....	14.4%
	100.0%

Per cent to age groups in 410 reacting cases.

	Adults	Children
Reacting to 1 in 10, Group I and II	26.6%	23.6%
Reacting to 1 in 100, Group III...	12.5%	9.3%
Reacting to 1 in 500, Group III and IV .....	45.4%	48.0%
Reacting to 1 in 10,000, Group V and VI .....	15.5%	19.1%
	100.0%	100.0%

In looking over these tables it is surprising to find such a large number of children reacting to the higher dilutions. Providing this test is as active as claimed, the results of these tests would show that there is a far larger number of active infections among children than we ever dreamed of.

Twenty-three Ellis tests made by the writer gave 10 positive to number II mark, three reactions to number III mark, and 10 negative tests. This makes a little over 50 per cent positive in the series. In seven of these children there was no known exposure, three of them, or a little under 50 per cent, gave a positive number II, being classed as latent. The result of this small series shows but three active cases out of twenty-three, or a little over 10 per cent. Should this ratio hold good for the entire population of this locality these children should be kept under close observation. As the writer's series is so small in comparison with the authors it would be unfair to draw any definite conclusions therefrom.

### Conclusions.

Further investigations by means of a reliable tuberculin test should be undertaken to separate active from latent cases.

All children shown active by a tuberculin test should be kept under close observation by the health authorities and if possible sent to preventoria for at least one year or until the test shows no activity.

In the treatment of clinical tuberculosis the case should receive the benefit of tuberculin and the initial dose should be determined by one of the hypersensitive tests.

The hope for the eventual eradication of tuberculosis depends on the prophylactic measures directed to the care of infected children.

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### MEDICAL CO-OPERATION IN THE PROBLEM OF WAR SYPHILIS.\*

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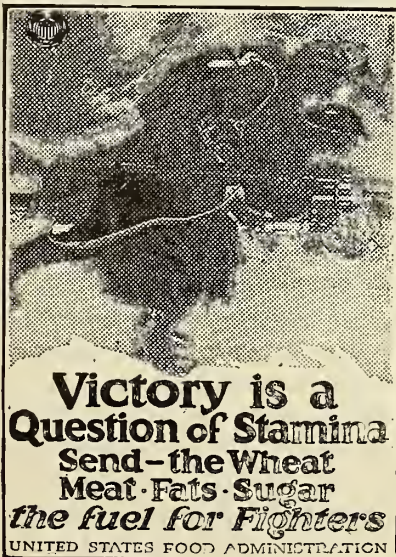
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The contact between the medical profession and the modern problem of syphilis is most direct and imperative at three points. If an effective public campaign against the disease is to be developed, there must be, not alone the laws, rules and penalties recently provided, but earlier and more efficient diagnosis of the disease, prompt and more effective treatment, and a new era of public enlightenment and co-operation.

#### I. The Need For Earlier Diagnosis.

Early diagnosis of syphilis is perforce a novel conception to many men who are practicing medicine at the present day. For the older generation of medical men it had relatively little point, armed as they were with the feeble and ineffective weapons of mixed treatment *per os*, and the pea-sized inunction. To men with the older conceptions of the disease firmly rooted in them by a generation of practice, it must appeal as heresy to insist that waiting until a secondary eruption appears loses the benefit of some of the most epochal advances in the history of medicine, and deliberately robs the patient of the one crucial opportunity for a cure of his infection. Yet this does not overstate the fact. The modern diagnosis of syphilis in the early primary stage if possible, before the organism has spread to the lymphatics adjacent to the primary lesion, but at all events before the Wassermann reaction has become positive, is more far reaching in its medical and social significance than the finding of the tubercle bacillus in early tuberculosis. It is more significant because it points, not to a dubious prospect but to instant and effective action. The institution of radical treatment of syphilis at this stage accomplishes what syphilologists term the abortive or radical cure



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of the disease. The first injection of salvarsan puts an immediate end to the infectivity of the patient. Within eight to twelve hours there are no longer any organisms obtainable from his lesions. Repeated injections of salvarsan, with intense mercurialization over a suitable period of time, seldom less than a year, seems to accomplish a sterilization of the body. I say seems, because no one can as yet rate the abortive cure of syphilis as a completely demonstrated fact, since such demonstrations have as their first essential, time. But the hope seems so reasonable, the undoubted tangible benefits in the form of a practically negligible period of infectivity, a greatly shortened period of treatment, and effective suppression of all bio-serologic evidence of the disease are so worth while, that it is no exaggeration to rate the possibility of abortive cure as paramount in the syphilology of today. This should be the treatment for tabes dorsalis and paresis, for syphilitic aortitis and chronic interstitial nephritis, for gummatous osteitis, for iritis, for interstitial keratitis—the treatment that **prevents**. Upon the first four to ten days of the primary lesion, while syphilis is still a practically local, banal infection, diagnosis should concentrate its every resource and treatment reach drum-fire intensity, for never again in the life history of the disease for the patient and his fellow men will there be such another moment.

How has the profession reacted at large, thus far, to this most grave, most pressing responsibility? The spirochaeta pallida was recognized by Schaudinn and Hoffmann in 1905. Thousands of physicians who graduated up to 1910 have never seen the organism. A handful have seen it as a formal demonstration in the pathologic and bacteriologic laboratory. When I graduated from one of the best schools in the United States, I had seen one primary lesion, and that at a distance of forty feet. I had no idea that the discovery of the spirochaeta pallida had any vital clinical bearings, though I was vaguely aware that it had served as a scientific starting point for the work of Ehrlich. I had never seen India ink in use in a clinical laboratory to say nothing of comprehending the employment of the dark field. Yet I had a most thorough training in the diagnosis of tabes and paresis. In 1914 I demonstrated

the spirochaete to a group of active practitioners, not one of them superannuated or unprogressive, who crowded around the microscope as men appreciating a medical curiosity rather than a vital fact in diagnosis and public health administration. Three years ago a medical survey of the dispensaries of New York City disclosed the fact that a negligible percentage of them had either the equipment or the men to diagnose syphilis by the identification of the causative organism. In 1911 in the United States army the ratio of cases recognized in the primary stage as compared with those allowed to proceed to florid secondary manifestations before a diagnosis was made, was 1 to 7. Systematic emphasis on modern diagnostic criteria, including the Wassermann reaction, reduced the ratio, by 1915, to 1 to 4.5. Yet this is far from ideal, and very much short of the possibilities of the new methods. Dudding, and Fildes and Dudding, of the British navy, in criticising the efficiency of the Royal Naval Medical service for a ratio of 1 to 4, call attention to the fact that at least 65 per cent of venereal lesions can be diagnosed as syphilitic, at once, by the use of the dark field microscope, provided the lesion has not been tampered with, and that only 14 per cent of those undiagnosed by this means are subsequently shown to be syphilitic by the Wassermann follow-up. If such facts be accepted, and my own impression is that they fall short of little of the truth, there can be no excuse for a higher ratio than 1 to 1, in the comparative diagnosis of primary and secondary syphilis under the conditions of civil life. The newer staining methods such as those of Medalia may bring the ratio even lower. There is no real obstacle either on the score of expense or inaccessibility, to the very wide adoption by the profession of the only significant means of diagnosis for syphilis at a period when its disastrous sequelae are held in the hollow of our hand.

Though there are many explanations and excuses to offer, let us frankly concede that thus far as a profession we have not had a just conception of the vital importance of early diagnosis in syphilis, or of our responsibility in regard to it. It has taken this war to teach us and the world that modern knowledge of the disease has never been taught in medical



schools. Too many experts in it have seemed to choose to devote their energies to the rehabilitation of its wreckage rather than to the more thankless and less remunerative task of its cure in the early days of the chancre. As students we have had hammered into us the unfortunate and misleading clinical characteristics and means of differentiation of the primary lesion. In the dispensary we indulged in old-school arguments over the relative importance of induration, painlessness, multiplicity, etc., forgetting that a tyro can recognize the Hunterian induration, but that mere clinical dialectics will never penetrate the disguise of an infected herpes, a scabetic papule, a benign balanitis, a phymosis, a gonorrhoea superimposed on a chancre of the fossa navicularis. Under all these forms an overwhelming amount of syphilis has gained a foothold in the human race. Clinical differentiation of the primary lesion has gone to scrap, and laboratory diagnosis, the finding of the spirochaetae pallida, is its successor. Not the Wassermann reaction, I hasten to add, for when this becomes positive, the great opportunity is lost. To the recognition of syphilis by identification of the organism, the training and knowledge of a large part of the profession of today is perhaps inadequate. The more reason then why, in our effort to bring to bear every resource we can muster on this problem for the public good, we should as we have many times done before, concentrate the energies of specially trained men on this work of early diagnosis of syphilis by the means I have described. How to create such a body of specially trained men in sufficient numbers to have one at hand when the need arises, is a master problem in co-operative medical practice, and one for which I shall suggest a solution, after considering the Wassermann reaction in its relation to the problem of diagnosis.

## II. Clinical Diagnosis and the Wassermann Reaction.

Medical men of recent vintage, and older men as well, have been vigorously impressed with the vast diagnostic possibilities of the Bordet-Gengou phenomenon as applied to syphilis. There has arisen in our midst a school of dogmatists, the Wassermann negative clinicians, whose yea is yea and whose nay, nay. To them a positive Wassermann may, of course, mean

syphilis, but a negative, even a single one, is the final and convincing proof of the absence of the disease. This blind and indiscriminating allegiance to the findings of the laboratory on the part of present day clinicians, is one of the stumbling blocks in the path of the syphilographer. Misapplications of this sort seem to be the fate of all short-cuts in medicine. Whenever syphilis is a factor the negative Wassermann is especially an object of unreasoning veneration, because it relieves the examiner of further trouble on a very troublesome score. Our reaction to it is part and parcel of that unfortunate mental inertia where this disease is concerned, which makes us willing to believe almost anything which will prove its absence, and thus save us the labor and embarrassment which are entailed in demonstrating its presence. No man whose acquaintance with clinical syphilis is intimate, foolishly belittles one of our most precious diagnostic aids. Yet every man who works in the midst of syphilis, instead of on its outer fringe, realizes that clinical as distinguished from serological syphilology, is not dead, and that we have yet to return in humility to the feet of the masters who diagnosed brilliantly when Bordet and Wassermann were in their cradles. This seems a singularly heretical utterance for one who, but a moment ago, was clamoring for the laboratory diagnosis of early syphilis, and the apparent discarding of clinical criteria. My contention is that each method of procedure, clinical or laboratory, has its place. The Wassermann has none in the laboratory diagnosis of true primary syphilis. In the florid eruptive secondary stage, the reaction is a godsend to the practitioner, hard pressed by the necessity for dermatological differentiation. In the later periods of the disease, clinical differentiation again comes strongly to the front. There is no sadder example of a man gone after strange gods, than that of a clinician calling for Wassermann after Wassermann in the frantic effort to get a negative report because the patient with the lesion of the palate or the leg, or the condyloma *ad ani*, happens to be a member of one of "our best families," and high in public life. No man will practice medicine adequately, no man will fit into the place of the profession in the new movement against syphilis who does not realize the

limitation of the negative Wassermann, who does not distrust it enough to know that the palm of the hand, the fundus of the eye, the posterior surface of the scrotum, the border of the tongue, the skin of any part of the body, may present evidence to controvert a thousand negative Wassermanns. Such purely clinical evidence, he who runs both may and must read, and interpret. There is awaiting us an era of renaissance in the clinical diagnosis of constitutional syphilis, coincident with a growing appreciation of the fallibility of the negative Wassermann.

If the negative Wassermann is destined to yield, in some degree, to clinical judgment, the positive Wassermann must, in its turn, have a restoration to medical confidence. A false positive Wassermann is a diagnostic malfeasance of the gravest type. Better a thousand returns of negative Wassermanns in cases otherwise clinically recognizable or suspicious of syphilis, than one return of a positive in the absence of the disease. While it is certainly true that the most expert serologists cannot escape the production of some false positives, it is equally true that frequent false positives are the product of inexperience and over-enthusiasm. The amateur serologist plays with the highly fortified antigens as a baby with dynamite. He approaches his problem with the attitude of a prosecuting attorney, and boasts of his ability to prove a positive. Whatever savors of technical inexperience, of the unjudicial and uncritical temperament, of personal motive and commercial interest, of haste and inaccuracy, has no place in the performance of a reaction as important as this one. Yet every day we allow such elements to enter into our diagnostic management of syphilis. We shall not measure up to our duty in the new movement against the disease until we shall have done away with the unreliable positive Wassermann so far as human fallibility permits. We shall accomplish this end again by a wholesale pooling of personal, state and general professional resources. The practitioner who does occasional Wassermanns on the side, will yield to the great state or hospital laboratory, supervised by a serologist whose personal equation and margin of error are constant and minimal. The commercial advertising laboratory, now uncontrolled, will

be done away with or will conduct its activities under a rigorous governmental control such as that which the United States Public Health service exercises, for example, over the manufacture of biologic products and arsphenamine. With every possible factor of unreliability eliminated from the performance of the reaction, with the negative Wassermann once more subordinated to the clinical evidence of syphilis, and with the identification of the spirochaeta pallida by stain or dark field replacing the Wassermann and obsolete clinical criteria in the diagnosis of very early primary lesions, we shall enter upon a new era of efficiency in syphilology.

I venture in leaving the problem of diagnosis to urge upon you the possibilities for usefulness of the heretofore obscure specialty of syphilology. A syphilographer is not a man who knows all about syphilis. You may know the true syphilographer I hope more by his diffidence than by his arrogance. His great function is to co-ordinate a field to which Osler's aphorism justly applies, "Know syphilis in all its manifestations and relations and all other things clinical will be added unto you." The syphilographer is the man who will know what we slangily speak of as the "wrinkle" that helps general men and other specialists out of a tight place in diagnosis. In the new movement against the disease, encourage him. If a man in a town of ten thousand secures a dark field and shows good evidence of special training and aptitude in dealing with syphilis, stand back of him, use him, and help him to enlarge his horizon. Get together, as a medical society, and discuss who within striking distance of you does a reliable Wassermann, and then all patronize him, and boost his efficiency. Let the local surgeon pause before removing a finger or a limb for "sarcoma," or a primary lesion of the lip or tongue, simulating an epithelioma with glands, or condylomas in the guise of atypical hemorrhoids, until he has called in the man in his locality who is interested in and has some special knowledge of syphilis. Never let a bubo pass without a glandular aspiration for spirochaetes. Cease to do circumcision in the presence of undiagnosed lesions on the foreskin. Punish with your scorn and medical ostracism the man who uses cautery, dusting powder, and

pooh-pooh upon the penile sore, or upon the eroded papule or leukoplakial plaque on the mucosa, until he has competent advice on the question of syphilis. A new day will dawn for the social order and for our patients, when we are not afraid to publicly denounce as a quack the man to whom all dermatoses are simply "heat rashes" or "ring worm" or "eczema." It is only by shoulder to shoulder co-operative work of this sort that we shall be able to win the degree of public confidence essential to the successful conduct of the new campaign against syphilis.

### III. The Problem of More Efficient Treatment.

Our second great obligation as a profession in the movement against syphilis, is to provide more efficient treatment. The outstanding difficulties in the present unsatisfactory situation concern: (1) the factor of the high cost and the necessarily long duration of treatment, (2) the difficulty of maintaining the patient's co-operation, (3) the willingness of patient and physician to be contented with symptomatic results, and (4) the inroads made by quackery on a field of this character.

**Cost.**—The high cost of treatment for syphilis is a problem whose seriousness no physician has lacked opportunity to appreciate, sometimes to his own cost. The long duration of the disease, the necessity for repeated elaborate tests, the time-consuming manipulations, all make the proper care of a case a burden on the physician quite as much as on the patient. If we are to make effective headway against the disease we must be prepared to put the maximum of effort on its early stages. Yet at this stage of the game the large majority of our patients will be in the least productive period of their lives, just starting to make a way in the world, and not in position to carry a heavy financial burden. When in later years they reappear in the guise of tabetic bank presidents, retired farmers with aortitis, wealthy merchants with hepatic cirrhosis, ready to barter their last possession for a bit of health, nothing can be done. It is indeed a wise provision of the Scandinavian type of public program, after which your own is patterned, which draws on public funds for assistance in treatment when necessary, preferring rather to

pay taxes to secure healthy citizenship, than to pay them to support invalidism. But such plans will not be of immediate or universal application, no matter how ambitious the program for public facilities. There is great need for an immediate concerted effort to reduce the cost of treatment for syphilis for that very large class of patients of moderate means, who fall between public charity and the expensive private services of the specialist. This movement has already had some application to other fields of medicine, as you know. A great step in advance in the treatment of syphilis can be made in a short time by the pooling of resources and the treatment of a number of patients under one central direction. Such centralized service for the management of syphilis can be established in connection with the larger hospitals and medical groups at the present time, and is capable of providing both a high-grade treatment and an advisory service for ordinary people at moderate cost. For admission to such a service the patient should pay a minimum advance fee that covers the cost of medication, his professional fee being subject to later adjustment according to his means. If he is not able to meet the advance fee, he should, in general apply for aid to a public dispensary. Pay services of this type can be carried on economically and yet command a large and very acceptable clientele. The returns both financial and scientific justify the time and attention of an expert. In this type of organized effort for the better care of syphilis, all the voluntary incentives to the best type of co-operation between physician and patient can be brought to bear. Early diagnosis is available, treatment can be made more nearly ideal, each patient can be followed up and can learn the social and personal relations of the disease. The disastrous effects of being lost sight of during the contagious period and later, can be largely prevented. I can unhesitatingly commend to your attention this innovation in the co-operative management of syphilis as an adjunct, and a most necessary one, to the measures contemplated in your public plans for reducing the cost of treatment. You should not wait passively for the state to take over the whole situation, for between the announcement of the program and the completion of the

work you will find innumerable difficulties, best met by providing a temporary but effective substitute in private initiative.

**The patient's co-operation.**—Our second obstacle to efficient treatment, the failure of the patient to co-operate, is often as much our responsibility as his. There are undeniably those who will do what is best for them only under duress and legal compulsion. But I have found the large majority of syphilitics to be extraordinarily amenable to the personal touch, and more often careless or indifferent through ignorance than folly. Few really intelligent human beings, and there are a large proportion of them among the victims of this disease, will deliberately seek their own disadvantage if the matter is laid before them in an understandable yet authoritative manner. We do not need to wait for the promulgation of laws to bring syphilis to book. In fact if we do wait, our very passivity will make the laws dead letters when they come. Each one of us must be active in seeing that the number of patients who disappear from his care uncured, is brought to an irreducible minimum. Frankness, fearless honesty, thorough-going knowledge, and a warm-hearted humanity on the part of his physician make as strong an appeal to the syphilitic as to any other patient. To supply more of these qualities in ourselves, is the best way to meet the reproach that we cannot hold syphilis to adequate treatment.

**Symptomatic cure.**—The common acceptance of symptomatic and partial criteria as standards of cure, is the most serious aspect of the problem of more efficient treatment. For one man the symptomatic clue for stopping treatment is the disappearance of the eruption, or the healing of the lesion. For another it is the first or the second negative Wassermann. A third will say to his patient, at the end of three years of treatment and Wassermans, "You have had 20 injections of arsphenamine, and five courses of mercury salicylate. I have done all that the best practice requires. You are cured." Within a year the patient will die, as I have known him to, of general paresis. Such cases simply point the moral, that the search for evidence of cure in this disease must extend into every nook and cranny of the body, and employ every conceivable resource. The

provocative test, the examination of the fundus of the eye, the condition of the eighth nerve, the spinal fluid examination must all be employed and then the result can only be interpreted in the light of a full clinical experience with the case. The pitfall of symptomatic results and false cures will never be done away with until each and every one of us realizes that there is no one finding or symptom which signalizes the cure of syphilis, not even reinfection, so long as the question of superinfection is not laid to rest. Neither is there any specific amount or kind of treatment which can be regarded as standard, though the misconceptions on this score are well evidenced by the practitioner's favorite question, "What is your treatment for syphilis?" In the face of the moot points and contentions that confront us everywhere, it is impossible to dogmatize. Repeated negative Wassermans may be obtained (Fruhwald) on persons in whose blood the spirochaeta pallida can be demonstrated by animal inoculation. Active lesions may appear on the mucosa of patients who are Wassermann negative, or who are in the midst of intensive mercurial treatment with inunctions or insoluble injections. On the one hand one sees neuro-recurrences from the inefficient use of salvarsan, on the other from the inefficient use of mercury, and again following the adequate and intense administration of both drugs. We see a woman at the age of forty-five, with nothing remaining of her infection except a low-grade choroiditis and a reduced bone conduction with normal hearing. Treatment in her case had consisted of a few weeks of pills during her eruptive period. Her husband after receiving essentially the same treatment is now an advance case of paresis. A given patient has by painstaking and persistent use of modern methods been gradually freed from all clinical and serological signs of the disease and has remained free. To compare with him we have another patient of seemingly the same type, who, under the same management has obstinately refused to respond. For the confusion of mind which the contemplation of these things engenders, I can only offer certain generalizations to guide you in your use of modern methods in the treatment of syphilis.

Accept no single sign of improvement in the disease as an indication to stop treatment, if the tolerance is normal. Only the all-around cessation of the process means anything, and it means nothing unless it persists through months and years.

Arsphenamine therapy is essential. It, and not mercury, controls contagiousness. It, rather than mercury, yields the quick symptomatic result.

Mercury is indispensable, a homely but reliable servant, the basic factor in permanence and the great renewer of immunity.

Most syphilis is undertreated. Strike hammer blows and strike them early. Treat a little too much rather than not enough.

Promise no man a cure, and release no patient from the obligation of occasional observation throughout life. Our experience with modern methods is still too brief to justify anything but an extreme conservatism. The man who treats syphilis with these principles in mind will be an efficient servant of the public good in whatever capacity he may be called.

**Fraudulent exploitation.**—Few physicians, I think, realize their full duty toward quackery and fraudulent exploitation in the field of the venereal diseases. I want specifically to direct your attention to drug-store prescribing, which I think outside of our own professional blunders, is the most fruitful means of defeating the early recognition and prompt, efficient treatment of syphilis. An untreated primary lesion is the *sine qua non* of an early diagnosis. Repeated public health investigations have shown how often the patient is lulled into a short-lived false sense of security by a little calomel powder or a wash offered him by a drug clerk in whom he confides. In our larger cities the trade in iodide and mercurial mixtures as blood tonics is enormous, and destructive in its effects. The legislative programs of European countries, including Great Britain, specifically provide for the punishment of this type of malpractice. Be active in the search for it yourselves. Set traps for druggists who dispense treatment, or who carry nostrums of this sort on their shelves and secure their punishment. No medical society is doing its full duty which is not active in this work.

**Centralization and specialization in treatment.**—By way of a summary of what I have said on more effective treatment, I want to reiterate that the centralizing and specializing tendencies observable all through medicine can be applied very satisfactorily to the management of syphilis, and that this is the trend of all the modern movements. Our best co-operation in the problem will be along these lines. There seems no intrinsic reason why with a little self-sacrifice on the one side and a little consideration on the other a co-operation between the clinical expert on syphilis and the general man cannot be developed, similar to that which prevails in specialties such as surgery. Hospital and clinical centers for the control of treatment and for expert advisory purposes can be developed in the larger towns, to which the men in smaller towns and in the country could periodically refer their patients for opinions and special examinations. Such centers could offer the attractions of private care, as I have explained. Every patient should undergo a period of residence in such a treatment center, to learn, as do Joslin's diabetics, the principles and the hygiene of their disease, and to give their consultant intimate personal knowledge of their cases. In my own experience with syphilis as it is dealt with by the profession at large, the factor most often lacking in the previous management of the patients I see, aside from diagnostic knowledge, has been judgment,—the realization of when to stop, when to begin, what to do next. Certain elements of expert judgment are of course not to be gained from texts or delivered in lectures or dispensed *ex cathedra*. They are like eyesight and intuition—not transferable. There are few more embarrassing or unanswerable questions than that favorite of the general practitioner, "how do you treat syphilis?" There is no doubt that much of the real benefit of expert management for the disease can be secured by periodic refers to a consultant or advisory center, where the same syphilologist can periodically renew acquaintance with the case, aided by a complete system of record and all the modern tests. Such centers the profession should be making efforts to create voluntarily in the ways which were suggested under early diagnosis, in which the same problem exists. It

will interest you to know that Germany has developed just such a system of supervisory centers for the care of infected soldiers on their discharge from the army. Under this system each man will be paroled so to speak, to the advisory center (Beratungsstelle) in his home neighborhood, and his treatment will be continued by duly authorized practitioners under the direction of the center. Similar measures are in contemplation to meet the problem of post-bellum venereal disease in other belligerent countries, and the way is paved for them in the Anglo-Saxon plans in general. Their extension to the management of the disease in civil life and private practice already has its homologue in the field of tuberculosis and it will come inevitably in the care of such a disease as syphilis. As a profession we shall be wise then, to initiate the measure of our own free will, rather than to have it forced on us by a growing public appreciation of its necessity. It rests with us to disprove the pessimistic estimate of one of our most widely known genito-urinary men, that any measure which tends to make treatment effective in syphilis, and tends to bring it into the hands of experts, will be made over the dead bodies of the medical profession.

#### IV. Public Enlightenment and the Medical Profession.

We must assume a larger share in public enlightenment. This is our third great point of contact, as a profession, with the modern problem of venereal disease. Public enlightenment is coming inevitably. Every man who returns from the war will become a focus for crude and uncontrolled enlightenment. The increase of syphilis in such a country as France is being estimated already on the basis of the fact that it was two and one-half times as prevalent in one of the large Parisian clinics in December, 1916, as it was in 1914. In all the armies of the world, millions of men are being educated on the subject of sex hygiene, on moral and medical prophylaxis, and on modern methods of treatment. Their return will be followed by a wholesale dissemination of knowledge at second hand which will penetrate every corner of the earth. It will compel a revision of medical standards, which we can do no less than anti-

cipate voluntarily. Where will the man be who says, "I don't believe in the spirochaeta pallida and salvarsan," five years from now? Traditional silence, ultra-conservatism and stand-pat ethics will be swept to oblivion, and their adherents with them. Already Italy and Germany have inaugurated, in a most uncompromising fashion, a campaign of public enlightenment which we Anglo-Saxons are perhaps disposed to regard as extreme. Dissemination of knowledge on venereal prophylaxis and treatment to the population at large, has the sanction of these governments, and its spokesmen are like Blaschko and Stanziale, among the leaders of the medical profession in the field in their respective countries. If we sit by while public understanding of the situation outstrips us and goes on to the development of new policies in which we have been obstructionists rather than participants and leaders, spokesmen and molders of public opinion, we shall richly deserve the contempt which will be ours. There cannot be too much enlightenment, and the responsibility for its authenticity, its high moral quality and its universal spread is up to us. If we let the ministry stand sponsor for the morals, laymen for the authenticity, and the Y. M. C. A. for the enthusiasm, shall we not stand justly accused of what Robert Louis Stevenson prayed to be delivered from—cowardly silence and misleading speech?

What shall we do? First, be informed on the situation. Every physician should be vitally interested at this time, in the whole movement for the control of venereal disease in the armies and navies of the world. We should be reading the literature, studying the returns, asking questions. From the efforts of medical officers particularly, we must draw the lessons which will enable us to control the situation in civil life. Civil life is the focus of infection. Contrary to the usual conception, there seems little reason to doubt that the percentage of venereal infection is much higher in the general population than it is in the military forces of the world. This brings the obligation for the deplorable conditions which have prevailed, squarely on us. The well-known increase in venereal morbidity occurring during the mobilization of troops, illustrates the immediacy of the relation. With all due allow-

ances made for the somewhat greater disposition to sexual laxity among recruits which prevails at such a time, we cannot fail to be impressed with the index of civil conditions furnished by the flood of venereal infection which occurs coincidentally with each new increment to an army from the general population. No one army or nation has a monopoly of this situation. The Surgeon General's reports for the United States armies during the various mobilization movements are perhaps the best body of statistics extant illustrating the point, though the observations of Klausner, Tullidge, Thibierge and others, have shown that high mobilization rates have been the rule the world over, and that they have been in the past too little appreciated, owing to the lack of adequate statistics covering the point (Great Britain for example). There can be no escaping the fact that unless we make the most heroic efforts to control the sources of infection in civil life, the work of our army surgeons will be nullified repeatedly by the wholesale importation of infected material and by the constant exposure of the personnel to risks, which even the most rigorous prophylaxis cannot minimize.

Physicians have, I think, in the past, been entirely too prone to separate social from medical problems, and to appropriate the latter to themselves, leaving the former to a stepmotherly care at the hands of laymen. Such an attitude spells retrogression in the control of venereal diseases. If there is any field in which the physician can appropriately play the role of sanitarian, moralist, clergyman, lawyer and business man, it is in this one. One of the revelations of the war has been the importance of the personal, the social and the moral factors in the control of disease in general, and of venereal disease in particular. Athletic activities, recreation, letters from home, the theater, hot coffee, have all been called on to help in the maintenance of morale. Lessons of direct applicability to the civil population are to be learned on all sides from the success of the American Commission on Training Camp Activities, the International Y. M. C. A., the Committee on Civilian Co-operation of the Council of National Defense, the Salvation Army, and similar types of organization of the various belligerent countries, whose task has been to

keep the soldier "Fit to Fight." We believe that the United States at the outset of its participation in the war, set an example worthy of your emulation, in standing for the outright suppression of prostitution wherever it can be reached, rather than its official toleration, as in Germany and France, its actual officialization as in Italy and Japan, or the attitude of *laissez faire* which even British officers have been obliged to confess has marred their army program. From our armies we must draw the lessons in ideals and methods that will enable us to cope with our side of the problem in the general population. That part of the profession which still holds the outposts in civil life in all parts of the world, cannot ignore its opportunity and its duty. Every town within furlough distance of a cantonment which contains a vicious rendezvous for soldiers means a slack medical profession, quite as much as an inefficient police force and a low morale. Every medical examiner who certifies a man to be physically fit, without at the same time warning him in brief but unmistakable terms as to how he should preserve his fitness, has lost an opportunity to serve in the first line trenches in this fight. Every woman known to be a source of infection who continues to ply the trade, is a reflection on some one of us who has not done his bit to suppress such activities. The batches of infected men who go to mobilization camps are less a stigma on the civil population at large, than on its physicians who know what these things mean, and have tolerated them. No law except our consciences can exact of us these vital services to our cause. Let us see that they pledge us to them without reservation.

I think that medical men generally are also too much inclined to take negative attitudes on social questions. We must have only one ideal in this work—to emulate the apostle in becoming doers of the word and not hearers only. These are the times for us to cast dignity aside and throw our hats into the ring. See that there is a brick in each hat for the man that kicks it. Be positivists. Stand for no less a principle than the absolute suppression of every vicious incentive to sexual activity. Preach continence without a smirk. See that no man is victimized through ignorance of the situa-

tion. Never let medical prophylactic advice to the man who exposes himself be your last word on the subject. Most of us have sons. Most of us know what it will mean to us to see them grow into straight men, men of honor and integrity, of unbesmirched bodies and minds. How can we contemplate with equanimity the lineup of our sons before a row of official prostitute cribs, or offer to the boy who represents our immortality and our hope a tube of calomel ointment with the satyric injunction "if you can't be good be careful." There is still enough worth while in clean living to command the support of red-blooded men. Nor could there be a more pitiful commentary on the anemic quality of our moral fiber than to have the social hygiene of the future become the plaything of faddists, and the "unco guid," the rallying ground of cranks and prudes.

Let us then, use every opportunity to mold legislation, to teach, and if the opportunity offers, to preach. Sooner or later Canadian physicians, no less than those in every other country, will confront the problem of the dissemination of prophylactic knowledge on venereal disease among the public at large. Begin to give the matter earnest thought, and to educate public sentiment to its dangers as well as its advantages. Medical prophylaxis for venereal diseases should, I believe, remain under the control of the profession, and it will be one of our first duties after being able to administer it, to see that it is never given without a generous and effective dose of moral and educational prophylaxis. It is one of the specific provisions of the military medical code of the United States army, that the prophylaxis shall never be permitted to become a laughing matter, and that it shall be in the hands of men whose prestige and responsibility fit them to say the effective word or two that keeps many a young fellow from becoming a "repeater." Prophylaxis is too effective an instrument against venereal disease to long remain in the background when the campaign is once in full swing. See to it that it is effective for good and not for evil when the power to use it is placed in your hands.

Let me urge it on you that you teach. If more of you would appreciate the *ex cathedra* position which the medical profession holds on the subject of venereal diseases, you would teach for the sheer delight of being heard as

gospel. Let those among you with the compelling eye and the power to swing the vernacular, use those powers in behalf of public enlightenment, and let stutters discretely hold their peace. Much able work has been done by committees of medical societies and boards of health in the United States and in our larger cities in the development of organized intelligent publicity on the subject of venereal disease prevention and control. One of the most effective methods thus far found has been the use of visual impressions, always the most vivid and convincing mode of teaching, in the form of so-called health exhibits. In these exhibits, authentic information is conveyed by placards and picture posters, skillfully prepared. Such exhibits can be obtained from the American Social Hygiene Association in New York, and set up in small towns and concentration camps, hospitals and Y. M. C. A. centers. They are immeasurably superior to tracts and leaflets, in teaching the average layman, as the experience of the armies abroad has shown. None of this work is too petty for us to do, and all of it yields a substantial return in the more intelligent co-operation which it gains for us on all sides.

I realize that I have been talking to busy men, hard pressed by the labor of carrying on not only their own professional responsibilities, but those of the men who have been drawn to the armies. But we are penny wise and pound foolish, and shortsighted beyond belief, if we devote hours of precious time to the diagnosis and treatment of the sequelae of venereal disease, and have none to spare for the vastly more effective measures of prevention. I myself, need these reminders of duty as much as any of you. We are slackers if we do not support the new regime by redoubled stress on the vital necessity for early diagnosis and vigorous, effective treatment. Individually or by unselfishly pooling our collective resources, we must provide the men and the means to make new laws and modern methods effective. We must, moreover, emerge from our professional reserve to study and deal with the problem of the venereal diseases from the standpoint of human nature, of the social order and of high principle. In these ways, quite as truly as by the formal filing of notification blanks and the invoking of the law against the recalcitrant and irresponsible, will we serve.



# Minnesota Medicine

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## EDITORIAL

### NECESSITY KNOWS NO LAW.

The rapidly increasing fighting forces of the United States Army, so familiar to every doctor who reads the lay papers, must impress him with the fact that the Medical Reserve Corps must keep pace in the way of expansion.

With every thousand men in the fighting forces there must be ten medical officers, so it is a matter of simple calculation to figure the requirements of the Surgeon General's Office in the number of medical officers that must be at the command of the Surgeon General when required.

With three million men in the United States Army by the end of August, this means 30,000 doctors, and there are now less than 20,000 on the active list of the Medical Reserve Corps. In addition to the number required for immediate assignment with troops, a large Reserve Corps should be at the command of the Surgeon General so that when the necessary number is required, they will be at his disposal.

The doctor is the most favored of all professional men in the matter of his assignment. The lawyer, as an example, when drafted or when he voluntarily offers his service and assigned to duty, draws \$30.00 a month pay. The lowest pay accorded a medical officer is \$2,000 a year with additional pay for commutation of quarters for dependents.

It is the belief of the Surgeon General that a sufficient number of physicians will voluntarily come forward and offer their services as medical officers, and we therefore must do our duty not only to our country, but to those who are so admirably conducting this war in which we are now engaged.

A large and well trained Medical Corps is absolutely essential as 80 per cent of the casualties are returned to the line through its ministrations and it must not be a matter of history that a sufficient number of medical officers have not volunteered their services to properly care for the mobile forces, attend the wounded and sick in hospitals and to supply the Surgeon General, whatever the demands might be.

Five thousand physicians a month for an indefinite period is the requirement and those doctors who are of the opinion that other physicians in their immediate neighborhood are better qualified or have less responsibility than themselves, should, in view of the crisis now facing us, subjugate their individual opinion and apply to their nearest Examining Board for a commission in the Medical Reserve Corps.

A Medical Reserve Corps should be what its name implies, a corps of reserve physicians upon which the Surgeon General may call; and this country today should have a Reserve Corps of not less than 50,000 doctors and every physician should feel it his duty to be part of this organization.

### WHY SHOULD THE SURGEON GENERAL APPEAL FOR MEDICAL OFFICERS?

Of the 146,000 doctors in the United States, it is a safe calculation that at least 70,000 of this number are within the age limit, from 21 to 55 years, and are physically and morally qualified to serve as Medical Reserve Corps officers.

Why, in view of this fact, the Surgeon General's Office should be hard put to secure a sufficient number of medical officers to supply immediate demands and to furnish a reserve force of between forty and fifty thousand doctors is not quite comprehensible.

Every qualified physician, knowing how essential his services are to his country at this particular time, should consider it not only his duty, but a privilege to take part in this glorious struggle for humanity and democracy.

This is the time when individual opinion must be sacrificed for the benefit of the whole, and the time is near when every doctor must be in one or two classes: either a member of the Medical Reserve Corps, United States Army, or in the Volunteer Medical Service.

If you are between the age of 21 and 55 years, and there is a doubt in your own mind as to whether you are qualified or not, let the Surgeon General determine this matter by applying at once to your nearest Medical Examining Board for a commission in the Medical Reserve Corps.

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### DIGITALIS GROWN IN AMERICA.

Up to the entry of the United States into the war this country had depended largely upon German houses for crude drugs and the chemical extracts made from them. For example, the United States was using German-grown digitalis. Certain universities, notably those of Minnesota, Wisconsin, and Oregon, had for many years in their pharmaceutical departments grown small areas of digitalis and other medicinal plants. More fortunately still, Prof. Rowntree, of the University of Minnesota, had made pharmaceutical tests of the digitalis grown in connection with this university and had found it quite equal, if not superior, to German-grown plants. The Research Committee of the Council of National Defense appealed

to this university and it responded promptly and patriotically. During the summer of 1917 it grew and harvested about 2 acres of digitalis, at a cost of approximately \$3,000. In addition to this, wild digitalis in Oregon and Washington was gathered in considerable quantities, and all this material has been properly prepared and turned over to the Medical Supply Department of the Army, so the supply of digitalis in this country is ample. The American-grown digitalis is a different species from that ordinarily grown in Germany, and this species has proved pharmaceutically to be even better than the German species.

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### VOLUNTEER MEDICAL SERVICE CORPS.

In order that the services of physicians ineligible for appointment to the Medical Reserve Corps on account of over age (55), physical disability, or civil or institutional needs, and women physicians, might be utilized by the government, the Council of National Defense, upon the recommendation of the chairman of the Committee on Medicine and Sanitation, authorized and directed a committee to organize the Volunteer Medical Service Corps. A special committee to draft a plan was appointed, and on January 13, 1918, the plan presented to the General Medical Board was approved. The central governing board, in which is vested the general management of the corps, was appointed and the machinery has been set in motion to secure members, first application blanks being sent to the 5,000 doctors ineligible, because of slight physical disability, for the Medical Reserve Corps. The central governing board is a committee of the General Medical Board. The state governing boards consist of the state committees, medical section, Council of National Defense.

The services of the members of the corps will be rendered to existing governmental agencies upon the request of the Army, Navy, Public Health Service, and American Red Cross to fill certain needs not already covered, and such other services as may be determined by the central governing board of the Volunteer Medical Service Corps.

The procedure for joining is simple. The applicant forwards his filled blank to the central

governing board in Washington, and it is then referred to the proper committee for its recommendations as to the qualifications of the applicant and as to the kind of work for which he seems most fitted.

#### *Rules of Organization.*

1. *Name.*—The name of the organization shall be the Volunteer Medical Service Corps of the United States.

2. *Object.*—(1) The object of the corps shall be to establish an emergency medical organization to perform, when required, such civic and military duties as are not provided for.

(2) Services of members will be called for and rendered in response to requests to a Central Governing Board from the Surgeon General of the Army, the Surgeon General of the Navy, the Surgeon General of the Public Health Service, the General Medical Board of the Council of National Defense, or from other duly authorized departments or associations.

3. *The Corps.*—The corps shall consist of all members of the organization. The general management of the corps shall be vested in a Central Governing Board.

4. *Central Governing Board.*—The Central Governing Board shall be a committee of the General Medical Board, Council of National Defense.

5. *Officers.*—The officers of the corps shall be a president, a vice president, and a secretary, and shall be appointed from among the members of the Central Governing Board. These officers shall constitute the executive committee of the Central Governing Board, and shall direct the activities of the corps.

6. *State Governing Boards.*—(1) The State Governing Boards shall consist of the members of the State Committees, Medical Section, Council of National Defense. The State Committees shall select, subject to the approval of the Central Governing Board, five of their members who are eligible for election in this corps to act as the Executive Committee of the Volunteer Medical Service Corps in the respective states.

(2) The duties of the Executive Committee of the State Governing Board shall be to consider applications for membership in the corps

from the respective states and to submit recommendations regarding these applications to the Central Governing Board.

(3) The State Governing Board shall aid in the work of the executive committee and perform such other duties as may hereafter be deemed essential by the Central Governing Board to accomplish the purpose for which the corps was created.

7. *Membership.*—(1) Such physicians shall be eligible for membership in this corps as would be accepted in the Medical Reserve Corps were it not for,—

- (a) Physical disability.
- (b) Over age (55).
- (c) Essential public need.
- (d) Essential institutional need.
- (e) Dependents.

(2) Women physicians are eligible.

(3) Application for membership in the Volunteer Medical Service Corps shall be made upon blanks furnished for that purpose by the Central Governing Board. The completed form shall be returned to the Central Governing Board for proper classification according to training and special fitness.

8. *Method of Election.*—(1) The members of the corps shall be graduates in medicine who are licensed to practice medicine in their respective states, who have made application for membership, who meet the qualification requirements that are now or shall from time to time be established by the Central Governing Board, and who shall be elected to membership by the Central Governing Board.

(2) Each physician elected to membership in the corps shall be designated as a member of the Volunteer Medical Service Corps.

(3) It shall be the duty of each member of the Volunteer Medical Service Corps to notify the Central Governing Board when eligibility to the corps ceases to exist.

9. *Insignia.*—(1) Members of the corps shall be authorized and encouraged to wear the insignia of the corps.

(2) The insignia may be secured by members of the corps under such regulations as may be determined upon by the Central Governing Board.

(3) The insignia shall not be loaned to any person not a member of the corps, nor shall it

be worn after notification that eligibility to the Volunteer Medical Service Corps has ceased to exist.

10. Any member of the corps may be expelled for conduct which, in the opinion of the Central Governing Board, is derogatory to the dignity of the corps or inconsistent with its purposes.

11. *Authorization.*—The organization and insignia have been authorized by the Council of National Defense.

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### PHYSICIANS LICENSED TO PRACTICE IN MINNESOTA AT THE JUNE, 1918, EXAMINATION.

#### Upon Examination.

Anderson, Hilding C.	- - U. of Minn.	1918
Broker, Walter S.	- - - U. of Minn.	1918
Buscher, Herbert H.	- - U. of Minn.	1918
Calkins, LeRoy Adelbert	- U. of Minn.	1918
Cole, Wyman C. C.	- - - U. of Minn.	1918
Eager, Ben F.	- - - - Northwestern,	1918
Fineman, Solomon	- - - U. of Minn.	1918
Fjellman, Ruben Columbus	- U. of Minn.	1918
Giere, Silas Waldemar	- - U. of Minn.	1918
Gilles, Floyd Lester	- - Syracuse U.	1917
Gillmore, Ernest George	- Syracuse U.	1917
Hathaway, Stillman John	- U. of Minn.	1918
Herrmann, Edgar T.	- - U. of Minn.	1918
Hocum, Harold Emery	- - U. of Ill.	1918
Holm, Hillard Herman	- - U. of Minn.	1918
Larson, Arnold	- - - - U. of Minn.	1918
Lick, Charles L.	- - - - U. of Minn.	1918
Little, Roy C.	- - - - U. of Minn.	1918
Logefeil, Rudolph Charles	- U. of Minn.	1918
Lund, Theodore C.	- - - U. of Minn.	1918
McGeary, George E.	- - U. of Minn.	1918
McKinley, John Charnley	- U. of Minn.	1918
Manitoff, Anna Rachel	- - Boston U.	1915
Morrissey, Frank B.	- - U. of Minn.	1918
Mulder, John L.	- - - - U. of Minn.	1918
Nathanson, Morris	- - - U. of Minn.	1918
Pederson, Nellie C. E.	- - U. of Minn.	1918
Perkins, John N.	- - - U. of Minn.	1918
Peyton, William T.	- - - U. of Minn.	1918
Radusch, Frieda Jeannette	- U. of Minn.	1918
Roholt, Christian L.	- - U. of Minn.	1918
Runnerstrom, George Elmer	U. of Minn.	1918
Rutledge, Lloyd Howard	- U. of Minn.	1918
Schwartz, Virgil J.	- - - U. of Minn.	1918
Slater, Edward Phelan	- U. of Minn.	1918
Stenberg, Edwin Severance	- - - - -	
	Jefferson Med. College,	1917
Timm, John A.	- - - - U. of Minn.	1918
Wallinga, John Henry	- - U. of Minn.	1918
Weisman, Samuel A.	- - U. of Minn.	1918
Ylvisaker, Laurits S.	- - U. of Minn.	1918
Zierold, Arthur A.	- - - U. of Minn.	1918

#### By Reciprocity.

Broders, Albert Compton	- - - - -	
	Med. College of Va.	1910
Furman, Raymond Walter	- Northwestern,	1909
Kistler, Alvin John	- - - Marquette,	1915
Logan, Fred Wallae	- - U. of Iowa,	1901
Lyons, Michael William	- - - - -	
	Milwaukee Med. College,	1911
Rawlings, Harvey Francis	- - - - -	
	U. of Louisville,	1910

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### NOTICE.

#### Special and Urgent Call for Foreign Service with American Red Cross.

Wanted, at once, applications from physicians over draft age; general practitioners, pediatricians, tuberculosis specialists, dentists, hospital superintendents.

Write for information to Medical Advisor, Northern Division, 202 Essex Building, Minneapolis, Minn.

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### OF GENERAL INTEREST

The Owen-Dyer Bill in reference to the Medical Department of the Army as passed and approved by the President of the United States on July 9, 1918, is as follows:

“Increase in Medical Department: That the Medical Department of the Regular Army be, and is hereby, increased by one Assistant Surgeon General, for service abroad during the present war, who shall have the rank of major general, and two Assistant Surgeon Generals, who shall have the rank of brigadier general, all of whom shall be appointed from the Medical Corps of the Regular Army.

That the President may nominate and appoint in the Medical Department of the National Army, by and with the advice and consent of the Senate, from the Medical Reserve

Corps of the Regular Army not to exceed two major generals and four brigadier generals.

That the commissioned officers of the Medical Corps of the Regular Army, none of whom shall have rank above that of colonel, shall be proportionately distributed in the several grades as now provided by law.

That the commissioned officers of the Medical Reserve Corps of the Regular Army, none of whom shall have rank above that of colonel, shall be proportionately distributed in the several grades as now provided by law for the Medical Corps of the Regular Army: Provided, that nothing in this Act shall be held or construed so as to discharge any officer of the Regular Army or deprive him of a commission which he now holds therein."

Under this bill the ranks in the Medical Reserve Corps, based on the report of the Surgeon General of July 12th, are as follows:

Major Generals .....	2
Brigadier Generals .....	4
Colonels .....	675
Lieutenant Colonels .....	1,158
Majors .....	5,063
Captains and Lieutenants.....	14,374

It has been decided to postpone the joint meeting of the Sanitary Conference and the Minnesota Public Health Association until some time in the fall of the year, and not to call these meetings at the time of the annual meeting of the Minnesota State Medical Association.

Dr. Philip A. Brady of Hastings, a well known physician and surgeon died at his home July 21st. Dr. Brady was 38 years of age. He was graduated from St. Thomas College, St. Paul, later going to Jefferson College in Pennsylvania, from which he received his doctor's degree.

Dr. Axel A. Pesonen, well known practicing physician and surgeon of Duluth, succumbed July 17th to an attack of suppurative appendicitis, following an illness of six weeks. He was 38 years of age. He came to Duluth about seven years ago, but later made his home in Virginia, Minn., returning to Duluth about one year ago. He was associated in the practice of his profession with Dr. E. L. Lindgren.

Dr. Ferdinand Lessing formerly of Wabasha, Minn., passed away at his home in Philadelphia, July 10th. Funeral services were held in that city on July 12th. Dr. Lessing will be remembered by the older residents of Wabasha who knew him when he practiced there in the early eighties and prior to that time. After leaving Wabasha he practiced in Winona, later going to Philadelphia where he has lived since. Though a man of eighty-one years, the doctor continued his practice up to the time of his death. Dr. Lessing was an army surgeon in the Civil War.

Dr. Wm. Kirkpatrick returned to his home in Bellingham, Wash., early in July, after having spent nearly a year in the stricken country of Roumania in charge of one of the medical units sent out last year by the United States government to combat the scourge of typhus fever and other diseases which have ravaged Roumania. A letter from Mrs. Kirkpatrick gives an account of the difficulties the doctor encountered in getting out of that country. He was on one of several trains carrying about 1,100 Roumanian troops and physicians. They went first to Odessa and thence to Moscow, luckily getting through just before the German advance in the same direction, and the Bolshevik troops apparently did not relish the job of attacking such a large force. From Moscow the doctor went to Kola in Lapland, and thus ultimately arrived in England. He was seven weeks in reaching Lapland with the helter-skelter accommodations of a moving railway train all that time. In England he was shown many attentions by the military physician who was in charge of the British medical expedition in Roumania last year, when the two worked almost side by side. Both Dr. Kirkpatrick and his wife, who was then Dr. Addie Gilman, were formerly members of the state hospital staff of physicians in Fergus Falls, Minn.

Word comes to us that Lieut. Stanley R. Maxeiner of Minneapolis, who has been with the British Expeditionary Forces for the past year, has devised a splint for the temporary care of fractures of the humerus, the excellence of which has been attested by orders from the colonel of his division that the splint be made a part of the regular equipment and be used by all the medical officers of his division.

Dr. J. W. Andrist of Owatonna, who has been commissioned a captain in the Army Medical Corps, received word to report for active duty on July 20, at Camp Zachary Taylor, Louisville, Ky.

Dr. R. D. Hubert, St. Paul, chief city health inspector, has resigned to enter the army service. Dr. Hubert received a commission as captain in the medical corps and is now in active service at Hartford, Conn.

Dr. D. MacDonald, Minneapolis, received a commission in the Medical Reserve Corps, July 19th.

Dr. S. S. Hesselgrave, St. Paul, left for Fort Riley, Kan., August 4th.

Dr. J. A. Gates of Kenyon, Minn., received word recently that he had been appointed a captain in the Medical Reserve Corps.

Dr. Henry Herbert Warner, 161 W. Third St., St. Paul, was commissioned August 1st, by the War Department, a first lieutenant in the Medical Officers' Reserve Corps.

Dr. Edward William Gaag of Great Falls, Mont., has located in Wheaton, Minn., where he will practice his profession.

Dr. D. J. Paradine, who has been practicing medicine at Floodwood, has moved to Cloquet.

Dr. T. Kjerland of Webster, S. D., died recently at the age of 58 years. His burial took place at Northwood, Iowa.

Dr. H. G. Blanchard of Waseca has been appointed a member of the local draft board to succeed Dr. J. F. Lynn who has enlisted in the Medical Reserve Corps.

Dr. P. M. Hall of Minneapolis, assumed full control of the state sanatorium for consumptives at Walker, Minn., August 1st. He was appointed superintendent of the institution recently by the State Board of Control to succeed Dr. George W. Beach, who resigned to enter a military medical unit.

Dr. Hall has been in active charge of the sanatorium for some weeks. He has practiced medicine in Minneapolis since 1882, was a member of the first state board of medical examin-

ers, and was health commissioner in Minneapolis from 1901 to 1912.

The following Northwest men have been amongst those who have recently won commissions in the United States Army Medical Service:

Captains: J. W. Andrist, Owatonna, Minn.; A. E. Benjamin, Minneapolis; J. P. Freeman, Glenville; J. A. Gates, Kenyon, Minn.; M. M. Hursh, Grand Rapids, Minn.; Merlin C. Johnston, Aberdeen, S. D.; Max J. Kern, St. Cloud, Minn.; A. G. Moffat, Howard Lake, Minn.; W. E. Richardson, Slayton, Minn.; Karl Heinrich Schmidt, Minneapolis; Charles C. Walker, Lambertton, Minn.; James D. Weir, Beardsley, Mont.

First Lieutenants: Willard J. Fenton, Mystic, Iowa; Christian H. Herrmann, Jr., Amana, Iowa; A. L. Lee, Buffalo; George McCreight, Albert Lea, Minn.; F. B. Morrissey, St. Paul; Judson W. Myers, Sheldon, Iowa; D. E. Nelson, Brainerd, Minn.; Robert B. Schoch, St. Paul; Joseph C. Storcken, Medicine Lake, Minn.

Dr. J. C. R. Charest, formerly of Okee, has located in Argyle.

Dr. H. F. Gammons arrived in Deerwood recently where he will have charge of the new tuberculosis sanatorium soon to be opened there.

Dr. B. P. Rosenberry of Winona, has been promoted to the rank of major in the Medical Corps of the United States Army. He is stationed at Camp Custer, Mich. Dr. Rosenberry enlisted in the medical corps as a first lieutenant, one year ago, and became a captain six months ago.

Dr. Charles J. McGuire for eight years a practicing physician at Altura, recently received a commission and was ordered to report for duty at the base hospital at Camp Dodge, Des Moines, Iowa.

Mobilization plans for the physicians of the country, whereby every member of the medical profession will be assigned to military or civilian duty have been in preparation for some time. The plan as announced contemplates the voluntary enrollment of every physician in a volunteer service corps under pledge by the governing body of the corps. The aim of the

plan is to provide sufficient doctors for the military program.

Physicians not assigned to military duty, would be distributed according to civilian requirements. In only exceptional cases it was emphasized would it be necessary to ask physicians to change their district of practice. While the plan as contemplated is voluntary, government medical officers did not hesitate to say that legislation providing for the drafting of members of the profession would be sought if the volunteer plan is not successful.

Dr. Roy G. Stevens of Sioux Falls, S. D., was recently ordered to report for duty at Camp Dodge, Des Moines, Iowa. Dr. Stevens was formerly associated with Dr. Moe in the Southern Minnesota Hospital at Heron Lake, Minn.

Dr. A. H. Parks, of 706 Physicians and Surgeons Bldg., Minneapolis, has received a commission as Captain in the Medical Reserve Corps and is awaiting immediate orders.

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## NEW AND NON-OFFICIAL REMEDIES

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**Chlorine Soda Ampules.**—Composed of a sealed glass tube stated to contain 4.8 Gm. liquid chlorine and a sealed glass tube stated to contain 21.3 Gm. monohydrated sodium carbonate and yielding, when the contents of the tube are dissolved in 1000 Cc. of water, a solution similar in composition to Neutral Solution of Chlorinated Soda—N. N. R. To prepare the solution the contents of the tube of monohydrated sodium carbonate are placed in a bottle having a capacity of about 2000 Cc. and dissolved in 1000 Cc. water. The tube containing the liquid chlorine is suspended from a rubber stopper and is inserted into the bottle and the stopper securely inserted. The large bottle (after covering with a cloth) is shaken to break the chlorine tube, and then shaken again for two minutes or longer. The solution freed from particles of glass is ready for use, or its available chlorine may previously be checked by titration. The solution so obtained is intended for the Carrel-Dakin treatment of infected wounds. Johnson and Johnson, New Brunswick, N. J. (Jour. A. M. A., July 6, 1918, p. 39).

**Dextri-Maltose No. 2, Mead's.**—A mixture containing approximately maltose, 53.1 per cent.; dextrin, 42.6 per cent., and moisture, 4.3 per cent. On the claim that maltose is more readily assimilable than other forms of sugar, Mead's dextri-maltose

No. 2 is proposed for use in the diet of adult invalids. Mead, Johnson & Co., Evansville, Ind.

**Dextri-Maltose No. 3, Mead's.**—A mixture containing approximately maltose, 52 per cent.; dextrin, 41.7 per cent.; potassium carbonate, anhydrous, 2 per cent., and moisture, 4.3 per cent. In the belief that an addition of potassium salts counteracts a tendency to constipation, it is said to be particularly adapted in the feeding of constipated infants. Mead, Johnson & Co., Evansville, Ind. (Jour. A. M. A., July 20, 1918, p. 193).

### PROPAGANDA FOR REFORM.

**Chlorine Soda Ampules.**—The A. M. A. Chemical Laboratory reports that the Chlorine Soda Ampules of Johnson and Johnson yield a solution containing the claimed amount of available chlorine if precautions are taken to prevent loss of chlorine when the solution is prepared. On the basis of the report, the Council on Pharmacy and Chemistry accepted the Chlorine Soda Ampules for New and Non-official Remedies. (Jour. A. M. A., July 6, 1917, p. 39).

**Proteal Therapy.**—Henry Smith Williams, who expounds the use of his "Proteals" for the treatment of cancer, tuberculosis and many other diseases, is better known in the journalistic world than in the field of scientific medicine. A few years ago, Dr. Williams appeared interested in the Autolysin treatment of cancer which at that time was being exploited. The present "Proteal" treatment appears to be a modification of the "Autolysin" treatment. Dr. Williams, in attempting to justify the use of his "Proteals" in tuberculosis, cancer, rheumatism, etc., takes advantage of certain investigations bearing on the non-specific reactions resulting from the parenteral injection of foreign proteins. (Jour. A. M. A., July 6, 1918, p. 58).

**Ophthalmol (Lindemann).**—The Council on Pharmacy and Chemistry publishes a report declaring Ophthalmol (Lindemann) inadmissible to New and Non-official Remedies. The preparation is advertised for the treatment of eye diseases. It is said to be an oily solution of "glandular extract of the fish *Cobitis fossilis*," but its composition is not definitely declared. The Council rejected Ophthalmol (Lindemann), (1) because the use in eye of an irritant of secret composition and of uncertain activity is unscientific and against the interest of public health; (2) because Ophthalmol is of secret composition, and (3) because no evidence has been submitted to substantiate its superiority over established methods of treatment. (Jour. A. M. A., July 6, 1918, p. 59).

**The Italian Consumption Cure.**—Daily papers have purported to give an account of a new alleged cure for pulmonary tuberculosis said to have been "discovered" by Professor Domenico LoManaco, of

Rome. The treatment is said to consist of the subcutaneous injection of sugar—the particular form of sugar not being specified. Italian medical journals and medical publications from other European countries appear to contain no reference to this latest "discovery." (Jour. A. M. A., July 13, 1918, p. 142).

**Silvol Inadmissible to N. N. R.**—The Council on Pharmacy and Chemistry reports that Silvol (Parke, Davis & Co.) is a silver protein preparation of the Argyrol type. Its physical properties are similar to those of Argyrol, and, like Argyrol, it is said to contain about 20 per cent. of silver. Like Argyrol it is non-irritant to the nasal mucosa in 10 per cent. solution. About the same claims are made for the local use of Silvol as are generally made for Argyrol, and these may be accepted. In addition, however, claims are made which are doubtful and which require substantiation. As the manufacturers have presented no evidence for their highly improbable claims, and as they have not signified any intention of making their claims agree with substantiated facts, the Council declared Silvol inadmissible to New and Non-official Remedies. (Jour. A. M. A., July 13, 1918, p. 140).

**Doan's Kidney Pills.**—A testimonial for Doan's Kidney Pills by Mr. Ford appeared in the Kankakee Daily Republican, nearly three months after he was dead and buried. The advertisement containing the testimonial said: "Follow Kankakee people's example, use Doan's Kidney Pills." (Jour. A. M. A., July 13, 1918, p. 140).

**Prescription A-2851.**—Eimer and Amend write that the reported analysis of their "rheumatism remedy," Prescription A-2581, by the Louisiana State Board of Health was incorrect in that it failed to state that 45 per cent. of it was wine of colchicum and in that it contained 9.3 per cent. and not 7.5 per cent. of potassium iodide. On the basis of the manufacturer's statement, each dose of the remedy contains 27 minims of wine of colchicum—almost a full dose. Colchicum is so uncertain that its use in products of the home remedy type should be unhesitatingly condemned. (Jour. A. M. A., June 20, 1918, p. 215).

**Vaderol.**—A rather expensively prepared advertising card, forwarded by a medical officer in France to the Surgeon General's office in Washington, read: Urinary Duets—Ancient and Recent Runnings—Cystitis, Prostatitis, Filaments—Speedy and Radical Recovery by means of the Vaderol—Used in the Urological Establishments in the Armies. The card is an interesting evidence of the attempt of a French patent medicine maker to exploit the English-speaking soldier now in France. (Jour. A. M. A., July 20, 1918, p. 215).

**Dependability of Tablets.**—There is no doubt about the convenience of tablets, but the accuracy of the dosage content is not always to be depended on. In 1914, Kebler reported the results of a far-reaching

investigation of tablet compounding in which he pointed out that tablets on the market were not as uniform or accurate as was generally believed. During the past year, the Connecticut Agricultural Experiment Station undertook the examination of tablets—proprietary and non-proprietary—taken from the stock of dispensing physicians. The variations found in weights of the tablets were strikingly similar to those reported by Kebler. Allowing a tolerance in composition of 10 per cent., one or more product of the following manufacturers were found deficient: Buffington Pharmacal Company; Daggett and Miller Company; Drug Products Company; the Harvey Company; National Drug Company; B. F. Noyes Company; Progressive Chemical Company; Tailby-Nason Company, and John Wyeth & Brother. (Jour. A. M. A., July 27, 1918, p. 300).

## REPORTS AND ANNOUNCEMENTS OF SOCIETIES

### SOUTHERN MINNESOTA MEDICAL ASSOCIATION'S SUMMER MEETING.

The summer meeting of the Association was held at Winona, June 24 and 25, 1918.

MONDAY, JUNE 24.

The banquet and social session of the Association were held at the Winona Hotel. The meeting was called to order by the President, Dr. M. S. Henderson, of Rochester, at 7 P. M.

Rev. H. J. Wharton delivered an invocation.

Mayor Julius H. Protz was introduced and delivered an address of welcome.

Music was furnished by the Winona Orchestra.

After the banquet the Association held its scientific session in the Masonic Temple.

Dr. John L. Porter, Chicago, read a paper entitled "Arthritis Deformans."

Dr. Charles H. Mayo, Rochester, read a paper entitled "Problems of Infection."

These two papers were discussed together. The discussion was opened by Dr. A. J. Gillette and continued by Drs. Edward C. Rosenow, M. S. Henderson, and A. G. Long, after which the discussion was closed by Dr. Porter.

Dr. A. F. Schmitt, of Mankato, moved that a rising vote of thanks be extended to Dr. Porter for his instructive and interesting paper, and that he be enrolled as an honorary member.

Seconded and carried.

The President announced as the Committee on Resolutions, Drs. Adair, Baker and James.

The President announced that on account of the restrictive measures of the government with reference to coal, Dr. Charles H. and Dr. William J. Mayo regretted very much that they had to call off the pro-



posed trip down the Mississippi on the steamer Minnesota, which the members and guests had looked forward to with much pleasurable anticipation.

Dr. W. F. C. Heise, Chairman of the Committee of Arrangements, announced that the Winona County Medical Society would entertain the visiting physicians and ladies at luncheon at the Arlington Club, Tuesday, at 12 o'clock M.

Dr. Leda J. Stacy, Rochester, read a paper entitled "The Treatment of Menorrhagia With Radium," which was discussed by Dr. W. E. Sistrunk, and Dr. Eugene K. Green.

Dr. R. E. Farr, Minneapolis, followed with a paper entitled "Rectal Surgery Under Local Anesthesia."

This paper was discussed by Drs. Earl R. Hare, Allan B. Stewart, and discussion closed by the author of the paper.

On motion, which was duly seconded and carried, the Association adjourned until A. M. Tuesday.

#### TUESDAY, JUNE 25. MORNING SESSION.

The Association met at 8 A. M. and was called to order by the President.

Dr. Ernest Z. Wanous, Minneapolis, read a paper entitled "The Clinical Aspect of Prostatic Hypertrophy," which was discussed by Drs. Harry A. Baker and E. P. Hawkins, after which the discussion was closed by the essayist.

Dr. Andrew J. Kaess, Fargo, N. D., read a paper entitled "Obstetric Forceps; Indications and Contra-indications."

Discussed by Drs. W. H. Condit and R. N. Andrews, after which the discussion was closed by the essayist.

Dr. D. B. Pritchard, Winona, read a paper on "Problems of the Small Hospitals," which was discussed by Drs. R. C. Hunt, A. F. Schmitt, and J. H. Beaty.

Dr. F. W. Schlutz, Minneapolis, read a paper entitled "The Relation of Food to Some Anaphylactic Phenomena."

Discussed by Drs. E. J. Huenekens, H. L. Ulrich, and discussion closed by the essayist.

Dr. O. S. Hansen, Minneapolis, read a paper entitled "The Electrocardiograph in the Diagnosis of Heart Diseases."

This paper was discussed by Dr. H. L. Ulrich, and discussion closed by the author of the paper.

President Henderson stated that many of the members were in the service; they were not paying dues, and were not expected to do so, so that the responsibility of making up the deficit rested on the shoulders of the members who were not in the service. The members of the Executive Committee had concluded to ask for an increase in dues during the period of the war to meet the expenses and to carry on the work of the Society in the same manner as in the past.

Dr. A. F. Schmitt, Chairman of the Program Committee, supplemented what President Henderson had said by saying that the expenses of managing the affairs of the Association had increased, and two years ago, when the Association increased the dues

from one dollar to two dollars, it was in debt, but had gotten out of debt. As there were so many members now in the service he thought it was up to the other members to double the dues in order to meet the financial obligations of the Association. The Program Committee had found that the expense of printing and circularizing the profession had more than doubled; the expenses of reporting the transactions had increased, and other things had increased in proportion. While he did not like to beg the members for money, he urged those present to contribute one or two dollars or more, if they saw fit, to the funds of the Association.

A recess was then taken to give the members an opportunity to contribute.

Dr. W. D. Sheldon, Rochester, read a paper entitled "Tumors of the Spinal Cord; Clinical Features and Treatment," which was discussed by Drs. A. W. Adson, E. M. Hammes, A. J. Gillette, and in closing by the essayist.

Dr. Rood Taylor, Rochester, read a paper entitled "The Relationship Between Tonsillar Infection and Recurrent Vomiting," which was illustrated by lantern slides.

Discussed by Drs. E. J. Huenekens, F. W. Schlutz, H. A. Beaudoux, C. A. Lester, W. A. Jones, W. D. Sheldon, after which the discussion was closed by the essayist.

Dr. Helen Hughes Hielscher, of Mankato, spoke of the child welfare movement, saying that it had assumed large proportions, and was one of the biggest fields in preventive medicine before the profession today. Why was it that this movement was largely in the hands of the laity today when it really belonged to the medical profession? The answer was that physicians as a body were not keeping pace with the anxiety of the mothers of the country in the welfare of their children. She hoped and urged that the medical profession would seize the opportunity to draw attention to the evil of having lay people at the head of such a movement when the medical profession should rightfully take charge of it.

Dr. F. H. Gambill, Thief River Falls, read a paper entitled "The Eskimo, Habitat, Mode of Living and Diseases," which was illustrated by numerous interesting slides.

On motion, the Association adjourned until 2 P. M.

#### AFTERNOON SESSION.

The afternoon session was a patriotic one, and was called to order at 2 P. M. by the President.

Dr. John H. Adair presented the Report of the Committee on Necrology, and the Report of the Committee on Resolutions, and moved their adoption.

Seconded and carried.

These reports are as follows:

Mr. President: This Association records with solemn pride the death of its first member to make the supreme sacrifice of his life for the freedom of humanity.

Lieut. John P. Rosenwald, of Minneapolis, died in France, May 5, as the result of shrapnel wounds re-

ceived while caring for the wounded under his charge in an action on the Western Front.

While his military service was comparatively brief, it was sufficient to earn for him an enviable record for fidelity to the trust imposed on him, and bravery in the face of superlative danger. He had been awarded the distinguished service cross for extraordinary heroism by General Pershing, and his promotion to a substantially higher rank was about to be made when his untimely death cut short a promising and brilliant career.

We rejoice in the fact, that in his faithful and single-minded devotion to the responsibilities devolving upon him, our brother, although young in years, upheld the time-honored traditions of the calling he professed, and we are confident that his example will be emulated by countless numbers of our members as they go forth to their posts in this, the grim tragedy of civilization. For so high is grandeur to our dust, "So near is God to man; when duty whispers low, 'thou must,' the youth replies I can."

Mr. President: Your Committee on Resolutions desires to express its appreciation of the reception and entertainment afforded us at this time by the citizens and profession of Winona, and to assure them that their efforts to make this meeting of the Southern Minnesota Medical Association a success merit and receive our sincere approbation; while to our distinguished guests, who have edified and instructed us by their presence and participation in their addresses and discussions, our thanks are most assuredly due.

By the Committee.

Mr. Pierce Butler, St. Paul, was introduced and delivered a patriotic address entitled "The War and Afterwards."

Addresses were also delivered by Major T. Casey Witherspoon, M. R. C., on "The Duty of the Surgeon in the Present Crisis;" by Major Joseph Miller, M. R. C., on "The Opportunities of the Internist in the Military Service;" by Colonel Henry Greenleaf, M. C., U. S. Army, on "Military Matters," and by President M. L. Burton, President of the University of Minnesota, on "Changes Ahead."

At the conclusion of President Burton's address, Dr. A. F. Schmitt said: I have not words at my command to express in fitting terms our appreciation of the addresses we have listened to this afternoon by the speakers who have made this patriotic session a memorable one in the history of the Association; but I desire to make two motions. First, I move that Major Joseph Miller and Major T. Casey Witherspoon be elected honorary members of the Southern Minnesota Medical Association.

Seconded and carried unanimously.

Dr. Schmitt: My second motion is this: I am sorry Mr. Pierce Butler and President Burton are not eligible for honorary membership in this Association. I know we all feel the inspiration which their presence and their addresses have given to us, and the high ideals with which we as physicians and surgeons will pursue our duties from this day on, and I

move that a rising vote of thanks be extended to Mr. Butler and President Burton for their eloquent patriotic addresses.

Seconded and carried unanimously.

The music for the patriotic session was rendered by the Winona Municipal Band.

On motion, the Association then adjourned sine die.

H. T. McGUIGAN,

Secretary.

#### STEARNS-BENTON COUNTY MEDICAL SOCIETY.

The regular meeting of the Stearns-Benton County Medical Society was held at Pelican Lake, Stearns County, Minnesota, July 26, 1918.

There was no scientific program. A thorough outing for the members, their families and friends, of boating, swimming, fishing, racing, cards and a good fish supper on the banks of Lake Pelican, were participated in by twenty-eight and all enjoyed themselves to their heart's content.

J. C. BOEHM, M. D.,

Secretary.

## CORRESPONDENCE

To the Editor of Minnesota Medicine:

Herein find abridged minutes of the last meeting of the American Medical Editors' Association held in Chicago on June 10th and 11th.

The Executive Committee desires me to particularly call your attention to the resolution unanimously passed, according full support to the Surgeon General of the Army and of the Navy and the Council on Medical Defense, and requesting that you aid by every means editorially, to bring before the profession the important needs of these departments.

The minutes of the previous meeting were read and approved. The Treasurer's report showed a cash balance of \$512.59. The Association approved the action of the Executive Committee in appropriating \$100.00 to the Periodical Publishers' Association for carrying on an educational campaign against the zone system of second-class rates.

The Association approved the propaganda carried on by the Secretary in aid of the Surgeon General's office in securing additional applicants for the Medical Reserve Corps and a letter was read from the Surgeon General expressing appreciation of the aid rendered.

Of the \$250.00 appropriated at our 1917 meeting less than \$100.00 of the amount was expended for the above purpose.

The following resolution was unanimously passed and it is earnestly hoped that every member of this Association will lend his undivided aid in its promulgation:

"Firm in our belief of winning the war in conjunction with our valiant Allies, yet fully realizing the necessity and need for an adequate medical corps both as to numbers and training, we, the Amer-

ican Medical Editors' Association in session at Chicago, Ill., June 11, 1918, Be it Resolved,

First. We pledge our renewed effort to Surgeon General Gorgas of the United States Army, and to Admiral Braisted, Surgeon General of the United States Navy, and to the Medical Section, Council of National Defense, in that our pages are open to unlimited editorial space for properly approved copy in which to bring before the medical profession of the United States the needs of these most important departments.

Second. That an Editorial War Committee be appointed by the chairman composed of H. Edwin Lewis, editor of *American Medicine*, New York; D. E. de M. Sajous, editor of the *New York Medical Journal* and the President and Secretary to prepare copy and to energetically carry on this work.

Third. That this Association contribute a sum of money in addition to the appropriation made by this society at its session, June 10, 1918, limited only to the resources of this Association, the expenditure of the amount to be decided by the Executive Committee for carrying on this propaganda of education and aid.

Fourth. That the editor of every medical journal in the United States be invited and encouraged to participate in this very necessary work.

Fifth. That copies of this resolution be sent to W. C. Gorgas, Surgeon General of the U. S. Army, to Admiral Braisted, Surgeon General of the U. S. Navy and to the Medical Council of National Defense."

Following Dr. Sajous' paper upon "Military Education in Medical Colleges and the Medical Press," a motion was introduced and carried that this Association appoint a committee to study this question and report to the President if any action was deemed necessary.

A resolution introduced by Dr. Fairchild, urging that the American Medical Editors' Association use its influence and encourage its members to support the passage of the Dyer-Owen Bill, and that a copy of the resolution be sent to Senator Owen.

A resolution was introduced and carried that the Executive Committee appropriate a sum to the Periodical Publishers' Committee through Dr. H. Edwin Lewis, chairman, to aid in educating the laity in reference to the zone system of mailing second-class matter.

The Nominating Committee composed of Dr. C. E. de M. Sajous and Dr. F. H. McMechan in their report for officers of this Association for 1918-1919, recommended that in view of the first and second Vice Presidents being in the military service, that the officers of 1917-1918 hold over until the next annual meeting.

This resolution was received and favorably acted upon.

AMERICAN MEDICAL EDITORS' ASSOCIATION,

J. MacDonald, Jr., Secretary and Treasurer.

To the Editor:

In a former letter it was stated that over 30,000 cases of venereal diseases had been reported in our army. In a recent communication from the Council of National Defense it is stated that 80,500 cases have occurred since September 21, 1917, and it is estimated that over 65,000 were contracted before entering the army. This indicates emphatically the need for effort in the civil population.

The returns from the questionnaire which we recently sent out, indicate that the medical profession in other states is co-operating splendidly in reporting cases.

With this letter and announcements in the medical and lay press, a campaign is started in Minnesota, and it is hoped that it may be as successful here as elsewhere. Every effort has been made to make the plan practical, and to require as little effort as possible from the busy practitioner. The law requires that a card be filled out and mailed in the addressed envelope to the State Board of Health. After detaching the card, the pamphlet is handed to the patient. The card bears a serial number; this number is put on the physician's case record as a means of identification. We will also supply copies of blank forms, one to advise another doctor that a patient coming to him has been under treatment. This will make it unnecessary for this patient's name being reported; and one on which may be reported delinquent or incorrigible patients to us if necessary.

The Attorney General has just approved a regulation adopted by the board, prohibiting the sale of venereal disease remedies by druggists, except upon a written prescription by a licensed practitioner. We expect to take active steps to enforce this regulation and believe it will eventually do away with counter prescribing.

Free laboratory facilities are now available for all physicians, and containers will be mailed promptly upon receipt of request. It should be stated whether tubes for Wassermann test, or slides for gonorrhoeal specimens are desired.

We hope every medical man in the state will do his part in this campaign, and will understand that we will be glad to have his suggestions, or will be glad to render any assistance to him possible.

Yours very truly,

H. G. IRVINE, M. D.,  
Director, Division of Venereal Diseases, Minnesota  
State Board of Health.

To the Editor:

I am enclosing herewith a letter to the Directors of the Minnesota Public Health Association which is self-explanatory.

It seems that there has been a great demand for public health lectures from local medical societies all over the state. I should be glad to fill engagements of this kind on any subject relating to public health or particularly any of the infectious diseases, from

diagnosis to control; on ventilation, water supplies, flies, or any other similar topic.

Co-operation between the State Board of Health, the Advisory Commission, the American Red Cross and the Minnesota Public Health Association is now firmly established and we are putting the finishing touches upon the actual working system for carrying out of co-operation in the field work upon tuberculosis.

My letter to the Directors of the Minnesota Public Health Association follows:

"After three years' leave of absence from the official work of the Minnesota Public Health Association, two and a half years of which were spent in military service in Canada, I was recalled by your Executive Committee to resume my former work as Executive Secretary of our Association July 1, 1918.

"The immense development of the Association work under the Acting Executive Secretary, since I went on leave in 1915 has developed a correspondingly immense amount of detail with which I am rapidly becoming familiar, but which nevertheless I cannot hope to grasp in full for some time to come. Also new developments already are in progress which promise to be of great advantage to our Association in its notable state-wide campaign against death and disease, but these have not yet reached a stage where a definite report to you can be made. At our annual meeting, a full statement will be presented. Also, I hope to tell you then what a great personal pleasure it is to be with you once more.

"We all hope that the most intimate touch with the Association progress will be maintained by you and by all our other directors; from our side of the work, by frequent reports of that progress and requests for advice; from your side will you not as a director, write to me your comments, your suggestions, your advice, your criticisms, and if things go well, your commendations?

"They will all be appreciated and will form a basis of a close relationship between our directors and our Association work, such as we all realize should exist, will continue to exist and will become continuously more close."

Very sincerely yours,

H. W. HILL,  
Ex. Sec., M. P. H. A.

## PROGRESS IN MEDICINE AND SURGERY

### SECTION OF ROENTGENOLOGY.

**ROENTGENOLOGY IN WARFARE:** A timely article under this caption is presented by J. Hall Edwards of Birmingham, England, who has served as roentgenologist in the South African War as well as in the present conflict. He strongly emphasizes the importance of co-operation between the roentgenologist and the surgeon, maintaining that without this the former's efforts are vain or even harmful. The fact that some surgeons refuse to co-operate is a fruitful cause of failure and disappointment, and a detriment to the patient and the country at large.

In commenting upon this paper, Lieut. Col. Christie, U. S. A., Chief of Division of Roentgenology says, "The necessity of this harmony of effort furnishes the reason for another point insisted upon by the author—that all roentgenologists must be men with medical training. The non-medical technician cannot possibly bring to a consultation with the surgeon the experience and training necessary to give his opinions weight. The Surgeon General's office has recognized this fact and has from the beginning of the war, insisted that only officers of the Medical Reserve Corps, graduate physicians, should be assigned for duty as roentgenologists."

Relative to the localization of foreign bodies, the author is an advocate of the stereo-roentgenographic method except at the front, where time is a most important factor. An intensification of the stereoscopic effect as well as an aid to accurate localization is obtained "by the use (in addition to crossed wires) of metal rings, some of which are placed under the limb and others on the side of the limb nearest the tubes." To save time, a mark on the tube stand, establishes a constant distance of the anti-cathode from the plate, and the MacKensie-Davidson localizer is always kept fixed for this distance so that fresh measurements do not have to be made in each case. A localization table can then be constructed showing the depth of the foreign body in inches for any given shift of its shadow in millimeters.

The author finds the best method of marking the skin over the foreign body is by means of a tattoo mark with India ink.

The writer has observed that knowledge on the part of the patient that a foreign body is present in his tissues often has a more detrimental effect than the metal itself. The man either develops a train of imaginary symptoms which he attributes to the foreign body or he insists upon its removal and his convalescence is correspondingly delayed. It is important therefore that roentgenograms and reports be kept from the patients, and this rule applies as forcibly in civil life as in military practice. The custom of carrying plates to the bedside should be abolished.

### ON ALL DAYS

WITH EACH PURCHASE OF  
WHEAT FLOUR FOR HOME USE  
YOU MUST BUY ALSO AN EQUAL  
AMOUNT OF OTHER CEREALS



After foreign bodies are "healed in," attempts at removal should be made only in exceptional instances some of which the author describes as follows:

1. A jagged piece of shell embedded in a muscle which is in constant use.

2. A piece of shell or bullet in such a position as to impede movement, or in the hands or feet and detracting from the usefulness of the limb.

In the experience of the author bullets and fragments embedded in the tissues in other positions have produced less disablement than have operations for their removal.

Apparently the British army roentgenologist experiences as much difficulty in obtaining a history of his cases as does the roentgenologist in civic hospital practice. The army form used for roentgen reports is divided in two parts, the first for a brief history of the case to be filled by the surgeon-in-charge, the second for the notes of the roentgenologist. The first is rarely utilized properly, its contents being limited to such unhelpful remarks as, "For foreign body" or "For injury to bone or fracture." The position of the wound or the existence of an exit wound and other useful facts, must be elicited from the soldier himself, or the dressings must be removed for an inspection. Many of the difficulties mentioned by this British army writer will be encountered by the American army roentgenologist, because here as in England the roentgenologist has not yet been accorded a status ranking with that of the surgeon or internist. In France, on the contrary, the opinion of the roentgenologist is received with as much respect as that of the surgeon, and the advantage is said to be very apparent in the better results obtained in the French military hospitals.

FRANK S. BISSELL.

#### HEMIPLEGIA FOLLOWING TONSILLECTOMY:

Gracey ("The Laryngoscope," January, 1917, p. 40) records the case of a male, aged nineteen, who suffered from attacks of sore throat and hoarseness. Examination showed chronic follicular tonsillitis and subacute laryngitis. The tonsils were removed under gas-ether anesthesia, the dissection method being employed. The tonsils were adherent in places. At one time the patient came out of the anaesthetic and coughed considerably. There was more hemorrhage than usual at the time, and half an hour later there was considerable venous bleeding from the right tonsillar fossa, but this was easily controlled. Two days later the patient complained of headache and on the following day he went out in a cold wind. In the evening, he had a chill and pain over the right frontal sinus (temperature 105 degrees F.). The next day, he had two rigors, each lasting ten minutes and the temperature reached 106.2 degrees F. On the following day, it was noted that there was weakness of the left side especially of the arm and leg and later there was a complete left-sided paralysis. Convulsions set in and the fever continued. Respiration developed the Cheyne-Stokes type, and death occurred ten days after operation. Unfortu-

nately a post-mortem was not obtained, but Gracey notes that lumbar puncture was always negative. He suggests that the hemiplegia was due to embolism in the motor area, probably of septic origin.

CARL L. LARSEN.

**WAR AND NIGHT BLINDNESS:** Marcel Danis of Brussels, Belgium (*Amer. Jour. of Ophth.*, Vol. I, No. 7; July, 1918) contributes a very instructive monograph dealing with night blindness occurring in 203 cases among 2,700 Belgian soldiers who were treated for various ocular affections.

From the point of view of refraction these 203 cases were divided as follows:

Emmetropes 66, two of which had corneal scars; hyperopes less than 1 D., 14; hyperopes 1 D. and more, 50, of whom one had corneal scars; astigmatic hyperopes, 20, one with lenticular opacities; myopes, 31 (two cases of retinitis pimentosa); astigmatic myopes, 16; mixed astigmatism, 4.

The author classifies the cases which he personally has examined as follows:

1. Hemeralopia with retinal lesions.
2. Hemeralopias of congenital origin.
3. Optical hemeralopia (by errors of refraction uncorrected, by clouding of the media).
4. Hemeralopia without lesions (essential). Corrected errors of refraction. Emmetropia.
5. Exaggerators and simulators.

PAUL D. BERRISFORD.

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# Minnesota Medicine

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## ORIGINAL ARTICLES

### THE PRESIDENT'S ADDRESS BEFORE THE MINNESOTA STATE MEDICAL ASSOCIATION.\*

ARTHUR J. GILLETTE, M. D.,  
*St. Paul, Minn.*

Mr. Chairman, Members of the Minnesota State Medical Society, and Honored Guests: There is some good in all things, and beneath even the greatest tragedies there is hidden some divine benevolence. Even during these grim and tragic days we may find blessings.

The determined seriousness into which mankind has been plunged is teaching us things which we only vaguely guessed before. We are becoming conscious of death, and of sacrifice and usefulness which we did not know existed. We are withstanding tests and rising to heights of achievement of which we did not think ourselves capable, and we are discovering potentialities which we might never have learned. Certainly under the stress of the present conflict something greater than ourselves has taken hold of us and uplifted us, and in our suffering and seriousness many great lessons of life have been borne in upon us. For the past few years America has grown up, as it were. As a nation she has been confronted with gigantic problems; she has been baptized by dangers and tribulations.

The medical profession has responded more liberally to the call of the nation and has sent more of its members into military service than any other profession, trade or business in the country. The medical men throughout the

country have been brought together face to face; and shoulder to shoulder the doctors are battling in unison as they have never done. They have thrown away all selfishness; they are sacrificing their business, home-comforts, and even their very lives for the benefit of humanity. And best of all it is being done in a cheerful spirit and our willingness is surprising even to ourselves. We are becoming more serious, more studious, more painstaking, and with it all we are learning great truths which will be of benefit to the health of the community. We are studying, investigating and working harder than we ever have before. The medical profession has never been so seriously united as it is today, and all for the benefit of humanity. There will be great personal benefit, as well, to the uplifting of the medical man as he works for the benefit of mankind. Thus the medical profession will be brought to the position where it should stand as the great protector of the human race from disease, prolonging human lives and alleviating human suffering.

To enumerate some of its benefits. For instance, the benefit of the preliminary examination of all our soldiers and the benefit of army life to them. The physical examination which our young men who enter into army service must undergo is going to bring about better health; lives will be saved and prolonged and a great deal of suffering relieved, as well as diseases cured. Frequently our Examining Boards discover an army applicant in ill-health who never knew he had any physical defects. Often heart lesions, enlarged glands or skin lesions are found and the applicant is advised to consult his home doctor. The medical men identified with the draft take their work very seriously and keenly. The thorough physical examination

\*Presented at the Annual Meeting in Duluth, August 28-29 and 30th, 1918.

of the young draftees will result in much good for them and for the country, whose bulwark they are. Defects in the human mechanism have been found in thousands of cases which undetected might have gone on until the man's health was undermined. Corrective treatment has been given in many cases by the examining physicians without cost to the patient, and more than one man will be hale, hearty and whole in the future who owes his health to the examining draft-board physician and the kindly interest taken by him. Many times we hear him offering his services free of charge to such applicants. These diseases may be incipient to be sure, and yet, when taken in the early stages, may be eliminated. Many, many times in examining a man, nose, throat and mouth infections are found which in time will probably ruin the young man's health, and here the doctor, by his judicious and painstaking treatment or advice is not only going to prolong this man's life, but improve his efficiency as well, both in the army and civil life later. Young men frequently come before the Board with hardly a sound tooth in their heads, with diseased tonsils, adenoids, etc., and these are given attention. A man may have a hernia, which is constantly placing his life in danger, even greater danger than the actual battle of war-fare. This can be remedied and will be if he so desires. Heart and lung troubles will be correctly differentiated and properly treated. Many a man who is suffering from a chronic eczema, in his opinion, after proper physical examination may be told he has a curable skin-disease; also men who are suffering from hemorrhoids, polypi, fissures or ulcers will be cured by proper diet or operation. Incidentally the doctors may discover that the man is not suffering from hemorrhoids but from a prolapse of the rectum or some malignant growth to which the patient has been applying various salves and ointments. These things properly diagnosed will be properly treated. Let us hope the army will teach both soldiers and doctors the uselessness of liniments and the importance of keeping the bowels moving regularly and daily.

It would be surprising to one not watching all these lines to learn how many men do not know how to eat or what to eat. Their diet

needs regulating and it certainly will be regulated in the army. Many do not exercise and have no idea of exercising. They do not even know how to stand properly or breathe properly. Sometimes it takes several minutes to examine a man in order to ascertain whether he can breathe or not as he stands with his shoulders drooping and tipped forward and when asked to take a full inspiration he does not seem to know how to go about it. He does not stand straight and the contents of his chest and abdomen are squeezed and distorted so that his heart, lungs and bowels have not room enough to properly act, thus interfering with his general health. He will be taught, in the army, that correct posture and a vigorous carriage are essential to health.

It is quite amazing to find how many men have eye-strain and remedial eye troubles which are interfering with their efficiency. They have had headaches but had not the slightest idea of the cause, and paid very little, if any, attention to them. Many young men come before the Examining Board who have no idea as to the value of bathing regularly. Perhaps they have no facilities at home and do not realize the important role bathing plays in the conservation of health.

This war will demonstrate the importance of properly constructed houses more forcibly than it is already understood, and boarding-houses, apartments, flats, and even private homes, will come to be constructed under the strictest government supervision. The war will at least bring more serious consideration of proper drainage, ventilation and light, especially in our industrial institutions where so many men and women are employed many hours of the day, breathing foul and vicious air. It will be emphasized more strongly that insects, flies, mosquitoes, manure, garbage and filth of every kind breed and spread disease; that they are carriers of typhoid, small-pox, diphtheria, anthrax, diseases of the glands and all kinds of infections. These values will be demonstrated in dollars and cents, which always appeals to the American people.

How little attention is paid by most recruits to the kind of water they drink, the amount they drink, and the time to drink. Little attention is paid to the amount of rest and sleep



they receive. Thus, in the army, thousands and thousands of recruits will receive fresh air, exercise, rest and labor, properly proportioned in a manner which they never knew before.

This war will do more for temperance than all the temperance lectures ever given, as it will demonstrate we can get along without liquor, and will show how much better the individual and community are without it. It is going to educate the medical profession to the fact that whiskey is a bad stimulant.

It is appalling how many young men are crippling themselves by wearing improper shoes and improper clothing for their feet. The attention which is being given to proper shoes, etc., in the army will keep many a young man from being a cripple.

It has already been shown by army statistics that great physical benefit is gained by drilling and exercising. In some of the camps over forty per cent of the young men have been greatly benefited by army life; young men whose health had been impaired somewhat when entering the camps. Army exercises, drills, diet and discipline, not only make better soldiers but make them better fitted for civil life later. They will be better citizens, more helpful and more efficient because of the army training.

While all this is true of the soldier it is no less true that great benefits are to be derived by the medical man from the army-training. He will be broader in his views upon medical subjects. Possibly no one of the medical fraternity will receive so much broadening as the so-called specialist. Certainly we must all appreciate that our specialists are becoming too much specialized. That is, the nose and throat man is likely to see very little beyond his line; the abdominal surgeon sees very little that can be wrong with his patient but possibly appendicitis. A man devoting his work largely to the heart and lungs forgets that these are merely organs which are helping to make up the human system. He is liable to forget they are greatly influenced by the other organs. This can also be said of the neurologist. His patient may have some trouble which is largely manifested in the nervous system, yet a distant organ may be the cause of the nervous symptoms. So it is with all the specialists in their particular lines. The general practitioner will learn that many of

his patient's constitutional symptoms may be due to some local condition.

Thus the army will teach us the importance of attending medical meetings more regularly than we do. It will teach us that we all benefit from each other. It will have a tendency to bring about something which is very important in the successful practice of medicine, and that is, that the various medical men throughout the State should be more united and should work together more and more. As we look over the vast field of medicine, the amount of experimental work being done and the amount of literature being written, both worthless and beneficial, we know the field cannot be gone over carefully by any one man, and our medical journals will weed out more carefully the worthless, useless and unauthentic literature. After this war we will appreciate the importance of each other's work; we will realize the importance of being more united, standing, working and consulting together, if you please. How seldom we have consultations now as compared to what we really should have. Is it not a fact that instead of the general practitioner advising his patients where to go and whom to consult, the patient is apt to secretly consult someone whom his neighbor recommended very highly? The general practitioner often admits this is true.

After the war doctors will know by actual experience that it requires knowledge, scientific skill and experience to build a hospital. They will learn that a hospital is not simply brick, mortar and stone and a few saintly pictures. They will appreciate that an operating room will be just as secure and sanitary even if it does not cost \$10,000 to \$15,000, and that good doctors, nurses and pathologists and good wholesome food, not variety, are the essentials.

One of the greatest things this war is going to bring about, both abroad and in America, will be to accentuate the part a woman can fill in this world; the part which she has so justly claimed and fought for for many years. She will fill positions as chemist, X-ray expert, pathologist and many other things, and will demonstrate that she is able to do as well as, and even better, than a man, as her hands can do more delicate work, her eyes are keener and she is a closer observer. She will demonstrate a wom-

an can be just as good a doctor or surgeon as a man. In fact, she will show her efficiency in thousands of ways. It will also be shown that women are more proficient as clerks. We will no longer see full-grown, strong, able-bodied men selling ribbons and laces over the counters in department-stores. There will be plenty of work for a man to do which is more in keeping with his physique.

Few physicians ever thought psychology would play such a prominent part in the healing of the sick and wounded. Yet in this present war we have psychologists filling important fields in the army. We might say almost the most important field, one which the general practitioner has been very loathe to recognize.

The power of suggestion, environment, cheerfulness and diversion in the army will emphasize their therapeutic benefits and already these elements are occupying a very important part in the health and efficiency of our soldiers.

Certainly no medical officer will use the terms biliousness, nervous-prostration, rheumatism, weak lungs, back-ache or any such indefinite terms in reporting to his superior officer the condition of a patient. He will make some definite and positive diagnosis and send in a written report of the exact conditions found in the heart, lungs, kidneys, stomach, brain, etc. He will investigate and investigate until he actually knows. I am sure a doctor will not perform an operation, surrounded by scientific men, as he will be in the army, and simply call it an exploratory incision. He will give some plausible, sensible and practical reason for so doing.

Army doctors will also be taught the great importance of taking complete and perfect histories and keeping complete records of their patients; something the medical profession is very lax in doing. How many doctors keep any records of their private work today. How many men know anything about the results of their treatment except what they can remember? How many men make careful and systematic examinations of each and every case that comes to their office, keeping the record of their findings? How frequently a man comes to a doctor with a slight cough, arriving at the office just as he is leaving for an emergency or country call. He makes no examination what-

ever, and does not even set a time for the man to return for a complete examination of his chest, heart, lungs, nose, throat, etc., to ascertain, if possible, just what causes the cough. How well we know how little, or rather how much a cough signifies. Often the hurried doctor gives some simple remedy and carelessly suggests that the man drop in at any time. The patient probably never returns until some serious condition has developed perhaps because of the doctor's carelessness. We all make mistakes more than we should because of hurried examinations and incomplete records. The army will teach us to strip our patients and keep a complete record of our findings. The army will teach us this more than anything else as each examining physician knows his report and findings will be checked up by one or more men higher up. He probably will never see the patient again, but his report will be gone over by each subsequent doctor who examines the patient. Complete records of our patient will help us should patients return years later.

Certainly the purchase of a large and expensive X-ray machine is of no assistance to us unless we know how to interpret the pictures. Hardly a man of any prominence, or one with a lucrative practice, but has spent many hundreds of dollars on an X-ray machine. Many pictures are taken but they mean absolutely nothing to anyone. In the army the interpretation of X-rays will be taught as well as the taking of them. The surgeon will have to do the interpreting to his superior officers and will perhaps have to advise as to treatment. His opinion will be verified by a number of men, and thus he will learn that it takes an expert to interpret the pictures as well as to take them. He will know whether certain shadows are simply defects in the technique of his work, or whether they mean something important. He will also be taught, by his association with others, that his blood pressure machine will only place him in a ridiculous position if he does not demonstrate to his own satisfaction, as well as to others, that a high or low blood pressure must lead to some definite conclusion. He will not give a remedy simply to reduce or raise the blood-pressure of his patient, but will try and discover the organ that is at fault and give his attention there. The urinalyses and other

laboratory findings will mean more. He will not take a little nitric acid to ascertain whether or not a patient has albumin, and if he has pronounce it Bright's disease. In testing for sugar he will not use an old Fehling solution, which perhaps, from age and being improperly prepared, is of no value whatever, and inform the patient that he has or has not diabetes. He will not have in his office an old rusty, dusty microscope and look through it carelessly and after examining a pathological specimen from a patient take the tremendous responsibility upon himself, after such an inadequate examination, of stating that the patient has or has not a malignant growth. Indeed, I wonder if any of you realize how many doctors are practising medicine throughout this country right here in Minnesota, who have never owned a microscope or even borrowed one.

Thus if a doctor keeps accurate records, as his army service will teach him, he will become more painstaking and as he becomes more painstaking he will become more proficient. As he acquires more machines and instruments to make him more accurate he will require more room and then he will require more assistance and with more assistance he will have more time for each and every individual case. He will recognize, from his experience in the army, that it takes a number of doctors to make an efficient corps. They must work and consult together in regard to an individual case. They must go over the urinary findings together, as well as the blood examinations, temperature, heart, pulse, etc. Then it is found possible to arrive at a more definite conclusion as to the exact treatment. Thus, the army will teach the physicians the importance of grouping themselves into little coteries. The internist, the nose and throat man, the eye and ear man, the dental surgeon, the orthopedist, the X-ray expert and the surgeon. It will teach us that the surgeon, who is the operator, must have assistance and be told when and where to operate; to know this is very often far more important than to be the operator. Consultations, as above, will teach us to rely less on drugs and more on proper food, diet and hygiene. The therapist will be consulted in the case. We will come to know something about the compatibles and incompatibles; something we have not

heard of for years. The older physicians, who have had experience, will appreciate the importance of the physiognomy of the patient and will take this into consideration. How many years it has been since we have even heard the term "physiognomy of the patient," and yet how important it is. The symptoms are combined, as well as the physical and mental condition and the natural recuperative powers. In fact, the resourcefulness and courage of the patient both bear a very important relation as to the ultimate outcome of the existing conditions. In short, out of our various chemical, mechanical and physical tests we will learn that our patients still have physiognomies and surely this is very important.

Many of our examinations and queries are made in such a mechanical and haphazard way that if we were asked just why we propounded these questions, or made these suggestions, our reasons for doing so would be very vague indeed. How often we request a patient to let us see his tongue. It is very natural for us to do so and it is important, but I think we do so more frequently and with less consideration than we have any idea of. It might signify a great deal if we gave it study and thought, but we do not ordinarily do so. How many times when in answer to our question, a patient tells us that he has or has not lost weight, do we carefully listen? In short, how carefully do we analyze what our patients tell us. Very often instead of making a preliminary examination and then asking questions along the line which some of the symptoms suggest we let the patient tell his story and then administer a concoction which may or may not fit the symptoms. How many times do we carefully enquire into the patient's diet, the amount of meat he eats and how well it is cooked; how much water he drinks or how much milk; how often he takes a bath; how much tobacco he uses; how much beer or whiskey he drinks, and whether he takes it with or between his meals; how much exercise he takes; how well he masticates his food; or the amount of work, both physical and mental he is doing? We are too busy, and we are not accustomed to make careful written reports of our cases. Thus army training will do away with this haphazard and indifferent way of examining patients. We will have assistants who

will make careful preliminary reports and who will make complete reports of all the findings, and our diagnosis and treatment will follow.

There is really not much difference between the average medical students when they first leave college. Their habits and studies tell the story of their success or failure, and their success or failure depends largely upon their studies and work, observations and habits, after they graduate.

We are so often misled by our patients' interpretations of his own case. In other words, we are human and subject to the power of suggestion. So often we are informed that they are suffering from heart-disease, kidney or liver disease, or appendicitis, constipation or diarrhea, and we listen to their story and become hypnotized ourselves and follow along the line of the patient's suggestions. They are anxious to tell somebody their symptoms and if we are good listeners they are willing to pay us for our trouble and time for listening. Certainly they are neurotic and need attention.

We would be better doctors if we kept track of our business relations more accurately than we do. I mean financially. Doctors regard their patients' mental and physical importance in this world from a health standpoint. Do you know that the ordinary business man judges the doctor's ability by his business ability? The laity regards us, more than we have any idea, from a business standpoint. That is, whether we attend to business or not; whether we have a systematic way of attending to patients; whether we have regular office-hours and, if we have, whether we keep them or not; whether we keep appointments with our patients as we have made them; whether we answer the various letters of inquiry promptly, which in army life especially is considered one of the most important things. The laity and business men also consider the fact as to whether or not we are putting something aside and preparing for old age, or if early death should take us away, if our family, mother, father or any other person who may be dependent upon us is provided for. I am not referring to the amount of money we make, but what we do with it. If we see a man drinking and treating his health badly a doctor immediately says, "He must be a very poor business man, or he would pay some attention

to his health as well as to the comforts of his family." The business man looks at the physician in somewhat a similar way. It is not infrequent that a business man states, "If the doctor does not give more attention to the practice of medicine than he does in keeping his appointments and paying his debts and collecting his bills he must be a very poor doctor." This is to a certain extent true. If we kept exact records and book accounts of the amount of work we do, we would know better what to charge and what we felt we were entitled to. If we sent out our bills more regularly and received a certain amount of compensation more regularly, we would be less worried at times, as all of us are, about what is going to become of us as we grow old, too old to practice; or if we die young and leave our family without anything to provide for their support. No one knows better than a doctor that there comes a time in every one's life when he must give up work, and he should, therefore, have a compensation sufficient to care for him in his old age. Or, as stated, should he die young he should be able to leave his family or others dependent upon him so that they need not suffer, and his children should have something with which to educate themselves. Here, too, we can take lessons from the army, for the regular army surgeon is provided for and why should not we provide protection for ourselves in civil life.

Is it not a pity that the medical schools do not give some special short business course along with the study of medicine? No one knows as little about business as most doctors. Where would he get the knowledge? He goes to school until he can enter medical college, then he spends his time in the medical college and then goes for a short time, many times too short, into some hospital, and when he is through there he is thrown out into the world to provide for himself as best he can. There is no other human being, or even any animal, who is cast adrift to make a living for himself, as poorly equipped as a medical man. Is it not strange that of all people who know so much about health and how to care for others' health and the importance of health in the efficient carrying out of work, a doctor sets such a poor example of this as far as he himself is concerned. It is no wonder that we so frequently hear the expression, "He may

be a good doctor, but I have not much confidence in him as he does not even know how to take care of his own health. He eats, drinks, smokes and works to excess and, in fact, does all those things which he advises his patients not to do. It would appear as though he has not much confidence in his advice to others." The ways of the army life and discipline will do much towards teaching the medical profession the benefits of caring for their own health. In short, the medical man's efficiency or proficiency will be greatly improved by this war. The war with all its terribleness will also improve the health and morals of the nation. Possibly the greatest improvement in the health of the nation will be brought about by the overseeing and lecturing which the army doctor is giving to the soldiers. Aside from the proper food and diet, fresh air and proper clothing being impressed upon the soldier, nothing will raise the standard of man, morally and physically, more than the lecturing on, protecting and overseeing of venereal diseases. There has never been a time in the history of the world, or at least in the history of war, that venereal diseases have received the attention they are receiving now. Never in the history of the world has the moral standing been considered of such great importance to the soldier. This will be of great benefit not only to the human race of the present time but to the coming generations as well. All false modesty and sentiment are set aside for the actual conditions, and the young man in the army is made to feel perfectly free to consult his medical officer and make a clean and thorough confession of any and all exposures. In this way he will be made to understand that gonorrhoeal and syphilitic conditions are not, as he had always supposed, as simple as a cold. No incompetent doctor will be allowed to diagnose and treat these conditions. They will be treated thoroughly and properly as they have never been in the past. It will be shown that a druggist or drug-clerk has no idea of the proper treatment of such diseases. Parents should think of this and appreciate that the young unmarried man is better protected and better cared for in the army, both morally and physically, than he is at home, and his surroundings are far better than they are in any educational institution. All of these hurriedly enumerated

facts ought to encourage the people of this country, and I am sure they do, that this war with all its frightfulness is going to bring about a better world in many ways physically, mentally and morally. A great many young men have innocently acquired the drug-habit, and it will be properly and accurately treated and cured in the army.

After this war there will be no place for pseudo-scientific, camouflage medicine-men.

Already you will observe from the character of the various articles that are appearing in our medical journals, that we are becoming more and more interested and are realizing more and more the importance and necessity of conservation of life, beginning in early life. All sentiment and affection, both sentimental and otherwise, are set aside for the cold bare facts of humanity as is illustrated by articles which appear in our late medical journals along the lines of conservation of child-life, the national responsibility of safe-guarding the welfare of the infant, need of keeping the birth-rate above the death-rate, conservation of human life to begin before birth, parents of future children, prenatal care, parturition, and the great international movement of the children's year campaign.

No post-graduate course can equal the actual benefits to the professional man, no clinic can complete a system of organization so thoroughly as the war-training is going to show the way. It will teach a system of efficiency to the medical man that will be a great asset to him after returning to private life. This is surely worth the while. Incidentally, it will teach the people the significance of the medical profession and the role it fills in regard to health. It will teach the people, as the insurance companies already know, the benefit of a thorough physical examination in both health and disease, especially in health.

Let us hope and trust that the medical men who go forth to war to care for the sick and wounded, and who have been at such a great disadvantage while away at war developing a peaceable world and a world fit to live in, will have every advantage when they return to civil life again. Many of the older men who have practically retired from practice, and who could not be admitted to the army are doing their best

to carry on the work of the army doctor at home. Let us hope that these doctors, who are so unfortunate as to have to stay at home because of old age or physical disabilities will not only look after the army doctor's family as regards their welfare and comfort, but will return his former patients to him as well when he returns and will do so with the greatest pleasure and alacrity. *We must remember that the military medical altruism must be carried beyond the point of selfishness, and we must be generous to each other, for it is a wonderful thing to be saving lives, and the army doctor fills probably the most important position, for if it is possible for one life to be more precious than another, then the life of our American soldiers should be sacredly supreme.*

**A STUDY OF SEVENTY CASES OF CEREBRO-SPINAL MENINGITIS.\***

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The first and only severe epidemic of cerebro-spinal meningitis in Minneapolis began in January and ended in July, 1917. During this time the author personally investigated seventy cases at the Minneapolis City Hospital.

**Table Number I.**

	NO. CASES	NO. DEATHS	PERCENTAGE OF MORTALITY
State .....	339	172	50%
St. Paul .....	64	29	45%
Duluth .....	18	11	61%
Winona .....	2	2	100%
St. Cloud .....	7	4	57%
Minneapolis .....	151	83	55%
Author's Cases .....	70	33	47%
Minneapolis Cases			
Not treated by author	86	57	66%
Absolute cases .....	65	38	43%

**Discussion of Table One.**

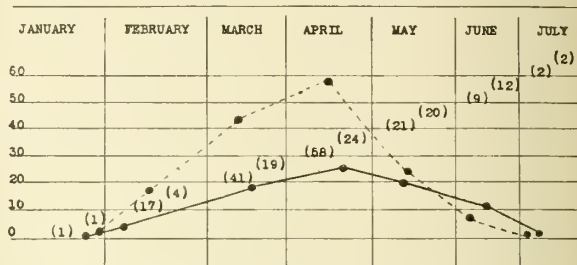
The highest mortality was in Winona; the lowest in St. Paul. There was a difference of 23 per cent mortality between the cases which we treated in the hospital and those treated in private homes by other physicians.

\*I wish to extend my appreciation to Dr. E. J. Huenekens for advice and help in this work.

**Table Number II.**

**Number of Cases of Meningitis in Minneapolis Per Month During the Last Epidemic, Starting January 1, 1917.**

Diseases by Months, City of Minneapolis.



**Discussion of Table Number II.**

The height of the disease in Minneapolis was in April—59 cases—this includes many cases which were convalescing in the hospital. The greatest percentage of mortality was in June. This, of course, is not a true mortality rate, because the number of cases admitted to the hospital was only eleven, whereas, twelve patients died. The epidemic dropped by crisis, so to speak, in the month of June.

**Table Number III.**

Age Incidence.	No. Cases	No. Death	Mortality Percentage.
Under 2 years	14	10	71%
2-5 years	7	1	14%
5-10 years	8	3	37%
10-21 years	13	2	15%
Over 21 years	28	17	60%

**Discussion of Table Number Three.**

The youngest case was four months; the oldest sixty-six years. The youngest to recover was five months; the oldest fifty-five years. There were twice as many adults as there were infants, and the mortality was 11 per cent less; the lowest mortality was between the ages of two and five years with 14 per cent; and the highest amongst the infants, 71 per cent.

**Table Number IV.**  
**Classification of Cases.**

KIND OF CASES	No. CASES	NO. DEATHS	MORTALITY PERCENTAGE
Fulminating . . . . .	9	9	100%
Very severe . . . . .	43	4	37%
Moderately severe	11	4	35%
Abortive . . . . .	1	0	0%
Chronic . . . . .	5	3	60%
Posterior basic . . .	1	1	100%

#### Discussion of Table Number Four.

The fulminating cases were those which had a very severe short course. They lived from a few hours to three days after admission to the hospital. One, an infant, seven months old, lived twelve hours after the first onset of symptoms. Another infant, seven months, died within twenty-four hours. The organism was not obtained in this case because all the lumbar punctures were unsuccessful. One case, a boy aged seven years, was admitted for appendicitis, and died within twenty-four hours after the operation. There were two cases under one year, two were six years, one was eleven years and the other four were over twenty-five years. The mental disturbance in all of these patients was very marked. They were unconscious or semicomatose at the time of admission. They did not react to serum at all.

#### Class Two.

**The Very Severe.**—Of the very severe cases, the mental disturbance was also very marked, but they could be aroused at some time or other before they died.

There were sixteen of this class that died. Of these, only a few reacted to serum, the rest becoming rapidly worse until death. Sixty-six per cent died within a week. Including those cases which were complicated by hydrocephalus, death occurred sixteen days after admission to the hospital.

#### Class Three.

**Moderately Severe.**—The difference between those considered moderately severe and those very severe was merely one of degree. Four of class three died, two were infants, who died of hydrocephalus, and the other two died, one of dilatation of the bladder while convalescing, and the other one after the injection of serum.

The large majority of the moderately severe cases was in children between ten and fifteen years of age. The children reacted more quickly to the serum than the adults. The average stay in the hospital of the cases that recovered was one month.

#### Class Four.

**Abortive Type.**—There was one case which was quite definitely an abortive one. This case received only two injections of serum and was sick with signs of meningitis only one day.

#### Class Five.

**Chronic Type.**—Four cases, two of which died. One lived four months. His spinal fluid was always cloudy; neck retraction and opisthotonus became gradually worse. His was not a very severe case when admitted and the serum was administered one day after the onset of symptoms.

#### Class Six.

**Posterior Basic.**—This patient had been sick for six weeks before admission, having been treated for pneumonia for four weeks. Upon admission there was marked opisthotonus, the spinal fluid showed wavy like cellular meningococci, and after the first three lumbar punctures could be obtained child died after a week's stay in the hospital.

**Symptomatology.**—There are two stages in epidemic meningitis; first the premeningitic or invasive stage. This lasts from a few hours to a day. The symptoms of this stage are those of any general acute infection. There may be a rhinitis, tonsillitis or a nasopharyngitis. During an epidemic one should be on the lookout for this stage, in order to make the diagnosis as early as possible. Only three of our cases were diagnosed in this stage. Ordinarily, meningeal signs follow very quickly.

#### Discussion of Symptoms.

1. **Headache.**—Headache is the most constant symptom; it occurred in every instance but one. A study of the character of the headache is of great help in making a diagnosis of meningitis. The location of the headache is not of so much importance; in some instances it was frontal, in others occipital, and in others the entire head was involved. The increasing severity, causing

the most excruciating pain, is the character of the headache in meningitis. In acute infections, such as influenza, rhinitis, etc., headache is much less severe, is bearable and can be modified by therapy and, generally, recedes within twenty-four to forty-eight hours, whereas, at the onset of meningitis, headache is unbearable, is not affected by ordinary antipyretics and increases in severity in a very short time. In some instances the headache disappears after lumbar puncture and the administration of serum.

**Mode of Onset.**—Text books describe the characteristic mode of onset of meningitis as very sudden and abrupt, but this was not our experience. In over 50 per cent of cases the onset was not sudden. In a large number there was a definite history of previous ill-health, such, as rhinitis, sore throat, rheumatism or influenza, obscuring the exact time of onset. Nasopharyngitis occurred in a number of cases, especially in infants; the discharge being thick, purulent and persistent.

**Temperature.**—The temperature is very irregular in meningitis. In some instances it is continuous and remains so throughout the course of the disease, in spite of the administration of serum; in other cases it assumes a septic type. The temperature may be inconsistently low with the severity of the disease. Only ten cases, those which improved by crisis, showed the temperature curve to be what one would expect with the administration of the serum.

**Pulse.** It is sometimes thought that the pulse in meningitis is very slow (a cerebral pulse), but in only three was there a true continuous bradycardia. The pulse, in the majority of cases, was very fast and in proportion to the temperature; there is nothing characteristic about the pulse.

**Respirations.**—There is a very slight increase in the rate of respiration in the majority of cases. The Cheyne-Stokes respiration occurred in all cases before death. The Biot respiration, which is a modification of the Cheyne-Stokes, occurred in practically all of the babies, at some time or other, and also in very sick adults.

**Mental Conditions.**—Mental disturbances range from mild confusion to wild delirium;

there is nothing characteristic about the mental conditions, except that, no matter how severe the infection, in practically all instances, at some time or other, the patient can be aroused to answer questions intelligently. This, it seems to us, is of great value in diagnosing between the epidemic and other forms of meningitis, for, in the cases of pneumococcal or streptococcal meningitis, which we have observed in our wards, the stupor, after it once came on, became worse very quickly and the patient could not be aroused. The severity of the illness, as a rule, was in direct relation to the mental disturbance, there being only three exceptions to this rule.

**Hyperesthesia.**—In babies, in the very early stages, and amongst adults, at all times, hyperesthesia, tenderness and pain, especially in the muscles of the neck and legs, was very constant.

**Convulsions.**—Convulsions are not very common in adults, although they are very common in infants. Practically all of our infants had convulsions, either before lumbar puncture had been instituted, or towards the end, before death. In only a few did convulsions persist through the entire course of the disease; in two instances the convulsions were confined to half of the body, resulting in hemiplegia; in some there was slight clonic twitching of the muscles and, in others, it was very severe, involving the entire body.

**Muscular Symptoms.**—The most constant diagnostic sign of meningeal irritation is neck rigidity and tenderness; all cases which were admitted as meningitis and which, later, were diagnosed otherwise, did not have neck rigidity. Neck rigidity, even in the mildest of our cases, appeared early. It was so marked in a few that the patient could be lifted up on his feet by raising up the head, giving one the impression that the entire backbone was soldered together. Head retraction is associated with this sign. Opisthotonus was present in six adults and in fourteen children.

**Muscular Rigidity.**—Muscular rigidity comes early and persists late. The muscles of the neck, back and legs are mainly involved, the arms, as a rule, being free. The neck sign is a common symptom, it is generally dependent upon the degree of rigidity. Kernig's sign is also



a very common and constant symptom; in adults it appears early and disappears late. Macewen's sign, when present, is of value in determining hydrocephalus; it is of no value in infants when the fontanelle is not closed, and is of little value in adults on account of the thickened skull. The sign consists of placing the stethoscope over the middle of the forehead and percussing lightly on either temporal region. Normally the sound through the stethoscope is hollow, when there is an excessive amount of fluid in the ventricles this sound becomes tympanically dull. This sign is also of importance in the later stages of the disease in helping one to decide how much hydrocephalus persists. The reflexes are of little value; in a large number of our cases the reflexes could not be ascertained, in a number they were absent or diminished and in still fewer, the reflexes were increased. Babinski's sign is rarely present in meningitis, it was definitely present in four cases; two of which were hemiplegic, the sign being present on the paralyzed side. The fontanelle is of great importance in early diagnosis of meningitis in infancy. All infants, before lumbar puncture was done, had bulging fontanelles.

**Meningitis in Infancy.**—1. Because of the relatively larger brain space, hydrocephalus develops very early and in greater amounts in infants.

2. The inhibitory mechanism of infants being very weak, convulsions develop more frequently and signs of meningeal irritation are more severe.

3. The resistance of infants being poor, the disease is much more acute, both in the onset and in the progress. The mortality amongst the infants treated in our series was 71 per cent; the youngest was four months and the youngest to recover was five months; one was a fulminating type. Practically all of the infants had convulsions, at one time or another, which varied from muscular tremors to tonic contractions of all the muscles of the body. The more severe the convulsions, the worse is the prognosis. Very often the rigidity of the neck is overlooked at the beginning of an examination but, after manipulation, the slight rigidity becomes more pronounced. Hyperesthesia and restlessness are present in the very early

stages, but after the signs of meningeal irritation come, drowsiness is more prominent. (1) a bulging fontanelle, if the baby is not crying or if a lumbar puncture has not been done; (2) a change in the mental condition, beginning with hyperesthesia and restlessness and later drowsiness; and (3) a temperature, are the three signs that are conclusive of meningitis in infancy. A bulging fontanelle, alone, during an epidemic, justifies lumbar puncture. Convulsions have a great positive value and also warrant lumbar puncture.

**Respirations** are valuable in the diagnosis. Deep sighing irregular respirations, so-called Biot's, signify cerebral involvement and a lumbar puncture should be done immediately.

The clinical diagnosis, in all but four cases, was confirmed by the finding of the meningococcus in the spinal fluid. The bacteriological examinations were made by the pathological department of the City Hospital and, in a large proportion of cases, were confirmed by the State Board of Health Laboratory.

There were many conditions which were diagnosed meningitis in which later the diagnosis was disproved and vice versa.

(1) **Pneumonia.**—Meningitis is often called pneumonia because of the increased respiration. In infants, especially, there may be an acidosis associated with meningitis which causes a marked hyperpnoea. The respirations in this condition are regular, deep and fast. There are no signs in the lungs indicating pneumonia. The spinal fluid is negative.

(2) **Meningismus.**—Symptoms simulating meningitis, such as, rigidity of the neck and Kernig's, may be present in other infectious diseases and cause great difficulty in diagnosis. This was especially noted in lobar pneumonia, the true diagnosis being only established after repeated negative lumbar punctures and the development of the physical signs of consolidation of the lungs.

**Gastroenteritis.**—In severe alimentary disturbances, the mental condition may simulate meningitis. The marked diarrhoea, with the absence of a bulging fontanelle and normal spinal fluid are against the diagnosis of meningitis.

**Rheumatism.** Seven cases were considered rheumatism because of the muscular rigidity,

headache and pain in the neck, which are prominent signs in the early stages. In rheumatism the headache is not so severe nor so persistent as in meningitis, nor is there actual neck retraction.

**Typhoid Fever.**—One case of typhoid was admitted as meningitis. The patient had a positive Widal, a palpable spleen and, although drowsy, showed no mental disturbance. The spinal fluid was negative.

**Appendicitis.**—One case of supposed appendicitis was operated upon on account of pain in the abdomen and vomiting. This was a fulminating case, the child dying in thirty-six hours. A lumbar puncture early would have confirmed the diagnosis of meningitis, the spinal fluid showing many meningococci and pus cells.

**La Grippe.**—Many cases were undiagnosed for three or four days, because of signs of La Grippe, so called "colds." In an epidemic, especially where there has been any history of contact, one should decide early between la grippe and meningitis by a lumbar puncture.

**T. B. Meningitis.**—It is not difficult to differentiate this condition from the epidemic form.

1. The family history of t. b. is obtained in about 85 per cent of cases.

2. The onset is much more insidious than in the epidemic form.

3. Signs of meningeal irritation develop much more slowly and are not so marked.

4. The mental state is somewhat different in the two conditions. In the t. b. form, after unconsciousness has set in, the child rarely becomes rational, whereas, in the epidemic type, even in the most severe cases, the mental disturbance may clear up for a while. In t. b. meningitis, the spinal fluid is clear, in epidemic it is cloudy. The former contains mainly lymphocytes, the latter mainly p. m. n. The respective organisms are absolutely conclusive of each disease.

#### **Pneumococcic and Streptococcic Meningitis.**

—Are very hard to differentiate clinically from the epidemic. They are much more severe and they always end fatally, within a few days. They are secondary, as in our series, one to a mastoiditis, another to an otitis media, and a

third, to a fracture of the skull. The spinal fluid shows the specific organisms.

**Tonsillitis.**—A large number of cases started as a tonsillitis. The same rule applies to this condition as was mentioned for la grippe.

**Fractured Skull.**—There were two cases of fractured skull which simulated meningitis. History of a fall, bloody spinal fluid, hemiparesis, unequal pupils, complete persistent unconsciousness, absence of the meningococcus in the fluid were against the diagnosis of meningitis.

It is often impossible to differentiate between those signs and symptoms that are primarily meningitis and those which are to be considered complications.

1. **Hydrocephalus.**—This condition is a very constant and important complication which may occur very early and persist throughout the entire course of the disease. It is diagnosed by the symptom of increased pressure of the spinal fluid upon the brain. In several instances, acute hydrocephalus became so severe that a lumbar puncture was urgent. The patient became ashy and perspired profusely; the respiration became very difficult and fast, the pulse rapid and feeble. A lumbar puncture relieved those symptoms immediately in several cases and the fluid came out under marked pressure. There were some cases in which the patient got along quite well for about two weeks and the clinical conditions seemed to have improved when, suddenly the temperature rose, vomiting occurred, headache became very intense and mental disturbance resulted. In some cases emaciation became marked. The pupils were dilated and reacted to light very sluggishly or not at all. The skin became very dry, the extremities lifeless, the mind beclouded. The patients became apathetic, often lying perfectly quite for hours, responded with difficulty to food and soon did not respond at all to noise or light. There was a peculiar vacant stare. Some of our cases had a continuous tremor of all the muscles of the body which persisted until death. In one case there was almost a complete unconsciousness for about two months. If the hydrocephalus is unrelieved, or if, in spite of treatment, it grows worse, the vomiting is impossible to stop. Very often it is projectile and not dependent upon the ingestion of food. The tem-

perature may be high or it may be subnormal. The pulse is very fast and feeble, usually. In three cases, however, there was a continuous bradycardia.

2. **Bronchitis.**—The second most common complication was bronchitis. This occurred in ten of our cases. The cough persisted throughout the first two weeks, at least, and in several instances, it persisted during the entire convalescence. It is nearly always associated with a purulent nasopharyngitis. Large amounts of pus were discharged from the nose and throat. This complication caused three cases of broncho-pneumonia, all of which proved fatal.

**Pyelitis.**—Although pyelitis is rarely mentioned in text books as a complication, in our series it was quite common. It occurred in eight patients; in six it was discovered upon their admission to the hospital; in two others it resulted from catheterization. It must be looked for as a cause of a continuous temperature, which cannot be explained by the ordinary signs of meningitis.

**Eye Complications.**—There were eleven cases of double convergent **Strabismus**. They were noticed upon admission to the hospital. At the present time, four months after the discharge from the hospital, only two cases still have strabismus; all the others having made complete recoveries. There were three cases of Nystagmus; two died and one which lived was completely cured. In two cases, associated with hemiplegia, the pupils were unequal; both of these cases died. **Ptosis** occurred in seven cases. They were all bilateral, except in two. They all occurred during the first week. Of all the patients who recovered, the ptosis has entirely disappeared. **Conjunctivitis** occurred in very many, usually in the first few days of the disease. In a large number it was purulent. **Keratitis.**—In the cases which died within two days after admission the cornea was covered with a film which, in two cases, developed into an ulcer. **Photophobia** occurred in a great many, usually in the first week. **Amaurosis:** Although many complained of poor vision, there were only two cases of true amaurosis. Both of these died. One was in a chronic case, about two months after the onset, and the other was in a posterior basic. **Hippus** occurred in one case and persisted until death.

## Ear Complications.

**Otitis Media.**—There were three cases of purulent otitis media. All of these developed between the first and second week of the disease. One was associated with diphtheria of the nose and throat, developing about the second week; the others occurred in children, at the height of the disease, with a discharge of pus from both ears for several weeks. The last report (August 31st, 1917) was that both children were normal, the ears no longer discharging.

**Deafness.**—Four cases. In one case deafness developed about the sixth week. The other two were associated with otitis media, and in one, it came on suddenly, about the tenth day, without any discharge from either ear. So far as we know all the cases have recovered. There may have been deafness in the fulminating cases that died, but this was not ascertained.

**Motor Complications.**—There were two cases of **Hemiplegia**. The entire half of the body, including the face, was affected. One of these had been untreated for two months and the other for two weeks. They both died. There was one **Paresis** of the right arm with **Neuritis**. This patient suffered excruciating pain for many weeks. About three months after his discharge from the hospital he still complained of weakness in that hand, but no pain. He is able to perform light work only at the present time (September, 1917).

**Adenitis.**—There were eight cases in which the cervical and submaxillary glands were enlarged and tender. One case involved the entire sublingual area, resulting in a high temperature and redness, which persisted for about two weeks.

**Nephritis.**—One case with casts, albumin and edema. This patient may have had nephritis before the attack of meningitis.

**Psychosis.**—One case, associated with deafness which cleared up.

**Incontinence of Urine and Feces.**—Occurred in several severe cases, nearly always associated with retention, which is the more severe of the two. This should always be closely watched for. In three of our cases there was dilation of the bladder, which produced very serious dis-

turbanees. One is easily misled, on account of incontinence, to believe that there is no retention. The urine showed nothing characteristic.

**Blood.**—The blood showed a leukocytosis ranging from 11,000 to 30,000.

**Skin Complications.**—It is sometimes difficult to decide whether the skin eruptions are part of the disease, or whether they are the result of the administration of the serum. Only the eruptions occurring before the giving of the serum were considered primary complications. There were seventeen cases of **Herpes**, fourteen of these were on the lips; one involved the buttocks, causing a severe ulceration, and the remaining, over the forehead and nose. There were four cases of **Petechiae**, the knee and the elbow being affected, three of these were fatal. Two cases of **Spotted Palms**, both recovered; one **Erysipelas**, which died. Several **Erythema**, which lasted for several days after admission.

**Sequellae.**—We have been able to follow up all of our recovered cases to the present time. The duration of some of the complications have been mentioned in the preceding paragraphs. More than half of the patients, within a week after their discharge, were able to resume their normal habits, such as work or attending school. Of the other half, a large number complained of stiffness in the legs and pain upon bending the back. Several complained of inability to walk on account of the stiffness and weakness in the legs. One patient complained of an ataxia, which persisted for several months after discharge from the hospital. Three patients complained of impaired memory, which still persists (September, 1917). One stated that she became color blind. Although it is now about three months since the last patient was discharged, some having been discharged for six months, there are only a few who still complain of weakness in the legs, one of weakness of the right arm and two, tenderness in the lumbar region. One eight months pregnant, who was having pains when admitted to the hospital, carried the baby through to full term, and now has a perfectly normal child. Some of the mothers complained that their children were very listless and irritable for a long time, but at the present writing they are perfectly normal mentally.

**The Prognosis of Epidemic Meningitis** is very grave. In no other condition is the outcome more uncertain. Patients apparently moribund recover, whereas, on the other hand, mild cases may develop complications and die. Ordinarily, the sporadic type is less fatal than the epidemic. The previous condition of the patient is a factor which influences the prognosis to a great extent. Five who died were alcoholics, having been on a drinking bout previous to developing the disease. Early diagnosis is of the greatest importance in the reduction of the mortality rate. It is a very significant fact, that in cases where serum was given within one day after the onset of the symptoms, the mortality was one-third as high as those in which the serum administration was delayed a week or longer. For this reason, in times of epidemics, one should do a lumbar puncture upon the slightest suspicion of meningitis.

**The Age of the Patient** governs the mortality rate to a great extent. It was highest in infants under one year and in adults over forty. The prognosis also depends upon the kind of treatment. Before the use of serum, cases were long drawn out; those which recovered very frequently became idiots; some were paralyzed; many became deaf and blind. In our series, the fatal cases of acute meningitis died within ten days, and those which recovered suffered no permanent complications.

Although one cannot say definitely that certain signs are absolutely fatal, in our experience, the symptoms which were most constantly associated with subsequent death were:

1. Early and persistent coma, with incontinence of urine and feces.
2. Repeated convulsions or continuous tremors.
3. Increased irregular respiration in adults.
4. Persistent vomiting.
5. Complete insomnia.
6. Marked relaxation.

**Causes of Death.**—Five cases came in moribund; all of the fulminating died within three days after admission. There were two fatal cases of dilation of the bladder, one died during the acute stage and the other during convalescence. One died immediately after the injection of the serum, probably from increased pressure.

**Treatment.**—This chapter will be limited to our personal experiences with the serum treatment. In the premeningitic stage, if the fluid is clear, the serum may be used intramuscularly or intravenously, preferably the latter, but if signs of meningeal irritation have developed, the intraspinal method alone, or combined with either of the two mentioned must be used. Parke-Davis serum was used in the majority of our cases; in some, Lederle, in a few Mulford and, in three chosen cases, the serum from the Rockefeller Institute. The minimum number of injections to one patient was two, the largest number forty-four; the average number to each patient was seven. The general rule was to give the serum daily for five days and then, if the fluid was clear, the general condition of the patient much improved, the serum was discontinued.

**Dosage.**—The dose of the serum has never been standardized, since we have no definite measure of potency. The average dose used for children was 15 c. c., providing that 15 c. c. or more of spinal fluid was removed at the same time. It is not safe to give more serum than spinal fluid withdrawn. In adults, 30 c. c. was usually given, and, in several instances, where excessively large amounts of fluid were withdrawn, 45 c. c. of serum was given. There is too great danger in giving a large dose at one time of causing undue pressure. If a dry tap were obtained, or only a few drops of spinal fluid, between 5 and 10 c. c. of serum was given. The administration of serum must be considered a major operation. The patient must be watched very closely for signs of collapse. Sophian's method of accurately recording the spinal pressure during the giving of serum must be a very safe procedure, even though it is not considered practical by all authorities. We were not in a position to use this method, because of the very large number of patients and the lack of assistance. The respirations, especially, should be watched and, at the first signs of collapse, either camphorated oil or cocaine and atropine should be given hypodermically and, if respiration stops, artificial resuscitation should be employed. Also, at the same time, the tube containing the serum should be lowered, in order to allow the serum and the spinal fluid to flow out. Six of our patients showed such collapse

and these were all before the gravity method was instituted. At first, the Parke-Davis apparatus was used entirely; the fluid was directly injected with a syringe, but a death resulted with this method, and the, so-called "Gravity Method" was used entirely thereafter. Very frequently the patient complained of severe pains in the back, legs and head, sometimes at the beginning of the injection, but usually after. This pain is very severe and may persist for some time. Warm serum has been recommended to lessen the pain; we used it but with no definite value.

The so-called, "Water Anesthesia," allowing the patient to suck water through a tube while the serum is being administered, is recommended by Sophian. The pain is, at times, so severe that the patient's attention cannot be diverted and again, the patient may be semi-comatose; we did not find this method valuable. We used no anesthetic, whatsoever, except in one case, where laughing gas was used. A general anesthetic is useless in this condition and local anesthesia is useless. If the patient is very unruly, and assistance is lacking, an anesthetic may be necessary in order to do a lumbar puncture.

#### When to Discontinue the Serum.

1. The condition of the spinal fluid.
2. General condition of the patient.

At the onset of the disease the spinal fluid is nearly always cloudy, contains many extra-cellular organisms, and many pus cells, and is under increased pressure. Usually, at the end of five daily injections of serum the fluid clears up, the organisms disappear and there are very few pus cells, or none at all. At the same time, the patient's mental condition improves, the temperature drops and the rigidity of the neck and extremities decreases. The serum should be discontinued under these conditions. After this a lumbar puncture, for a period of another week, should be done upon alternating days, to see whether the fluid remains normal. Even though clinical signs have improved, if the fluid should become cloudy again and pus cells and organisms return, the serum should be immediately readministered. If one is uncertain, the patient should always be given the benefit of the doubt, by the injection of serum. In our experience, the fluid clears up, on an average, about the tenth day.

**Effects of Treatment.**—The numerous reports of the last eight years on the treatment of epidemic meningitis have proved the specific value of the serum. Almost ten thousand cases have been treated with the anti-meningitic serum during this time. In Minnesota we cannot compare our mortality rate with that of the period before the use of serum, because, until the past few years, there has been no attempt made to diagnose this condition bacteriologically. In other regions, however, where epidemics prevailed, before the use of serum, the mortality rate has shown a definite and permanent decrease, ranging from 30 to 60 per cent.

The patients who recovered all reacted differently to the serum; some showed an improvement within a week's time; the temperature became normal, the mental disturbance cleared up, the headache disappeared, and the spinal fluid reacted favorably. A large number of cases, however, showed mental improvement and the spinal fluid became clear, but the temperature persisted for some time, as long as three to four weeks. In another group, the improvement was very slow, there being no definite change until the third or fourth week. The temperature is no guide to determine the prognosis. In only ten of our cases was there an improvement by crisis; in several, there was a pseudo-crisis on or about the third to fifth days. After the first injection of serum, the temperature rose more often than it fell.

The effect of the serum depends upon the age of the patient, how soon after the onset the serum is administered and whether there was a previous illness. Our mortality rate, of 43 per cent, is comparatively high. This may be explained first by the fact, that, this being the first epidemic in this district, physicians were unprepared to diagnose and treat this condition expertly; secondly, that the strain of meningococcus was very virulent. Several cases, diagnosed early, were only moderately severe and yet, showed no reaction to the serum. In one case where the three different sera had been used with no effect, the serum from the Rockefeller Institute was used and showed temporary improvement.

## A FEW FACTS IN REGARD TO MODERN X-RAY THERAPY.\*

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The disastrous results formerly obtained with the X-rays were due not so much to the rays as they were to the failure to understand their physical properties. In the minds of physicians the terms "X-ray treatment" and "X-ray burns" were almost synonymous, an impression founded on widespread evidence. However, with the advent of the modern transformer and the Coolidge tube, the introduction of filters, and the accurate registration of dosage the prejudice above alluded to has been largely overcome.

As a result of these new agents, particular stress being placed upon the importance of the Coolidge tube, the treatment doses are now controlled and standardized to a degree assuring perfect safety in their application. Add to this advance the power to control absolutely the quality and quantity of rays suitable to the various lesions, and we reach a plane of development which practically eliminates the dangers incident to former operations. The success of this work in a given treatment depends entirely on the following points:

- (1) The quality of rays emitted.
- (2) Quantity of rays emitted.
- (3) Amount of filtration.
- (4) Distance of tube from part.
- (5) Time of exposure to rays.

Disappointment and often disaster will fall upon both operator and patient unless these five cardinal points are heeded.

It should always be kept in mind that underdosing stimulates malignant cells, and overdosing destroys healthy tissue.

The local effects of the rays on the tissues are constant. Whenever an exposure has been accurately calculated, definite changes occur in the tissues affected. We have a latent period of two or three days. This is followed by an inflammation and swelling of the cells due to migration of leukocytes and small round cells. When this subsides, fibrous tissue forms

\*Read before the Sioux Valley Medical Association, July 24, 1918.

which surrounds the individual cells or areas of cells. As in all processes of this nature, the later contracting connective tissue causes atrophy of the parenchyma and we have as a result the final destruction and removal of the lesion. Phagocytosis plays an important role in the final stage.

Let us keep constantly in mind that atypical cells are more vulnerable to the action of rays than are normal cells. Upon this fact hinges the whole field of radio-therapy.

Aside from a local effect of the rays, there is every reason to believe that a general effect is produced upon the whole body. It is a common experience to note a general improvement during a series of treatments. A patient will show gains in weight, increased appetite, improved color, and the blood will increase its hemoglobin, red and white cells. A lesion distant from the one under treatment may diminish or disappear. Whether this general and distant action is due to local improvement producing an auto-vaccination, or whether the rays going into the growth are picked up and carried by the metallic iron in the hemoglobin to all parts of the body, exciting a general tonic effect, is a matter for conjecture. It is a fact, however, that the lower the hemoglobin and blood count fall, the more unfavorably will the patient react to treatment.

In the treatment of malignant disease the surgeon and the Roentgen-therapist sometimes disagree, each claiming the case as belonging to his particular field. This is due largely to the fact that the merits of the rays are underestimated by the surgeon and often over-calculated by the therapist. There is a distinct field for both and whatever antagonism has been injected has been due to the personal element rather than to purely scientific reasons.

X-ray therapy, as practiced today, is practically a new field; its possibilities are known only to a few. Only when the surgeon and Roentgenologist get together and work hand in hand will the most be gotten from either specialty. Let us keep the patient's welfare constantly in mind and complete harmony will prevail.

We shall now consider the indications for X-ray treatments:

**Cancer of the Breast:** According to Rodman 25 per cent of breast cancers will return no

matter how early and completely operation is performed. Phaler reports cases operated within one week after first appearance of breast disturbance when tumor was barely palpable, and yet recurrence and metastasis appeared within two months. Bloodgood's statistics from Johns Hopkins revealed only 27 per cent free from axillary involvement at time of operation and of this number operated 75 per cent recurred. Taking the general run of cases—about 65 per cent recur. If the surgeon can save only 35 per cent and the Roentgenologist can and does bring this average up to 60 per cent, then any argument in favor of operation must be an argument in favor of post-treatment with the rays.

A new and effective practice is to send hard rays into the open operative wound before suturing. In this manner, many left-over cells are devitalized and the open lymph channels are sealed.

The treatment of breast cancer with the rays has its failures as well as successes, because of the generally far advanced cases sent to the Roentgenologist in the past. However, in practically all patients improvement does take place. Pains are relieved, diminution of the disease follows, discharges and odors are modified, the patient is made more comfortable and life is always prolonged. Cases of bilateral cancer with extensive glandular involvement have been cured. One can almost claim as an axiom that no breast cancer is beyond the possibilities of a cure until the rays have failed. Again, many inoperative cases are rendered operable after intensive radiation. Every operable case should be operated, but the operation should be preceded and followed with hard-filtered and cross-fired rays. In this way the mortality rate will be reduced one-half and the patient will receive the maximum degree of aid. Thus we see that post-operative radiation is as essential as the operation itself.

Let us consider briefly the factors which govern the prognosis in a given case. These are:

Age, degree of metastasis, rapidity of onset, evidences of lung or lymph edema, cellulitis, presence of excessive fat, nature of growth. Added to these are completeness of the operation and thoroughness of post-operative radiation.

We can readily perceive the difficulty in having all these factors favoring the patient. By thoroughness of post-operative radiation we mean the selection of hard penetrating rays, those which accompany a voltage backing up a nine-inch gap—not a six, seven or even eight. The proper filtration and dose to the skin limit are essential, and last but not least, the proper mapping out of a field in order to cross-fire most effectually.

Roentgen therapy is being substituted for the ultra-radical operations such as removal of the supra-clavicular glands or the clavicle. Surgeons should not think rays useless because they have failed in the past due to improper technic. On the contrary, modern radiation has reduced the mortality at least 25 per cent. The argument that too many physicians with X-ray equipment follow therapy is true, but too many unqualified physicians operate.

The point for every physician to remember is this: Give every breast cancer the benefit of an early operation and follow every operation with intensive radiation. Remember also that advanced cases do better and live longer when they are rayed and not operated. As a plea to surgeons let me exhort you not to wait until recurrence has taken place before referring the patient to the radio therapist or send only inoperable cases. Send them immediately after the operation—when possible, before.

**Hyperthyroidism:** X-rays have no place in the treatment of colloid, cystic and non-toxic goitre. These are purely surgical. More than eighty per cent of the toxic goiters will respond to Roentgen treatment, and produce clinical cures. The writer has seen these results in various X-ray laboratories and has confirmed them in his own work. But a confusion of types and improper technic will not accomplish any improvement. On the contrary, under-dosing a toxic goitre will stimulate the cells and aggravate the clinical symptoms.

In acute cases X-ray treatment should be supplemented with rest in bed, diet and medication. The writer has seen acute fulminating cases with most intense intoxication react favorably to rays after non-operative measures had failed and operation was contra-indicated because of the toxicity.

Following a series of nine selected cases of

varying degrees of absorption, in whom suspected foci of infection had been treated, the writer can positively assert that the results from radiation have been immeasurably more successful than cases he previously referred for operation. This with little loss of time to the patient, absence of operative risks, absence of a scar and the saving of many dollars to the patient. Allow me again to assert that these remarks pertain only to toxic goitres.

If rays are effective in many inoperable cases, should we not expect a high percentage of favorable results in early or reasonably advanced cases? We recall the action of the rays on parenchymatous cells is obliterative by virtue of replacing connecting tissue producing a sclerosis. Surely surgery can do no more. The end results are the same.

Two technical points must be kept constantly before the Roentgenologist's mind, namely: under-dosing thyroid tissue will stimulate the gland and produce a clinical condition of hyperthyroidism, while over-dosing will cause a hypothyroidism. So the field for cure with rays is limited but absolute.

Case reports about 30 per cent being due to substernal thyroid or persistent thymus. This may be high, however. These are inaccessible to the knife—or largely so—and here may lie the difference in success obtained between surgical and X-ray treatment. In all cases the chest should be rayed, both ante and post, to cover the thymic area. All distant foci of infection should be removed before the surgical or Roentgen treatment of any goitre is complete. As a summary:

- (1) All surgical cases should have post-operative Roentgen treatment over chest.
- (2) All medically treated exophthalmic goitres should be given rays.
- (3) All cases not responding to rays within a reasonable time should be operated, provided infective foci have been eradicated.

This may be true—that if in the future we eradicate suspected infective foci, remove surgically the goitre and ray the chest for thymic involvement, we shall have the ideal method of treating hyperthyroid cases. But judging from the present records and results, X-ray treatment of Graves' disease should be the method of choice.



Leukemia: Pancoast and Stengel look upon the bone marrow rather than upon the spleen and lymphatic tissues as the primary seat in all lymphatic disease. The spleen and lymph tissues are only metastases from the marrow of the long bones. With this in mind, the rational X-ray treatment is to ray the long bones. The results are far superior to the older method of treating the spleen or glands. In using the rays, caution must be observed lest toxemia ensue. An emphatic "don't" is never to treat Roentgenologically a case of acute lymphatic leukemia for the same reason. The splenic treatment always caused a toxemia, due to the liberation of what Pancoast and Stengel term leukotoxin.

To verify this claim, one will find the nitrogen output in the urine increased 100 per cent after intensive splenic treatment. The results with the marrow treatment are slower than with the splenic radiation, but the patient feels better, lives longer and is free from toxic disturbances. One should continue treatment until the spleen returns to normal size and the blood assumes normal aspects. A differential blood count should be made monthly and any sign of relapse should indicate resumption of treatment. Arsenic should be added when spleen remains stationary and blood shows persistent pathological cells or count. Benzol also acts very favorably in conjunction with the rays. The important fact to remember in the X-ray treatment of leukemia is to give only stimulating doses.

Before closing this topic allow me to add that brilliant as the results of the above described treatment are, leukemia is not cured with the Roentgen rays.

Hodgkin's Disease: If there is one pathological condition in which the effects of X-rays are strikingly favorable, it is in Hodgkin's Disease. Glands will absorb almost beyond belief. This recession, however, is not permanent, and it is necessary to radiate at frequent intervals in order to obtain the best results.

This disease is considered by many pathologists as a lymphosarcoma. Frankel, Rosenau, Yates and others have isolated a bacillus from glands involved. The prompt response to the rays would suggest the sarcomatous character, but would not necessarily prove this point. Ir-

respective of the etiology, we know that X-rays are the nearest to a specific treatment ever advocated for this disease.

Pancoast claims 25 per cent to 35 per cent of cases of Hodgkin's Disease are permanently cured if taken in their incipiency. Cases not cured will be greatly benefited, life prolonged and the terrible pressure symptoms so common in chest and abdominal involvement will be absent or alleviated.

Aside from treating surface lesions, the patient should be fluoroscoped and radiographed for enlarged mediastinal and abdominal glands.

Briefly I shall mention a few other conditions which are responsive to Roentgen therapy:

All non-suppurative glands respond to rays, which should be used in preference to surgery.

Carcinoma uteri, though not cured when at all advanced, should be treated with the rays before and after operation. Inoperable cases are greatly relieved with hard rays, and life is prolonged.

Uterine Fibroids: In no single ailment amenable to Roentgen rays can we look forward to more satisfactory termination with the degree of certainty as in the case of a properly selected case of uterine fibroids.

We must consider the following exceptions, however:

(1) Pedunculated fibroids, protruding through the cervix.

(2) Cases in which gangrenous degeneration of fibroid is suspected.

(3) Fibroids accompanied by carcinoma, or those having undergone sarcomatous degeneration.

(4) Fibroids which lead to acute incarceration of the bladder.

No exception is made as to size of fibroid or age of patient, although patients past forty respond most readily. The nearer the patient is to the climacteric, the surer and quicker the results. In properly selected cases, properly treated, we can look forward to getting 100 per cent cures.

In regard to malignancies of the stomach, liver, omentum, intestines and other viscera, the X-ray results are generally unsatisfactory, although occasionally actual cures are gotten. Hence it is well always to give a few treat-

ments, because in a series we might run across one in which the lesion will respond.

A writer recently reported favorable results in treating tuberculous peritonitis.

Uniformly satisfactory results are had treating keloids.

Other conditions which react favorably are: chronic eezemas; ring worm, particularly of the scalp; barber's itch, chronic ulcers, boils, carbuncles, psoriasis, overgrowth of hair, hyperhydrosis, certain chronic fistulae and the artificial production of sterility.

Before closing this paper the writer shall dwell briefly on the treatment of superficial epitheliomata with the rays. Combined with the electro-thermic coagulation method of Phaler, the rays is the method of choice. If they will cure lesions around the orbit, on bridge of nose, in the mouth and pharynx, where the knife cannot be used effectively, why should cancer of the lip and face belong solely to the surgeon, as many claim? The rays undoubtedly destroy the growth and cofferdam the lymphatics, no scar remains, no time is lost, no anesthetic, and no deformity resulting from loss of tissue. Besides, the entire glandular area can be rayed.

Metastatic glands should always be treated surgically and rayed later.

This field, therefore, is selective. The Roentgenologist has his scope, the surgeon his. The Roentgenologist should not ray cases requiring operation, nor should the surgeon claim surgery for relief when the rays alone can be of benefit.

This resolves itself into the conclusion that the future status of Roentgen therapy will depend, not so much upon its merits, as it will upon the free and open-minded consideration of the physicians and surgeons. All prejudice and personal gain must be excluded.

THE PRESIDENT'S ADDRESS BEFORE  
THE SIOUX VALLEY MEDICAL  
ASSOCIATION.\*

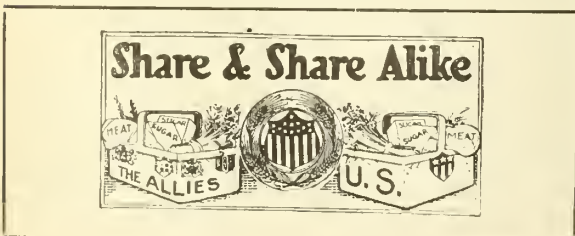
W. R. BROCK, M. D.,  
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Mr. Chairman and Members of the Society:

I have the right at this time, I believe, and the pleasure, of advancing to the members of this society my sincere thanks for the personal and professional courtesy extended to me a year ago in making me president of this medical organization. I cannot however convey to you my full appreciation of the honor that this act of yours signifies. For when we consider the constantly high order of our programs, the lofty and the unselfish purposes of the founders of this society, the men of high professional attainments who have preceded me in this office, and the fact that many of the best physicians of the present day are contributing to our society work, I am sure that to be merely a member of this society would be sufficient honor for the most of us without seeking or desiring any greater glory.

This medical society had its birth in this city twenty-three years ago. How well the fathers of this society selected its name is apparent when we look out upon this beautiful valley of the Sioux. This valley, in its combined virtues in picturesque landscapes, fertility of soil, wholesomeness of climate, industry and type of civilization, is not excelled in all the world. This valley with its commanding geographical location has clasped hands in medical science with its greater sister valleys, the Missouri valley on its West, and the Mississippi valley on its East, and now many members of this society reside more strictly speaking in these two great river valleys. Let us not fail to cherish upon this anniversary the names and the accomplishments of the fathers of this society who gave it birth nearly a quarter of a century ago. Some of these have "fought the good fight," and have "finished their work." Others are serving the nation today as surgeons in the

\*Presented at the Annual Meeting of the Sioux Valley Medical Assoc., Sioux Falls, S. D., July 24, 1918.



war, while others far more than fifty-five years of age are still active in professional work at home. The influence of these good men inspire us all to greater excellency in meeting the responsibilities of our profession.

I would suggest as your presiding officer that the secretary be instructed to print a letter of good cheer to be sent to each member of this society serving in the U. S. army and navy. This will not be doing much for our absent members but we know that they need our words of encouragement for, though they will tell us their yokes are easy, we know that their burdens are not light. Many are the heroic lives to be evolved out of this world's war that shall illuminate the pages of history, but let it not be forgotten that one of the greatest factors which is going to be responsible for a decided victory for the allied nations is the service of the physician and surgeon rendered with heroism and efficiency. A recent report from Washington as given by the press, states that the government is about to assume control of the entire medical profession of the U. S. According to this report there are 90,000 physicians in active practice in this country, one-fourth of whom are all ready in the national service. This plan contemplates drafting a sufficient number of physicians to swell the army and navy up to 50,000. This means that more than 50 per cent of men in active practice in this country are to be called. This is a very large per cent, but I am sure that our profession stands ready to meet any necessary emergency that may arise with the government. The destinies of the human race, not only in civil life but in war, hang largely upon the dependable valor, honor, and sacrificial spirit of our splendid medical men. The dark and appalling picture painted by Lord Byron in his "Rise and fall of the Nations," would "Turn the Gazer's eyes away," where he says:

"Here is the moral of all human tales,  
'Tis but the same rehearsal of the past  
First freedom, then glory, when that fails  
Wealth, vice, corruption, barbarism at last  
And history with all its volumes vast  
Hath but one page."

This picture was painted by the immortal poet when "right was ever on the scaffold and wrong was ever on the throne;" when kings and tyrants ruled by fear and dread. One hundred years ago Byron did not see the light of freedom that was burning in the far off continent of America. Or if he did, he never dreamed that it would grow brighter and broader until today the greater part of the world, in a determined spirit of self-government would be fighting to the finish the despots, the tyrants and kindred enemies of the human race. And after this war is over and peace reigns as a perpetual benediction over the world, the tyrants and the kaisers should be best known by the exhibitions of their skeletons in museums zoological to emphasize the passing of this particular species that has disgraced the animal kingdom before the very eyes of all decent governments.

I would call your attention specially to the urgent necessity of every physician out of the army service to take increased devotion in the problems of medicine, particularly in medical society work that our societies shall not die but continue to flourish. We shall be slackers indeed if we fail to attend medical societies because of small attendance during this war. War means sacrifice for everyone and we must compensate at home by unusual activities in medical society work, in visiting the great clinics, by painstaking diagnosis and treatment at the bedside, by work in the laboratory and study, so that the physicians who have gone to war may return to find our "house put in order," and learn that we have responded to the timely edict, "work or fight."

Excellent as is the moral standard of the profession of today, we are confronted by needed reforms, chief among which is the reform which will bury for all time the fee-splitting system. Not longer than seven weeks ago an ex-editor of one of our state medical journals, a man of fixed integrity and splendid surgical ability, said that he met his professional doom because of the extravagant splitting of fees practiced in his city, a game in which he refused to participate. Not far from the city of Sheldon there is a fellow who during a series of years has qualified as an expert agent: this man is

glowingly unfit to make a surgical diagnosis yet of the many scores of patients he has picked up and sold to the highest bidder in a city upon the Missouri river, not one patient has been returned for medical treatment but all have been subjected to surgical procedures. These two physicians upon either end of the well-beaten route, have degraded their business far below that of the lightning rod peddler, and all because of the division of fees. There are two remedies for this evil: first, the revocation of licenses to practice; second, the general practitioner should so dignify his particular line of work by commanding sufficient pay that he will not have to knock with his patient at the back door of the surgeon asking for a surgical hand-out. The general practitioner must learn that his services are just as valuable for saving the life of *his* patient from a severe type of pneumonia, as are the services of the surgeon who saves the life of his patient from a severe type of suppurative peritonitis. In recent years and months the methods of diagnosis and treatment of medical cases have constantly advanced. General surgery does not halt in its rapid strides toward perfection. Of the four important cavities of man, the cranial, the thoracic, abdominal and pelvic, it can be definitely said that surgery of the thorax has been the least progressive of any of them, and in fact has been almost at a standstill. With the organization last month at Chicago of an association as a special branch of the great American Medical Society, whose object is the advancement of thoracic surgery, we may feel assured of some important achievements along this line in the near future. With hope and confidence do we await the brilliant records to be obtained by our surgeons in France in the domain of thoracic, cranial and especially plastic surgery. Sacred and important have been the reforms instituted by our gynecological surgeons who are teaching and practicing intensive conservation of the female organs of reproduction. Let us congratulate ourselves that upon the whole our profession, ever facing the rising sun, is making great progress. But in the meantime let us remember that with each new reform and with each progressive stride there come to us all new duties and added responsibilities.

## PITUITRIN, ITS USES AND ABUSES.\*

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*Blue Earth, Minn.*

Some years ago I encountered a very slow, hard and tedious obstetrical case, fifteen miles from town, a primipara, where there seemed to be no anatomical reasons why labor could not be completed with anesthesia and forceps. Yet I was unable to terminate this case alone—although I stayed there two nights and waited patiently many hours—because the head remained too high to be firmly held by the forceps. The pains were moderately strong. The cervix did not dilate readily but was very unyielding, and finally was made to dilate after severe but normal pains and many hours of patient waiting. At last I asked that a consultant be called. He arrived. Pituitrin was given hypodermatically, 1 c. c. In eleven minutes after administration the pains became very strong, even tumultuous at times. Still the head was too high for the forceps to hold it. In thirty minutes after first administration a second dose was given, another 1 c. c. The uterus could now be felt to undergo tumultuous and violent contractions. Forceps now succeeded in getting the head externally, perineum lacerated, but not into the bowel. Hemorrhage was quite severe, but not enough to be fatal. Placenta came without trouble. Suddenly the mother was in profound shock and soon died. Baby was asphyxiated and also died.

Now this is my only experience with pituitrin. I went home and thought a great deal about this unfortunate case, resulting in two deaths, for up to that time this was my first maternal fatality in obstetrics from any cause whatever. On the two death certificates I wrote, difficult labor on one, dystocia on the other. I should have written, ruptured uterus on one, asphyxia on the other. But at that time the immediate cause of death was in doubt, in my mind. However, I kept thinking about the case, and some time afterwards I went to Detroit, Mich., and heard De Lee before the American Medical Association read a paper on pituitary extract in obstetrics. When he sum-

\*Read at Fairmont, Minn., May 23, 1918.

marized all his cases it soon dawned on my mind what ended my case, both mother and child—ruptured uterus. From this time on I have read and followed up everything on the subject in journals and books in order to know the experience of others with this peculiar drug. After having read and digested the obstetrical literature on pituitrin I prepared the following epitomized resumé.

Pituitrin is the watery extract of the active principle of the posterior lobe of the pituitary body. Its action was first discovered by Dale eleven years ago, and was first used in labor by W. B. Bell nine years ago. It causes all unstriated muscle fibers to contract, such as the fibers in the intestines, bladder, blood vessels and uterus, but chiefly in the latter. Its action is manifested in from three to ten minutes after hypodermic injection, and labor pains are both strengthened and made more frequent, the effects lasting from half an hour to one and one-half hours. In the early months it will not induce abortion, but with other means it may bring on labor at term.

Pituitrin is used frequently in expulsion of gas from the intestines, accomplished by its characteristic action on the unstriated muscles of the bowels. The intestinal paralysis or atony of post-operative cases is commonly relieved by it. For such cases 1 c. c. or even 2 c. c. should be used as a dose, it is without danger, and works best with high enema. It also acts well in ischuria on account of its action on the bladder muscle. Pituitrin is also used in the diagnosis of labor. One-half c. c. is injected, when, if the pains are true, labor will begin and progress steadily. If the pains are false, it is supposed to have no effect on them. But for this purpose it is really unnecessary to use it, better be patient and let nature alone, and let her make the diagnosis. But in the expulsion of gas it has its best place.

Coming to the use of pituitrin in labor we have nearly as many different opinions as we have doctors, and one cannot get much help from the various articles on the subject, so I have gleaned what I could from the literature and drawn my own conclusions.

The dose in labor should be one-half c. c. or less, repeated in thirty to sixty minutes if necessary. To give one c. c. at one time is very

dangerous and no writers now use that big dose in labor. It may cause rupture of the uterus. One or even two c. c. are a safe and proper dose in all other cases, but not in obstetrics. I found twelve cases of ruptured uterus reported the last two years. There must have been a great many more cases not reported, for physicians do not like to report the bad results, but the good ones. Therefore few cases of ruptured uterus are ever reported. About a year ago Dr. J. J. Mundell in the *Journal of the A. M. A.* reported 12 cases of ruptured uterus and 34 cases of fetal deaths out of 1,293 cases given. From his studies we have one ruptured uterus for every 107 cases and one fetal death for every 38 cases given. Two years before, this same author collected 3,952 cases with eight cases of ruptured uterus, or one in every 494, and 27 fetal deaths, or one in every 146 cases, not to mention many seriously asphyxiated babies. Thus we see that many children perish from this drug and also a few mothers. If we had a new disease appear among us that proved fatal to one child out of every 200 born, we would very justly become alarmed and anxious to stop it. Yet in the obstetrical literature it seems pituitrin has been as fatal as that to the new born, not to mention the dangers to the mother. The explanation of the fatal asphyxia to the child is that in all probability it occurs late, in the last several minutes of labor, when the placenta is about ready to separate from the uterus. The violent and prolonged contraction with the shortened interval constricts the placental site, limiting the amount of blood going to the placenta. The blood is therefore not properly oxygenated. An ideal case for its use would be a multipara with a history of previous normal labors, late in the second stage of labor, when the pains have become slow and weak due to uterine inertia, with a normal presentation and with the bag of waters ruptured, with the cervix fully dilated, and with the head moulded and through the brim just above the relaxed perineum. This may seem to be a narrow field, yet we frequently find such cases. But such an ideal case like this can be terminated any time with the forceps. And that is safer than pituitrin. All writers agree that

it should not be used in a primipara. I do not see a reason for that.

The contraindications to pituitrin are: contracted or deformed pelvis, rigid cervix or perineum, very high blood pressure, eclampsia, and malposition of fetus.

The indications are:

1. If pains are weak or irregular in first stage of labor, give one-half of one-half c. c. ampule, or if cervix is very readily dilatable give one-half c. c. and no more.

2. If pains are weak or irregular in second stage, give one-half c. c.

3. In post-partum hemorrhage give 1 c. c. with ergot.

Pituitrin has come to stay with us, and has found a place in the obstetrician's armamentarium. But if the slogan of the hour would be "safety first" as it is with the railroads,

and if we doctors were not in such a hurry to get back on some other case, but would wait patiently with the woman in labor, these injuries and fatalities could be avoided. Accoucheurs are coming to realize that the child has a right to be born alive, and that the license to practice medicine does not also carry with it a license of executioner of the unborn child any more so than of the mother.

Pituitrin has been used in too large doses in obstetrics, and it has caused many serious lacerations, as well as fetal deaths. But it will expell the contents of the uterus, at term, quicker than anything else, therefore is given by busy practitioners to hurry up the case and for no other reason than expediency. De Lee says, "it provides for the physician and his brother gynecologist a lot of chronic sufferers, often incurable even after mutilating operations."



**KEEP IT COMING**

"We must not only feed our Soldiers at the front but the millions of women & children behind our lines"

*Gen. John J. Pershing*

**WASTE NOTHING**

UNITED STATES FOOD ADMINISTRATION

# Minnesota Medicine

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## EDITORIAL

### THE ANNUAL MEETING OF THE STATE ASSOCIATION.

The annual meeting of the Minnesota State Medical Association for this year has come and gone and its proceedings are already part of the history of the association.

Like other Duluth meetings it was a gathering in which sociability was particularly marked and at which many old friendships were revived and new ones formed and at which there was much discussion among the members of things medical and political. Both the Medical and Surgical sections were well attended, and the papers presented of great interest.

The President, Dr. A. J. Gillette in his scholarly and philosophical address, showed the influence for good the war was exerting on the profession and on the general public.

Dr. Chas. Mayo made the scientific address at the joint session on Thursday afternoon. His subject was gastro-enterostomy.

Colonel Reuben Miller from the Surgeon General's office and Major J. D. McLean, Secretary of the General Medical Board, Council of National Defense, gave stirring patriotic talks on the work of the Medical Department, The Medical Reserve Corps and the Volunteer Medical Service Corps.

Prof. Arthur Todd of the University of Minnesota, spoke on the Second Line of Defense, dwelling upon the paternalistic and socialistic features of the Nation's treatment of its soldiers and their families and explaining the wonderful program that has been outlined in Washington.

The Paper by Mr. Chas. E. Vasaly of the State Board of Control, on the New Children's Code of the State was interesting and instructive. Dr. Mabel O. Ulrich handled the subject of the Control of Venereal Diseases and its possibilities with rare good taste and judgment, while Dr. Harry Irvine explained the program of the State Board of Health on this subject.

This very interesting and instructive afternoon was brought to a close by a presentative of the cinemetograph "Fit to Fight" which the Government uses in its anti-vice campaign among the soldiers.

The transactions of the House of Delegates appear in full elsewhere in this issue.

Dr. Geo. D. Head was elected President, Dr. Earl R. Hare, Secretary, and Dr. F. L. Beckley, Treasurer for the ensuing year.

### THE VOLUNTEER MEDICAL SERVICE CORPS.

The medical profession of Minnesota has already demonstrated its loyalty and determination to win the war by its prompt response from the start to the Surgeon-General's appeal for volunteers in the Medical Officers Reserve Corps. Now comes another opportunity in the form of the Volunteer Medical Service Corps by which the medical men and women of this state will be able to maintain the high standard set by those of our colleagues who have already entered the service. Let us not mar our fair record. Let every qualified medical man and woman of the state join at once the Volunteer Medical Service Corps.

Every legally qualified physician, man or woman, holding the degree of Doctor of Med-

icine from a legally chartered medical school, who is not now attached to the Government service, and without reference to age or physical disability, may now apply for membership in the Volunteer Medical Service Corps and be admitted if qualified. The organization will mobilize the medical profession in order to provide for the health needs of the military forces and the civil population, and the recording and classifying of doctors will afford means of obtaining quickly men and women for any service required.

To date about 40,000 of the 144,116 doctors in the United States—not including the more than 5,000 women doctors—either are in government service or have volunteered their services. Up to July 12 the Surgeon General had recommended to the Adjutant General 26,733 doctors for commissions in the Medical Reserve Corps. About 9,000 others who applied were rejected. With the 1,194 in the Medical Corps of the National Guard and 1,600 in the Navy, the total—38,527—constitutes 26.73 per cent of the civilian doctors. Deducting those who declined their commissions or who have been discharged because of subsequent physical disability or other cause, the number actually commissioned in the Medical Reserve Corps stands (August 23) at 23,531 with several hundred recommended whose commissions are pending. Of the 23,531 there are 22,232 now on active duty.

The need of using wisely the service of the medical men, in view of the universal war activities, is indicated when it is known that in the five weeks ended August 2, there were 2,700 medical officers commissioned in the Army, Navy, and Public Health Service—or at the rate of 540 per week. This rate at which enrollment is proceeding is the cumulative result of the operation of all the machinery which has been in process of setting up since the United States entered the world war. While the number commissioned in the five weeks mentioned may seem large, it is not much greater than the rate at which medical men have been receiving their commissions during the past year. There are now 28,674 medical officers commissioned in the three services—26,027 in the Army, 2,427 in the Navy, and 220 with the commission of Assistant Surgeon in the United States Public Health Service. Of the 2,700 commissioned in the five

weeks ended August 2, there were 2,527 in the Army, 169 in the Navy, and 4 in the United States Public Health Service. Also, 40 doctors designated as Acting Assistant Surgeons have been taken on in the Public Health Service in the last two months, 21 for work in extra-cantonment zones, 14 for special venereal disease work, and 5 for marine hospitals. The 26,027 in the Army medical service comprise 933 in the Medical Corps, the regular Army service; 23,531 in the Medical Reserve Corps; 1,194 in the Medical Corps of the National Guard, and 369 in the Medical Corps of the National Army.

It is estimated that at least 50,000 doctors will be necessary eventually for the Army. It can readily be seen that with the enrollment of these active men, their places in communities and institutions must be cared for and the work, therefore, throughout the country must be so systematized and co-ordinated that the civilian population may not suffer. An important aspect is the need for medical men in the communities where munitions and other vital war products are being made.

The Volunteer Medical Service Corps, supervised by the Central Governing Board now named, will thoroughly care for these needs.

Membership blanks for the Volunteer Medical Service Corps are now being mailed to all legally qualified men and women doctors of the country. In this connection Dr. Franklin Martin, Chairman of the General Medical Board of the Council of National Defense, says:

“Great as has been the response to the appeal for doctors, it must be greater. It is imperative that every doctor not already in government service fill out, sign and return the blank to the offices of the Central Governing Board, Council of National Defense, Washington, at once. We believe thousands will do this, as they are anxious to be enrolled as volunteers for the Medical Departments of the Army and Navy before registration under the new draft law goes into effect. The appeal for enrollment in the Volunteer Medical Service Corps, which President Wilson has formally approved, is an official governmental call to service. This will place the members of the medical profession of the United States on record as volunteers, available for classification and ready for service when the call comes.”



**THE CARE OF INFANTS.**

The attention of all physicians in the State is directed to the following important joint resolution adopted by the State Board of Health and the State Board of Control:

WHEREAS, the death rate of infants under one year of age is considerably higher among those infants who are artificially fed;

WHEREAS the health and well-being of infants under one year of age is dependent in large measure upon proper nursing at the breast of the mother;

NOW, THEREFORE, BE IT RESOLVED by the State Board of Health and by the State Board of Control that no patient shall be received by any person or at any hospital or institution licensed by or under the supervision of either of said boards on any basis other than that the mother shall nurse her own child so long as she shall remain under the care of said person, hospital, or institution.

Provided that where nursing by the mother is impossible for any physical reason, exception to the above rule may be made by the State Board of Health, or by the State Board of Control acting upon proper medical advice.

Adopted by the State Board of Health this 31st day of July, 1918.

(Seal) (Signed) H. M. BRACKEN,  
Secretary.

Adopted by the State Board of Control this 19th day of July, 1918.

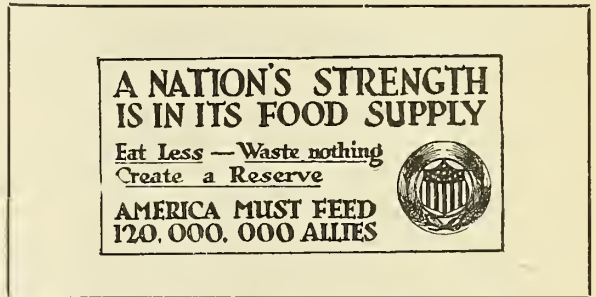
(Seal) Signed) DOWNER MULLEN,  
Secretary.

**MINNESOTA STATE BOARD OF HEALTH REPORT.**

Summary reports of cases of Syphilis, Chancroid and Gonorrhoea, month of August, 1918. One hundred and twenty-seven physicians have reported. Subdivided according to location disease and source of infection.

Source of Infection	Commercial Prostitute	Clandestine Prostitute	Not given or Spouse Unknown	Accidental or Congenital
State at Large	S 7 G 13	S 4 G 30	S 27 G 5	S 1 G 1
Minneapolis	S 5 G 18	S 6 G 43	S 207 G 27	S 4 G 5
St. Paul	S 8 G 9	S 12 G 24	S 13 G 9	S 6 G
Total	S 20 G 30	S 22 G 97	S 247 G 41	S 11 G 6
Grand Total	50	119	288	17

By Infection Source	Syphilis	Gonorrhoea	Chancroid
State at Large	33	49	2
Minneapolis	228	95	5
St. Paul	43	42	
Total	304	186	7
Grand total for all three diseases 497.			



**OBITUARY**

**DOCTOR CHARLES J. MEADE.**

Just as he was nearing the meridian of life did Doctor Charles J. Meade leave us. He had not attained the summit of his journey, nor were all his ideals still fulfilled. Yet in his years of practice in Saint Paul he wielded a personal influence both in his professional and private life which will not soon be forgotten. His ready sympathy and comprehensive tenderness, joined with his conception of the high seriousness of his profession, made him a counsellor in whom all had faith.

It is impossible to tell of the scope of his accomplishment:

“Not till the hours of light return,  
All we have built do we discern.”

Words at this time are inadequate and soon forgotten. We leave his praises unexpressed, though t'is not for silence to guard his fame. They whom Doctor Meade has served and who have derived a lasting benefit from his kindness and his wisdom—they bear constant witness to the greatness of his service. Theirs is the praise that does not die but endures forever, “for merit lives from man to man.”

## OF GENERAL INTEREST

### **MOBILIZATION OF WOMEN PHYSICIANS FOR ANESTHETIC SERVICE.**

Every effort is being made to keep war surgery at top-notch efficiency and to provide every wounded American doughboy with life-saving anesthesia, both at the front and in the hospitals in Blighty.

In this connection the following telegram is self-explanatory:

(Copy)

Washington, D. C.  
Sept. 18.

Dr. F. H. McMechan,  
Avon Lake, Ohio.

Proceed at once to secure qualified women physician anesthetists, under 45 years of age, of mental poise, as well as young women graduates who are competent for such service.

(Signed) Dr. Franklin Martin (Per)

Dr. Emma Wheat Gillmore.

Chairman Woman Physicians Committee.

Council National Defense-Medical Section.

Those women physicians who are qualified for anesthetic service and who are competent to be intensively trained, are requested, at once, to get in touch with

Dr. F. H. McMechan, Sec'y.  
Interstate Anesthetists,  
American Anesthetists,  
Avon Lake, Ohio.

Lt. M. P. Morse, Minneapolis, is now stationed at Fort Riley, Kansas.

Dr. Charles F. McNevin, St. Paul, received a captain's commission in the medical reserve corps and left for Fort Oglethorpe, Georgia, about September 23d.

Dr. H. N. Meleck, for fifteen years a practitioner in Northeast Minneapolis, was ordered to Fort Oglethorpe, Georgia, where he has been commissioned a lieutenant in the medical reserve corps.

Dr. Charles Allen McDonald, Virginia, recently received his commission as lieutenant in the medical reserve corps, and was assigned for

duty at Camp Greenleaf, Fort Oglethorpe, Georgia.

Dr. John Perry McDowell, who for four years practiced his profession in Sauk Rapids, and a year and a half ago removed to St. Cloud, where he is now city physician, has tendered his services to the Government and expects his call to service in a few weeks.

Dr. R. W. Huffman, Stewartville, has received a commission as captain in the Canadian Army Medical Corps. He left a few weeks ago for London, Ontario, Canada, from where he will go to England to receive his training. Dr. Huffman formerly resided at Chatfield.

Lieut. Andrew Gullixson, formerly of Bricelyn but now in the medical service at Camp Dodge, Iowa, spent a few days visiting relatives at Bricelyn before reporting for duty at Evacuation Hospital No. 35, Camp Wadsworth, S. C. He expects to be sent overseas very soon.

Dr. Nap Chagnon, of Dayton, has opened an office at Bricelyn.

Word has been received of the safe arrival overseas of Capt. B. P. Rosenberry of Winona.

Dr. Howard McI. Morton, senior eye and ear surgeon of Wells Memorial clinic of Minneapolis, recently received his commission as major in the Medical Corps of the United States Army. He was ordered to proceed at once to Fort Oglethorpe Ga., for a course of training at Camp Greenleaf.

The marriage of Dr. R. E. Bechtel of the More hospital staff, Eveleth, and Miss Florence Kelly, formerly a nurse at the More hospital, took place on Tuesday, August 27th.

Dr. P. E. Kierland of Harmony returned home a few week ago after a long siege of illness which overtook him while on his vacation at Rushford.

While on his way from Detroit to Milwaukee, Dr. K. Wagner, 60, of Milwaukee, died suddenly of heart failure at the Chicago and Northwestern depot at Chicago.

Dr. Adolph W. Hanson, formerly of Cokato, has located in Litchfield.

Dr. B. F. Moll and Miss Margaret O'Hair, both of Waverly, were married on Monday, August 19th, by Rev. T. Moore. After a short wedding trip they returned to Waverly where they will make their home.

A medical unit will be added to the Motor Corps Battalion having its headquarters at Rochester. It is expected that Dr. F. L. Smith will head the unit and that the membership will be about eighteen.

Dr. D. E. McBroom has disposed of his practice and hospital at Adams, Minn., to Dr. R. E. Sutton, formerly of Toronto, S. D. Dr. McBroom is now located at 320 Western Ave., Waterloo, Iowa.

Dr. A. F. Strickler of Sleepy Eye, who has been stationed at Camp Kearney, California, has been transferred to San Francisco.

Dr. P. E. Stangl of St. Cloud, who was in charge of the Pilon Hospital at Paynesville for a short time after Dr. Pilon's enlistment in the medical corps, has been called for service and left a few weeks ago for Harrisburg, Miss.

Dr. Herbert O. Collins, of Minneapolis, has moved to Winnipeg, where he will have charge of the City's General Hospital.

Major Frank E. Burch of St. Paul, who went to Camp Dodge, Iowa, last March, has been appointed commanding officer of the base hospital. He relieves Lieutenant Colonel Joseph L. Miller, Chicago, who has been ordered to Washington.

Major Burch's original assignment at the hospital was as head of the department of eye and ear surgery. He was a close friend of the late Lieutenant Colonel F. C. Todd, Minneapolis, hospital commander at the time of his death in July. Major Burch and Major Arthur T. Mann of Minneapolis, chief of the surgical department, are now ranking officers at the hospital.

Dr. L. C. Weeks, Detroit, has again resumed his practice after having been ill for several weeks.

Dr. Bjarne Ravn, Milroy, received orders a few weeks ago to report for duty at Camp Oglethorpe, Ga.

Dr. Frank W. Spicer, Duluth, received his commission as captain in the medical reserve

corps and expects to be called into active service at any time. Dr. Spicer has been practicing in Duluth for several years.

Dr. William H. Empie, school physician in Virginia, recently received a commission as lieutenant in the medical reserve corps, and expects to receive orders to report for duty at any time.

Dr. A. G. Moffatt, of Howard Lake, recently received a captain's commission and was ordered to report for duty at Fort Sheridan, Ill.

Dr. Charles J. Meade, well known St. Paul physician, died suddenly at his home, 917 Goodrich Ave., on August 22d, of heart disease.

Dr. Meade was born in Morrisburg, Ont., forty-eight years ago. He graduated from McGill University, Montreal, in 1892, taking post-graduate courses in the East and coming to Minnesota in 1895. He was associated with Drs. Carroll, Fogarty and Dunn, and was on the staff of St. Joseph's Hospital and other St. Paul Catholic institutions for a number of years.

Funeral services were held from St. Luke's Catholic church on Saturday, August 31st.

Dr. Egil Boeckman, of St. Paul, was recently notified of his appointment as captain in the medical reserve corps. He has been assigned to duty at Camp Grant, Ill.

Dr. E. O. Vollum, of Bode, Iowa, has moved to Albert Lea, and expects to open his office there about October 1st. Dr. Vollum is a graduate of the Iowa State University and has practiced one year in Hileman, Iowa, and ten years at Bode, Iowa.

Dr. Z. G. Harrington, Mankato, died at his home on Sept. 12th, at the age of 88 years. Dr. Harrington was born in Londonberry, Vt., and located in Mankato in 1871. He was a leading member of the Southern Minnesota Medical Society, and for a number of years the president of the Mankato State bank.

With the title of health commissioner, Dr. John Sundwall has joined the forces of the University of Minnesota in a new administrative position created by the board of regents in July.

Dr. Sundwall will be professor of hygiene, but he also will have complete control of all health

questions arising at the university, supervising the sanitation of the campus, arranging for general lectures on hygiene and instituting a personal health service for students.

All students will pay a fee of \$3 a semester entitling them to consult with Dr. Sundwall regarding their health as often as necessary. Students will pay the fee whether they require the physician's services or not. This system has been in use successfully in other universities for several years, notably the universities of Wisconsin, Michigan and California.

The university will maintain an infirmary for students this year of which Dr. Sundwall will be in complete charge.

He comes to the university from the University of Kansas, where he has done similar work. This summer he took the course for Students' Army Training Corps instructors at Fort Sheridan, Ill., and is expected to aid in organizing the students' training corps at the University of Minnesota. His medical education was begun at Johns Hopkins medical school.

Lieutenant R. C. Lowe, Fairmont, Minn., who has been at home on leave, has been appointed a flight surgeon and hereafter will devote his time to caring for Uncle Sam's fliers. He is now stationed at Wilbur Wright field, Dayton, Ohio.

For the care and conditioning of fliers in the air service, the government is now appointing a corps of doctors and trainers, large enough to equip each training field and camp for fliers both in the United States and in France, with a proper organization. The doctors will be known as flight surgeons and the trainers as physical directors.

The medical branch of the air service is not alone confined to the selection of the flier, but to his care and condition after he has been admitted to the service. It has become apparent that the flier is not like other soldiers. In the air service he has become an intricate, highly sensitized piece of mechanism with troubles all his own. To keep his complex organism physically fit a special master mechanic had to be provided solely for him.

The flight surgeon, therefore, has been given freedom of independent initiative in all ques-

tions of fitness of the fliers, subject to the approval of the commanding officer. He is expected to institute such measures as periods of rest, recreation and temporary excuses from duty as may seem advisable. He takes sick calls of aviators, visits such cases as may be in the hospital and consults with the attending surgeon regarding them. He makes the examination of candidates for aviation and lives in close touch with the fliers.

The physical directors are assistants to the flight surgeons, and their duty is to supervise such recreation and physical training of the fliers as is considered necessary.

Dr. Arthur T. Mann, of Minneapolis, at Camp Dodge, Des Moines, Iowa, a captain in the medical corps at and on duty at the base hospital, has been promoted to the rank of major and assigned chief of the surgical service.

At the annual meeting of the Minnesota State Medical Association, held at Duluth, August 28th, 29th, and 30th, Maj. John D. McLean, secretary of the general medical board of the national council of defense was one of the principal speakers and spoke on the work of the physicians and surgeons in the war. His subject was "Medical Reserve Corps and Volunteer Service Corps." He urged all doctors who could get into the service to meet the present shortage of medical men.

Col. Reuben Miller of the surgeon general's office described conditions that obtain in the army for medical men. He declared that merit was the only basis for promotion and explained the conditions under which the physicians worked, the rates of pay and similar subjects.

Capt. Geo. T. Ayres, M. C., has changed his address from Shipman Hospital, Ely, Minn., to Post Hospital, Scott Field, Belleville, Ill.

Lieut. Richard M. Jones, M. C., formerly connected with the Eitel Hospital, Minneapolis, is now stationed at the U. S. Army and Navy Hospital, Hot Springs, Ark.

Dr. Theodore S. Paulson, recently of Tyler, has moved to Fergus Falls, Minn., where he is in partnership with Dr. Theodore N. Kittelson. Dr. Paulson's practice will be limited to the eye, ear, nose and throat.

## PROGRESS IN MEDICINE AND SURGERY

**IMMEDIATE SURGERY OF GUNSHOT WOUNDS OF THE CRANIUM, REVIEWING FORTY-SIX RECENT CRANIOTOMIES PERFORMED WITHIN A FEW HOURS AFTER THE RECEPTION OF WOUNDS:** Kellogg Speed, M. D., F. A. C. S., Major M. R. C. U. S. A. (Surgery, Gynecology and Obstetrics. Vol. LXVIII, Aug., 1918, No. 2) states that men arriving in coma from head injuries, or with hernia cerebri or gross cranial lesions, are prepared at once for operation, if their general condition warrants. If it does not, they are warmed, stimulated and cared for in a resuscitation ward until in condition for surgical procedure.

In a general description of technique, he says that scalp excision is made one-quarter to one-half an inch wide of contused edges, disregarding the amount of tissue which must be sacrificed.

When the dura has not been punctured, it is questionable whether it should be opened in a field of unknown asepsis. Subdural clots which remain sterile frequently absorb with no ill effect. Should intracranial increased tension necessitate decompression, it is best done in a clean area remote from the gunshot wound.

A constant irrigation stream of hot normal salt solution keeps the operative field clean.

The author believes that these fragments washed out or easily drawn out are better removed, but brain damage attempted in eliminating very deep or widely scattered bone fragments may not be compensated for by the material obtained. Complete closure of the scalp with or without capillary drainage at one angle of the wound is the last operative step and one of the most essential following craniotomy. The excised wounded dura can very rarely be approximated. The scalp can be dissected widely from the pericranium, so that it stretches and permits closure of large defects. On the whole the pericranium should not be removed from the healthy bone surrounding the wound. If the scalp fails to meet over the denuded bone without parallel or curving incisions made at some distance, the intervening scalp being dissected completely free from pericranium beneath.

With four instances of blood sinus injury, there was but one death. These sinus injuries are extremely interesting on account of the tremendous hemorrhage which arises when depressed bone adherent to the sinus wall is removed. On the whole it appears better to leave depressed bone alone under these conditions and to prefer to take a chance on subsequent septic sinus thrombosis rather than to excite an uncontrollable hemorrhage. Gauze packings or packing with a piece of muscle belly removed under sterile precautions from another part of the patient will sometimes control the bleeding quickly. Another technical possibility lies in inserting fine stitches in the dura about the area which threatens hemorrhage.

A suitable piece of fascia lata with muscle adherent on the under surface is prepared from the patient's thigh. One end of each thread of the dural stitches is then caught around the edge of the transplanted fascia and muscle at proper intervals, the depressed bone is removed, and if the hemorrhage follows the transplant it is rapidly tied into place to control the leakage. The symptom of generalized muscular rigidity, so indicative of blood sinus injury, was present in two of these patients.

GEORGE EARL.

**A CLINICAL REPORT OF NONSPECIFIC PROTEIN THERAPY IN THE TREATMENT OF ARTHRITIS:** R. G. Snyder, M. D. (The Archives of Internal Medicine, Vol. 22, No. 2), points out that twenty-five years ago Rumpf expressed the opinion that the beneficial effects observed following the subcutaneous injections of a vaccine were the results of a non-specific immunologic reaction. It has been only during the past five years that his contention has received serious attention from the medical profession.

We are indebted to Miller and Lusk for the suggestion of treating arthritis by intravenous injections of foreign proteins. They have reported that in their treatment of 175 cases of acute, subacute, and chronic arthritis (uncomplicated by adhesions) they obtained favorable results. Cecil confirmed this opinion on a series of forty cases of acute arthritis. In this work, inasmuch as there has been no attempt made to restrict the type of cases to be treated, but practically all cases complaining of joint symptoms which have come to the City Hospital, New York, during the past six months, as well as the chronic cases, with or without adhesions, which were in the wards previous to the beginning of the treatment have been included, the writer feels that this method of treatment has been given a severe test.

The essential fact to keep in mind in connection with this report is that the reaction was produced as a result of the introduction of a foreign protein, or, to be more exact, a bacterial endotoxin into the blood stream. The following are a few of the different foreign proteins which have been successfully used in the treatment of arthritis: Killed typhoid, gonococci, colon and meningococcus bacilli, and proteose.

In other words, one may select a bacterial, an animal, or a vegetable protein as a therapeutic agent. The clinical reaction is apparently the same following the intravenous injection of any split protein, although the required doses vary with the different protein. In the writer's treatment only one type of foreign protein was used, because very little is known as to the dangers of the treatment and its counterindications. It might be mentioned that although the writer has had no bad results, Thomas declares he knows of several cases in which the treatment was followed by sudden death. With the exception of one case of hypertension, all of these patients cited by Thomas were apparently in such a serious condition at the time the vaccine was administered that

they should not have been considered suitable cases for treatment.

Typhoid vaccine from the laboratories of the board of health was used in this work. The decision in this matter was influenced by the consideration that it would be easy to make this method of treatment accessible to the general practitioner in the future if the initial success should prove to be of permanent character. This was contrary to the advice of Miller and Lusk, who said that they were unable to obtain reliable results from stock vaccines. They used their own freshly prepared vaccines. But as the New York Board of Health laboratory products are universally accepted as standard, a thorough trial was considered advisable before condemning them. The dose of vaccine was administered in 10 c. c. of freshly prepared physiologic sodium chlorid solution.

#### RESULTS.

**Acute Cases.**—In about 60 per cent of the cases, one injection abruptly terminated the acute attack. A large majority of them had been unsuccessfully treated by the usual rheumatic remedies before coming to the hospital. Thirty per cent. required from one to five injections. The greater number of these obtained immediate relief from pain, although the permanency of the cure has not been established. Ten per cent. were unimproved.

**Subacute Cases.**—In this class were included the cases of less than one year's duration, not showing ankylosis. After repeated injections, marked improvement was obtained in 50 per cent. of these cases, considerable improvements in 25 per cent. and only slight improvement in the remaining 25 per cent.

From observation up to date it would seem that the greatest improvement follows the first dose. It was frequently noted that intractable or obstinate cases did not improve until doses sufficiently large to produce a severe reaction had been given. Sometimes one severe reaction was sufficient; at other times it required several marked reactions to effect a definite improvement in the patient's condition.

**Chronic Cases.**—This class included cases which have persisted for periods lasting from one to ten years, even those with marked ankylosis. A moderate improvement in the mobility of some of the joints was noted in almost all cases. This increased mobility of some of the joints was noted in the joints of the upper extremities. Even a small improvement is a cause for gratitude in the patient, as it allows him increased ability to use his hands and arms.

The writer concludes that: 1. It has been found that intravenous injections of foreign proteins are apparently more efficacious than the usual drug treatment for the relief of cases suffering from acute, subacute, and chronic arthritis. In making this statement, due consideration has been given to the known variation in duration of an attack of acute rheumatic fever.

2. In some cases there is a tendency to recurrence, with symptoms milder in type. A large proportion of these patients can be greatly benefited by intensive

treatment. The percentage of these recurrences is no larger, if as large, as we are accustomed to see in the patients treated by drug therapy.

3. There is no evidence up to date that the foreign protein injections have an injurious effect on the kidneys.

4. Treatment is not dangerous if the foregoing precautions are observed.

5. Vaccines prepared at the laboratory of the Board of Health give reliable and uniform results.

E. T. F. RICHARDS.

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**THE TREATMENT OF SCARLET FEVER WITH IMMUNE HUMAN SERUM:** G. H. Weaver (Jour. Inf. Dis., Vol. 22, No. 3), says that as all efforts to isolate and identify the specific cause of scarlet fever have failed, it is impossible to produce an immune serum for therapeutic purposes in this disease similar to that employed in the treatment of diphtheria, pneumonia, etc. It was inferred even 10 years ago that persons who had recently passed through an attack of scarlet fever would have specific antibodies in their blood which might be of curative value when introduced into patients acutely sick with the disease.

The various reports of the use of the serum of scarlatinal convalescents are reviewed thoroughly.

For the series of 19 cases which the author reports he drew the blood on the 20th-28th day from such convalescents as were free from all suspicion of tuberculosis and who had not been septic patients, and who also gave a negative Wassermann reaction. The blood from several patients was mixed, tested for sterility, and stored until used, in a refrigerator in portions suitable for single doses: 60 c. c. was the usual dose. In a few instances a second dose was necessary. The muscles of the outer side of the thigh was usually the site of injection, the dose being divided between the two sides. No local or constitutional reaction followed the injection of the serum. The temperature fell within 2-4 hours after the injection until its limit was reached in 12-14 hours after the injection. The general condition of the patient improved. In septic cases the temperature rose again. A second injection was followed by rapid improvement. The happy course taken by so many cases treated by serum from convalescents can hardly be a coincidence. Naturally the study of this whole subject is rendered difficult by the absence of an experimental scarlet fever in animals.

C. E. SMITH, JR.

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**ETIOLOGICAL FACTORS OF ACNE VULGARIS:** Albert Strickler (Am. Jour. Med. Sc., Oct., 1917) states after investigating acne patients from every point of view, that acne is a complex disease with a great many factors to be considered. Acne comprises from 3.11 per cent. of all dermatological cases. Imperfect digestion is very common in acne patients. Of 30 cases studied by means of test meals, gastric

analyses and fluoroscopy, 93 per cent. showed gastric abnormality—as hyperacidity, retention, atony and ptosis; while 70 per cent. showed intestinal abnormality—as cecal stasis, ptosis of the colon and right lower quadrant adhesions.

In conjunction with Doctors Kolmer and Schamberg the author performed some complement fixation tests on acne patients, using polyvalent antigens isolated from acne patients and also a control colon bacillus antigen isolated from normal persons.

Of 57 cases so studied 63 per cent. gave a positive fixation with the acne antigen and 32 per cent. with the colon normal antigen.

A study of the smears taken from acne lesions shows the acne bacillus in practically all cases in association with other bacteria.

By using special media, Gilchrist obtained the acne bacillus in pure culture in 12 per cent. but the author has found this very difficult to achieve.

His conclusions are that acne is due, in the vast majority of instances, to the acne bacillus which is normally present on most skins, but is activated by other factors (than its mere presence) in those who develop the disease.

The colon bacillus or its toxins, elaborated from imperfect digestion or intestinal stasis, is an activating cause in a large percentage of cases.

To a lesser degree the staphylococcus—either alone or in conjunction with the colon bacillus—also plays its part.

C. N. HENSEL.

**SOME POINTS RESPECTING THE LOCALIZATION OF SYPHILIS ON THE AORTA:** Oskar Klotz (Am. Jour. Med. Sc., Jan., 1918) comments upon the predilection of the syphilitic virus for localizing in distinct districts in the aorta—the most frequent sites being the first part of the aorta.

The reason for this he attributes to the irregular distribution of the lymphatics along the aorta.

These lymphatic channels communicate with the neighboring lymph glands and by injection experiments he proved that the most intricate system of channels are those in closest relation to the neighboring lymph glands. The lymphatic channels of the aortic wall lie, for the most part, in the adventitia, in close relation to, and following along the course of, the nutrient blood vessels which are found in this structure.

Experimentally, bacteria were inoculated into the loose tissue of the mediasternum of rabbits, streptococcus viridans used. The infection followed the fine channels passing about the aorta as well as the structures at the hilus of the lung.

Equally in man in severe pneumonia coming to autopsy, an almost constant infection of the glands of the anterior mediastinum was noted and the pneumococcus may be isolated from the tissues of the outer portion of the aortic wall.

### Conclusions.

1. There are certain regions along the course of the aorta in which the arrangement of the lymphatics is more complex and their number far greater than in other portions.

2. The aortic wall is itself richly supplied with nutrient vessels (the vaso vasorum), each of which has a liberal lymphatic drainage following its course.

3. That these lymphatics are in direct association with the larger lymphatic system which surrounds the aorta as a whole and which has two large drainage beds, one in the thorax and one in the abdomen.

It is in relation to these drainage beds that the syphilitic virus comes to be distributed to the particular segments of the aorta.

C. N. HENSEL.

**OLD INJURIES OF THE SPINAL CORD:** Allen B. Kanavel (Surg., Gyn. and Obs., Vol. XXVI, No. 3) believes that surgical intervention in injuries of the spine offers more hope for benefit than similar procedures in injuries of the skull. In the brain, owing to the inter-relation of various groups of cells and their wide distribution, a fair amount of traumatization, even with destruction, may occur and the functions of the individual be unimpaired. In the cord, however, the bundles are so compact that the smallest actual injury is frequently followed by permanent impairment.

As to the operative indication he states that where the paralysis and loss of sensation are nearly complete with incontinence of urine, little is to be hoped for if the lesion is above the cauda, particularly if it is over the dorso-lumbar reflex centers. In patients with a lesser degree of injury, more often if above the dorso-lumbar centers and particularly if below them, the operation should be considered most seriously.

The last cases reported are worthy of special mention because of the success of a very skillful operation. Case 7. Master M., age 11, shot himself in September, 1916, with a .22-caliber bullet which entered the neck at the right of the midline, below the cricoid cartilage and lodged in front of the dura, between the base of the skull and the atlas, just to the right of the midline. He suffered particularly from stiffness and soreness of the neck and occipital headache and inability to flex or extend the head. He could bend it laterally because of the action of the atlas on the axis, but he could not flex or extend it without pain.

The author adds, "when I found that this bullet was located between the base of the skull and the atlas inside in the bony canal, the dangers of the operation seemed so great that I advised conservative treatment and sent him home. He came back in six weeks with exactly the same symptoms. It was evident that the action of the skull on the axis was such that he would continue to have this difficulty as long as the bullet remained in this position."

Operation was advised and performed by the following technique: Pharyngeal anesthesia was given, the tongue retracted to the left, the soft palate raised by a rubber catheter passed through the nares and out the mouth, and an incision in front of the posterior pillar upon the right side made. The incision was carried down to the vertebra and the bullet could not be found in spite of X-ray pictures. A wire was inserted over where the bullet was supposed to be. A fluoroscopic examination was made and it was found that the wire was immediately above the bullet. It was then realized that the missile was inside the spinal canal. With the rongeur a section of the atlas was removed and the bullet extracted from its position. The boy made an immediate and permanent recovery.

GEORGE EARL.

**MILITARY ASPECTS OF THE SURGERY OF THE SPINE AND SPINAL CORD:** Charles H. Frazier (*Surg., Gyn. and Obs.*, Vol. XXVI, No. 3) states that structural changes in the cord, the result of laceration, contusion or compression, do not differ materially from those observed in civil injuries, consequent upon fractures; they are chiefly edema, hemorrhage, primary destruction and secondary disintegration.

The term concussion, as applied to the brain, implies a condition in which, while there may be all grades of functional arrest and death, the absence of gross or microscopical changes in the brain is conspicuous. In spinal concussion, however obscure and speculative may be the manner of its production, structural changes even to the point of complete disintegration are a more or less constant feature. It produces both definite and serious lesions of the cord characterized by their diffuse and irregular manifestations. These processes include edema, haematomyelia, haematorachis, disseminated foci of necrosis, softening and changes, often over four or five segments in either direction.

There is still another group of cases in which the clinical picture and the autopsy findings show grave involvement of the spinal cord, but in which there has been neither a direct or an indirect injury to the spinal column. These are attributed to the sudden changes in atmospheric pressure caused by the explosion of the modern shells and grenades. The victim immediately falls to the ground with all the signs of a partial or complete transverse lesion, and autopsy may reveal the various macroscopical and microscopical changes above mentioned.

Neurological examinations are tedious and time-consuming, and for their accurate performance require training and experience. Furthermore, not only one but repeated examinations are required in individual cases, before resort to operation is determined. In the general hospital, with the rapid influx of patients and the necessity of hasty evacuation, how little opportunity there is for the painstaking service and study which those suffering from in-

juries to spine and cord require. Possibly because of the indifferent treatment of these cases in the general hospital, England has attempted segregation and it is hoped that this country will find it possible to erect in the war zone, hospitals to be devoted exclusively to injuries of the central nervous system. At the time of our Civil War the Surgeon General ordered the establishment of special hospitals for the treatment of diseases and injuries of the nervous system and even then it was considered essential to the care of the patient that the surgeon and the neurologist work hand in hand.

The writer gives four groups of cord symptoms. Group one comprises the complete transverse lesion with total and absolute flaccid paralysis below the level of injury, with abolition of all reflexes and all forms of sensation.

Group two comprises the partial lesions, the spinal hemiplegia or the more or less typical Brown-Sequard syndrome.

In group three may be placed the lesions of compression characterized by spastic paraplegia, exaggerated reflexes, and positive Babinski.

Group four comprises the lesions of the cauda equina.

The author enters into a discussion of symptoms that the average general surgeon will have a neurologist interpret for him.

The role of the X-ray in the localization of lesions and in revealing the extent and nature of the injury has been disappointing. A careful neurological examination has proved more reliable in determining the level of the lesion, as the gravity of the skeletal lesion bears no relation to the degree of cord injury. Fracture of the spinous processes or depressed fractures of the laminae are not easily brought out by the X-ray, and even with stereoscopic pictures it is not always easy to determine whether a bullet lies within or without the spinal canal.

The treatment of gunshot wounds of the spine is a complex problem. The momentous question in most instances is whether an exploratory laminectomy is indicated and if indicated, how should it be performed. A judicial decision in these matters must take into consideration many factors: the facility for performing the operation; the presence of a complete transverse or an incomplete transverse lesion; the presence or absence of bullets or fragments within the vertebral canal; an open or closed wound; a direct injury to the cord, as from compression; or an indirect injury, as from concussion.

Regarding indirect injuries to the cord, those due to an explosion in the vicinity or to the impact of a bullet against the vertebral column, without direct impact on the cord, or to the passage of a bullet adjacent to, but not involving, the vertebral column. In this category, it must be borne in mind that the interference with cord function may at first be quite as pronounced as when the cord is actually severed by a bullet. At the outset the picture may be one of a complete transverse lesion, even though it be the result of concussion alone.



Under these circumstances early operation is clearly contraindicated. However, should the symptoms persist without amelioration, an explanatory laminectomy under suitable circumstances may be considered within the limits of propriety, on the grounds that the persistence of symptoms may be the result of hemorrhage or an undetected injury of the vertebral column. Be it remembered here, as in other parts of this discussion, that the clinical evidence of a total or complete transverse lesion does not signify an irreparable injury to the cord.

When dealing with direct injuries to the cord by bullet shrapnel, or bone splinters the propriety of a laminectomy admits of little discussion. This general dictum, with certain qualifications, has been subscribed to quite generally by neurologists and surgeons alike who have had opportunity for abundant observation during the European War.

While it may be true of the individual case, as it is no doubt of a large number, that the damage to the cord is accomplished at the time of the accident, and that the persistence of symptoms is the result not of continued compression but of the intramedullary changes in the cord due to the original impact, an exploratory laminectomy should be performed, whether the picture be one of a complete or incomplete lesion.

One may assume that if the injury is due to shrapnel, the cord is more apt to be hopelessly damaged than by a bullet. But after all, the nature of the cord lesion is largely a matter of conjecture and there is the temptation to take the position, endorsed as it is by Oppenheim, that operation is indicated even in cases of total transverse lesion, for there is nothing to lose, and perhaps, something to be gained. In twenty operations for gunshot injuries of the spine, Guleke found the cord completely crushed in ten, and while only five of the twenty cases recovered, three of these would have died had not fragments of bone or bullets been removed.

As to time of the operation, there are those who urge immediate operation, and those who advise waiting from three to five weeks, or until the likelihood of recovery seems remote. Whatever may be the view of the individual surgeon, it is at least true that no operation should be undertaken until the patient has recovered from shock, and not until the patient reaches a base hospital from which he will not have to be transferred until the fractured spine has been well repaired. Authorities agree that secondary changes are more likely to develop as a result of early transportation, and therefore, absolute rest is advisable in the convalescent period if the condition offers any prospect of useful recovery.

There seems to be a difference of opinion among surgeons with extensive military experience as to whether the dural incision should be closed in all cases. In deciding this question the surgeon must take into consideration two factors: one, the presence or absence of infection in the bullet tract, and the other the condition of the cord. As to the former, every precaution must be taken to guard against

infection of the subarachnoid space and, if the wound be septic, closure of the dural incision is the safer course to pursue. In the absence of infection, should the cord be so swollen and oedematous that closure of the dural incision exerts undue pressure, a condition of rare occurrence, the dural incision may be left unsutured. On general principles, leaving the dural incision open as a routine practice should be condemned.

To avoid infection of the bladder and the inevitable ascending infection, the catheter must not be used. Either a suprapubic cystotomy, which has been found so effective in civil practice, may be resorted to, or the bladder may be allowed to empty itself by overflow, a practice which has become popular in many of the war zone hospitals.

GEORGE EARL.

**ETIOLOGIC FACTORS IN AN EPIDEMIC OF ACUTE CONJUNCTIVITIS AT CAMP SHERMAN:**

Major W. E. Kershner, M. R. C. (Amer. Jour. of Ophth., Series 3, Vol. 1, No. 7, p. 480) discusses tersely an epidemic of conjunctivitis which developed at Camp Sherman the latter part of October, 1917, running well into January, 1918. This epidemic was very widespread affecting over twelve hundred men part of which were treated at the base hospital, others in the regimental infirmaries.

Owing to the rapidly constructed barracks at Camp Sherman arrangements for heating were not entirely satisfactory, with the result that the attempts to conserve what was obtainable resulted in inadequate ventilation.

Dust formed an important etiological factor in both infected and non-infected cases. This arose from two sources, from the roads and from the air as a result of sweeping and tramping upon the floors of quarters, the floors of which had not been oiled. The conjunctival irritation thus produced, augmented by smoke and gas from the stoves, provided a fruitful field for bacterial invasions.

The following table is the result of the laboratory examinations:

No organisms .....	40.0%
Pneumococcus .....	37.5%
Organisms undetermined .....	9.0%
Staphylococcus (various types).....	6.0%
Morax-Axenfeld bacillus .....	3.5%
Koch-Weeks bacillus .....	2.5%
Meningococcus .....	1.5%

The following points may be of interest:

The bacteriological findings in order of precedence are a decided change from those recorded by Pollock, Morax, von Meande and many others.

Despite the fact that painstaking laboratory experts examined the conjunctival secretions no organisms were found in nearly half of the cases.

There were three cases of gonococcus infection, but were only discoverable by bacterial examination, notwithstanding the fact that gonorrhoeal ophthalmia

in the adult usually runs a fulminating and destructive course.

The presence of epidemic meningitis in the command accounts for the few cases of like infection underlying the conjunctiva.

In only one instance did a serious complication arise, a severe corneal ulcer, the result of a pneumococcal infection.

PAUL D. BERRISFORD.

**EFFECT OF STIMULI FROM THE LOWER BOWEL ON THE RATE OF EMPTYING THE STOMACH:** Franklin W. White, M. D. (Amer. Jour. of Med. Sciences, Vol. CLVI, No. 2) has employed the roentgen-ray method to study the effect of stimuli from the lower bowel on the rate of emptying of the stomach; the effect of mechanical filling and distention of the colon by enemata in men and cats; the effect of chemical irritation of the cecum in cats; the effect of diseases of the lower bowel in 120 cases of chronic colitis, tubercular ulceration and cancer of the colon, chronic and acute appendicitis and adhesions of the lower ileum and colon.

His results all point the same way: (1) delay in emptying the stomach is the exception, not the rule, in lesions of the lower bowel; (2) a strong stimulus is needed from the lower bowel to show the stomach, for it was found that the stomach emptied a barium meal within the normal time in some cases of ileal stasis of two or more days' duration, and in most cases with good-sized twelve-hour residue in the ileum, also when the colon was distended with a large enema, also in most cases of chronic appendicitis and chronic inflammations and tumors of the colon.

Experiments on animals showed that when the colon was irritated by injections into the cecum variable results were obtained; intense irritation caused vomiting; less marked irritation caused either delay in emptying the stomach up to about twice the normal time or rapid emptying of the stomach and whole digestive tract; moderate or slight irritation had no effect. The results were not perfectly graded, evidently because of variable spasm.

There is evidently a definite correlation of different parts of the digestive canal by a protective mechanism which works under a powerful stimulus, such as intestinal surgery or injury or strong irritation, but which does not work under a moderate stimulus or simple mechanical condition. The action of this mechanism is complicated by the contrary results of spasm and hyperperistalsis.

Marked delay in emptying the stomach is far more often the result of actual lesions about the pylorus than of reflexes from the bowel. "Stomach symptoms" in intestinal cases are not, as a rule, the result of slow emptying of the stomach.

ERNEST T. F. RICHARDS.

## BOOK REVIEWS

*THE PRACTICAL MEDICINE SERIES. OBSTETRICS.* (By JOSEPH B. DE LEE, A. M., M. D., Professor of Obstetrics Northwestern University Medical School. Vol. VII, Series 1917. Published by the Year Book Publishers, Chicago. Price \$1.35.)

In this convenient volume of a little more than two hundred pages the editors have condensed a large amount of information, comprising abstracts of the most important papers on obstetrics for the preceding year.

The subject matter is divided into five parts: 1, Pregnancy; 2, Labor; 3, the Puerperium; 4, the New-born; 5, Obstetrics in general.

As the material for the review is gathered from widely scattered sources not always accessible to the busy practitioner it fills a distinct need and should be in the hands of everyone who wishes to keep abreast of the advances being made in this important subject.

The editorial comment which follows the abstract affords the reader a valuable guide as to the soundness of the view expressed in the paper.

We heartily commend this review and believe that the entire series should be in the hands of every practitioner.

J. L. ROTHROCK.

*SYPHILIS AND PUBLIC HEALTH.* (By EDWARD B. VEDDER, A. M., M. D., Lieutenant-Colonel, Medical Corps, United States Army. Published by Permission of the Surgeon-General United States Army by Lea and Febiger, Philadelphia and New York. Price, \$2.25.)

This small work of some 300 pages consists of an introduction, four chapters and an appendix. The chapters are as follows: The Prevalence of Syphilis, Methods of Transmission, Personal Prophylaxis and Public Health Measures. The Appendix, besides giving the technic of Wassermann for the complement fixation test, gives the laws of Western Australia for the control of the disease and abstracts of the laws and regulations of some of our states and cities and of our army relative to the same. The introduction treats the subject as a whole and the importance of the subject from the public health viewpoint is stated and explained. The author has carefully gathered his material and confines himself to statements of facts and has no theories to justify or controversies to enter into. Surely no one can read the introduction and the chapters following without realizing, if one has not already done so, the great importance of the control of this disease by the state. We cannot but believe that the author has accomplished his purpose admirably. Personal prophylaxis which most

writers, writing for a lay as well as a profession audience, might pass over with a few brief statements, is given the prominence this method for the control of the disease certainly merits. We urge all medical men and others interested in our country's welfare to obtain this book and read it carefully from start to finish. A sufficient bibliography and indexes accompany the text.

JOHN M. ARMSTRONG.

*A MANUAL OF OTOTOLOGY.* (By GORHAM BACON, A. B., M. D., F. A. C. S., Formerly Professor of Otolaryngology in the College of Physicians and Surgeons, Columbia University, New York; Aural Surgeon, New York Eye and Ear Infirmary, etc., Assisted by TRUMAN L. SAUNDERS, A. B., M. D., Assistant Professor of Laryngology and Otolaryngology, College of Physicians and Surgeons, Columbia University, New York, etc. Seventh Edition, Revised and Enlarged, with 204 illustrations, and 2 plates. Published by Lea and Febiger, New York and Philadelphia. Price, \$3.00.)

Bacon's Manual of Otolaryngology is written for students and general practitioners. The volume, while not pretentious, fulfills all necessary requirements attested by the fact it has now reached its seventh edition. The text treating on suppurative inflammation of the labyrinth has been entirely rewritten and there has been added a section dealing with the requirements demanded by the United States Government for candidates entering the aviation service.

PAUL D. BERRISFORD.

*CLINICAL DIAGNOSIS.* (By JAMES CAMPBELL TODD, Ph. B., M. D., Professor of Clinical Pathology, University of Colorado. Illustrated. Fourth Edition, Revised and reset. Published by W. B. Saunders Company, Philadelphia and London. 1918.)

Todd's Clinical Diagnosis presents undoubtedly the most valuable tests and practical methods in the investigation and examination of blood, sputum, urine, feces, and gastric contents. The chapters dealing with animal parasites, bacteriologic methods, preparation and uses of vaccines, and sero-diagnostic methods make possible and accessible, examinations of many heretofore obscure and undiagnosed conditions.

The following features deserve special emphasis:

1. Presentation of the material. The simplicity, conciseness, and completeness in the presentation of any part as well as the whole volume is unique. The author avoids complicated methods and long descriptions, availing himself wherever possible with illustrations, many of which are colored plates.

2. Changes and additions in—

- (a) Microscopic morphology.
- (b) Use of colorimeters.

- (c) Pocket spectroscope.
- (d) Matching blood for transfusion.
- (e) Bass and John's concentration method for malarial parasites.
- (f) Vital staining of blood corpuscles.
- (g) Resistance of red corpuscles.
- (h) Spinal fluid examinations.
- (i) Urobilin estimation as an aid in diagnosis of pernicious anemia.
- (j) Estimation of amylase in urine and feces in the diagnosis of pancreatic disease.

3. Interpretation. This volume being intended as a manual for students and practitioners contains only, therefore, the most important interpretations. It serves rather as a guide than a reference book on clinical diagnosis, and as such can be highly recommended.

JOHN A. LEPAK.

*DISEASES OF THE MALE URETHRA, INCLUDING IMPOTENCE AND STERILITY.* (By IRVING S. KOLL, B. S., M. D., F. A. C. S., professor of Genito-Urinary Diseases, Post-Graduate Medical School and Hospital; Associate Genito-Urinary Surgeon, Michael Reese Hospital, Chicago. Illustrated. Published by W. B. Saunders Company, Philadelphia and London. 1918. Price, \$3.00.)

No hand book of this size can be entirely satisfactory though the author has managed to put a great deal of information into 134 pages, and at the same time give the book an individuality of its own. The inquirer wishing to find the "best prescription" for gonorrhoea will not find it here; but if he reads with understanding will discover that urethral conditions should be treated intelligently and not with different injections. We, therefore, recommend the consideration of this small book and believe its publication worth while even in war times. We thank the author for eliminating many routine observations and prescriptions and also for introducing new illustrations, especially the colored plates of the urethra as seen through the urethroscope. The author states these last are original, and we believe it. They certainly are not the same that have appeared in every text book for the past twenty years. The author seems to have a predilection for metallic urethral instruments, or at least they are the only ones that receive much notice, and at no place is the information vouchsafed that urethral instruments should be lubricated before introduction. Operative surgery is briefly referred to. As regards external urethrotomy without a guide the author states that it sometimes has to be done. The chapters on the treatment of sexual disorders are very good, though not entirely satisfactory. There is as much information of real value as is to be found in any larger treatise the reviewer has seen. The book deals only with diseases of the urethra of the male.

JOHN M. ARMSTRONG.

*A MANUAL OF CLINICAL DIAGNOSIS.* (By CHARLES E. SIMON, B. A., M. D., Professor of Clinical Pathology and Physiological Chemistry in the University of Maryland Medical School and the College of Physicians and Surgeons, Baltimore, Maryland. Ninth Edition, Enlarged and Thoroughly Revised. Illustrated with 207 Engravings and 28 Plates. Published by Lea and Febiger, Philadelphia and New York. Price, \$6.00.)

This is a very comprehensive book on laboratory methods. The author divides the subject matter into two parts, the first taking up the detailed description of laboratory technique, the second part presenting all the laboratory findings under the heads of the various diseases. The writer goes into the technique most thoroughly taking nothing for granted. Illustrations are shown wherever they will aid the reader in giving a greater understanding of the subject. The subject of animal parasites is especially well illustrated. Much new subject matter has been introduced in the edition, bringing the contents quite complete up to the present time.

ARCHIBALD LEITCH.

*THE PRACTICAL MEDICINE SERIES.* (Under the General Editorial Charge of CHARLES L. MIX, A. M., M. D., Volume III—Eye, Ear, Nose and Throat, Edited by CASEY A. WOOD, C. M., M. D., D. C. L., ALBERT H. ANDREWS, M. D., and GEORGE E. SHAMBAUGH, M. D. The Year Book Publishers, Series 1918.)

In compiling the text of this volume consisting of some 380 pages, the authors have scouted the vast domain of literature published during the year 1917 relating to these specialities. While foreign publications have been few, writings on military surgery with respects to its various phases have been most voluminous.

The frontispiece and the chapters relating to the war are especially interesting and the clear concept with which all is written is surprising. By no means is it a text book, but it can always be used as a valuable reference when seeking for the advanced progress in these specialities.

GEORGE C. DITTMAN.

*A TREATISE ON REGIONAL SURGERY.* 1917, Vol. I and II. (Edited by JOHN FAIRBAIRN BINNIE, A. M., C. M., F. A. C. S., Kansas City, Mo. Published by P. Blakiston's Son and Co., Philadelphia. Price, each volume, \$7.00.)

The author states that he requested each of the authors to write practical articles and not what "he thought other people would think he ought to think." It is this one suggestion that makes this work exceed-

ing interesting, for here we have the opinions without restraint of many of the leading surgeons in this country and in England.

There must, of necessity, be repetitions in a work of this kind, but this also adds to its value, as we obtain the individual opinions of well known surgeons who not infrequently differ with one another.

Many of the sections show careful preparation and much thought, and each author was evidently chosen because of his experience in a certain field of work. Among these may be mentioned the sections on "The Breast" by J. C. Bloodgood; and "Intestinal Obstruction" by F. T. Paul.

Most of the illustrations are new and have not before appeared.

L. E. DAUGHERTY.

*A TEXT BOOK OF THE PRACTICE OF MEDICINE.* (By JAMES M. ANDERS, M. D., Ph.D., LL.D., Professor of Medicine and Clinical Medicine, Medico-Chirurgical College Graduate School, University of Pennsylvania, Thirteenth Edition, Thoroughly revised with the Assistance of JOHN H. MUSSER, JR., M. D., Associate in Medicine, University of Pennsylvania. Octavo of 1,259 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company. 1917. Cloth, \$6.00 net; Half Morocco, \$7.50 net.)

This work is to the point, plainly and concisely written and with a substantial addition of new material. The text is well arranged with the headings and subdivisions in heavy type, the modern orthography and terminology being used. The definitions of the diseases, and then the pathology, allows a better association of the clinical symptoms with the morbid lesions. A helpful feature is the tabulation of the differential diagnoses. The treatment is well taken care of and the therapeutic formulae given in both the apothecaries' and metric systems.

GILBERT KVITRUD.

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# Minnesota State Medical Association

## ANNUAL MEETING

August 28th, 29th and 30th, 1918

### DULUTH, MINNESOTA

#### MINNESOTA STATE MEDICAL ASSOCIATION OFFICERS—1919.

##### PRESIDENT.

George Douglas Head, M. D. - - Minneapolis

##### FIRST VICE-PRESIDENT.

S. H. Boyer, M. D. - - - - Duluth

##### SECOND VICE-PRESIDENT.

E. P. Christensen, M. D. - - - Two Harbors

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F. L. Beckley, M. D. - - - - St. Paul

##### COUNCILOR—FIRST DISTRICT.

C. E. Dampier, M. D. (3 years) - - Crookston

##### COUNCILOR—SECOND DISTRICT.

J. G. Millspaugh, M. D. (1 year) - - Little Falls

##### COUNCILOR—THIRD DISTRICT.

W. A. Dennis, M. D. (1 year) - - - St. Paul

##### COUNCILOR—FOURTH DISTRICT.

R. J. Hill, M. D. (3 years) - - - Minneapolis

##### COUNCILOR—FIFTH DISTRICT.

H. M. Workman, M. D. (1 year) - - - Tracy

##### COUNCILOR—SIXTH DISTRICT.

F. R. Weiser, M. D. (2 years) - - - Windom

##### COUNCILOR—SEVENTH DISTRICT.

F. A. Dodge, M. D. (3 years) - - - Le Sueur

##### COUNCILOR—EIGHTH DISTRICT.

H. F. McGaughey, M. D. (2 years) - - Winona

#### MEMBERS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION.

##### DELEGATES.

G. D. Head, M. D. (1 year) - - - Minneapolis

W. H. Magie, M. D. (2 years) - - - Duluth

##### ALTERNATES.

J. M. Bell, M. D. (1 year) - - - Minneapolis

J. L. Rothrock, M. D. (2 years) - - - St. Paul

#### MINNESOTA STATE MEDICAL ASSOCIATION MINUTES OF THE MEDICAL SECTION

##### AUGUST 29, 1918—MORNING SESSION

The Medical Section met in the Shrine Auditorium, Duluth, and was called to order at 9:20 A. M. by the Chairman, Dr. Henry L. Ulrich, Minneapolis.

Dr. W. P. Greene, Minneapolis, read a paper entitled, "Poliomyelitis in Minnesota."

Dr. E. C. Rosenow, Rochester, read a paper entitled "Poliomyelitis."

These two papers were discussed together by Drs. H. W. Hill, G. D. Haggard, H. L. Ulrich, and discussion closed by Dr. Rosenow.

Dr. John P. Schneider, Minneapolis, read a paper on "Hemolytic Icterus."

This paper was discussed by Drs. E. L. Tuohy and E. T. F. Richards.

Dr. H. W. Woltmann, Rochester, read a paper entitled "The Nervous Symptoms in Pernicious Anemia."

Dr. T. A. Peppard, Minneapolis, read a paper on "The Therapeutic Effects of Overfeeding in Pernicious Anemia."

These two papers were discussed together by Drs. W. A. Jones, J. M. Lajoie, J. P. Schneider, H. L. Ulrich, E. C. Rosenow and discussion closed by the essayists.

Dr. W. P. Larson, Minneapolis, read a paper on "The Principles of Foreign Protein Therapy," which was discussed by Dr. E. C. Rosenow.

##### JOINT MEETING OF THE MEDICAL AND SURGICAL SECTIONS

##### THURSDAY, AUGUST 29—AFTERNOON SESSION.

The Medical and Surgical Sections met in joint session and were called to order at 2 P. M. by the President, Dr. Arthur J. Gillette, St. Paul.

The President's Address was delivered by the President, Dr. Arthur J. Gillette, St. Paul.

Dr. Charles H. Mayo, Rochester, read a paper entitled "The Treatment of Digestive Ulcer by Gastroenterostomy."

Professor Arthur Todd, University of Minnesota delivered an address entitled "The Second Line of Defense."

Colonel Reuben Miller, Surgeon-General's Office, Washington, D. C., delivered an informal address.

Major John D. McLean, Secretary General Medical Board, Council of National Defense, gave an address on "Medical Reserve Corps and Volunteer Medical Service Corps."

The paper of Dr. Charles E. Vasaly, St. Paul, on "Some Phases of the New Children's Code of Interest to Physicians," was read by Dr. William Hodson, in the absence of the author.

Dr. Mabel S. Ulrich, Minneapolis, read a paper entitled "What the Program of Control of Venereal Diseases by Board of Health May Accomplish."

Dr. Harry Irvine, Minneapolis, read a paper on "Program of Control of Venereal Diseases by Board of Health."

These papers were followed by the showing of the cinemetograph "Fit to Fight."

#### AUGUST 30—MORNING SESSION. MEDICAL SECTION

The Section met at 9 A. M. and was called to order by the Chairman.

Dr. E. T. F. Richards, St. Paul, read a paper on "A Medical Service with the British Expeditionary Forces in France."

Dr. E. L. Tuohy, Duluth, read a paper on "Neuro-Circulatory Asthenia (Irritable Heart), Study of 35,000 Draft Recruits."

These two papers were discussed together by Drs. W. P. Greene, H. S. Plummer, G. D. Head, H. W. Hill, and discussions closed by the essayists.

Dr. George Douglas Head, Minneapolis, read a paper entitled "The Diagnosis of Early Tuberculosis," which was discussed by Drs. H. S. Plummer, E. T. F. Richards, W. P. Greene, John J. McGroarty, H. S. Plummer and discussions closed by the author of the paper.

Dr. H. S. Plummer, Rochester, read a paper entitled "The Thyroid and Metabolism," which was discussed by Dr. George Douglas Head, and in closing by the essayist.

On motion, the Section adjourned until 2 P. M.

#### AUGUST 30—AFTERNOON SESSION

The Section reconvened at 2 P. M. and was called to order by the Secretary, Dr. T. R. Martin.

Dr. W. A. Plummer, Rochester, read a paper entitled, "The Blood Picture in Exophthalmic Goitre," which was discussed by Dr. H. S. Plummer and in closing by the essayist.

Professor E. P. Lyon, Minneapolis, read a paper on "The Problem of Humidity Indoors."

This paper was discussed by Drs. H. W. Hill, L. M. Roberts, J. V. Boehm and discussion closed by the essayist.

Professor C. M. Jackson, Minneapolis, read a paper entitled "Effects of Underfeeding and Refeeding upon Growth."

This paper was discussed by Dr. H. S. Plummer, and discussion closed by the essayist.

Dr. C. A. Sherer, Duluth, read a paper on "Rickets," which was discussed by Drs. J. T. Christison, J. D. Budd, H. W. Hill, E. D. Brown, F. J. Hirschboeck, and discussion closed by the author of the paper.

Professor E. D. Brown, Minneapolis, read a paper entitled "Toxic Dermatitis."

This paper was discussed by Drs. J. C. Boehm, J. T. Christison, L. M. Roberts, H. W. Hill, A. A. Pine, C. J. Schuttler, and discussion closed by the essayist.

#### MINNESOTA STATE MEDICAL ASSOCIATION. MINUTES OF THE SURGICAL SECTION. AUGUST 29, 1918—FIRST SESSION.

The Surgical Section met in the Shrine Auditorium, Duluth, and was called to order at 10:15 A. M. by the Chairman, Dr. Archibald MacLaren, St. Paul.

Dr. E. S. Judd, Rochester, read a paper entitled "Prostatic Calculi," which was discussed by Dr. Duns-moor.

Dr. Arnold Schwyzer, St. Paul, read a paper entitled "Late Results in Stomach Surgery."

This paper was discussed by Drs. E. S. Judd, Charles H. Mayo, F. A. Duns-moor, W. H. Magie, after which the discussion was closed by the essayist.

Dr. M. S. Henderson, Rochester, read a paper on "Derangement of the Semilunar Cartilages of the Knee Joint," which was discussed by Drs. R. E. Farr, C. W. Moore, Earle R. Hare, and discussion closed by the essayist.

Dr. R. E. Farr, Minneapolis, read a paper entitled "Transverse Incisions in the Upper Abdomen," which was discussed by Drs. J. W. Little and W. H. Magie.

Dr. L. E. Daugherty, St. Paul, followed with a paper entitled "Fractures of the Head of the Radius," which was discussed by Dr. C. W. Moore.

Dr. J. R. Kuth, Duluth, read a paper on "The Causes of Disability Resulting from Industrial Accidents," which was discussed by Drs. W. Courtney and E. P. Greene.

#### AUGUST 30, 1918—SECOND SESSION.

The Section met at 9:30 A. M. and was called to order by the Chairman.

Dr. C. B. Lewis, St. Cloud, read a paper on "Ectopic Gestation," which was discussed by Drs. H. C. Cooney, Eva Cohnheim, Archibald MacLaren, C. B. Lenont, after which the discussion was closed by the author of the paper.

Dr. A. C. Strachauer, Minneapolis, read a paper entitled "The Surgical Treatment of Traumatic Epilepsy," which was discussed by Drs. A. W. Adson, W. A. Coventry, H. C. Cooney, Archibald MacLaren, and discussion closed by the essayist.

Dr. William R. Bagley, Duluth, followed with a paper on "The Surgical Importance of Abdominal Adhesions," which was discussed by Drs. T. E. Williams, and W. A. Coventry, and in closing by the essayist.

Dr. A. W. Adson, Rochester, read a paper entitled "Surgical Results in the Removal of Spinal Cord Tumors," which was discussed by Drs. A. C. Strachauer, W. A. Coventry, and in closing by the essayist.

Dr. Arthur N. Collins, of Duluth, read a paper entitled "Parafin Treatment of Burns," which was discussed by Dr. J. C. Masson, and in closing by the essayist.

#### AUGUST 30—THIRD SESSION.

The Surgical Section reconvened at 2 P. M. and was called to order by the Secretary of the Section, Dr. A. W. Ide, Brainerd.

Dr. H. C. Cooney, Princeton, read a paper entitled "Drainage of the Ileum in Diffuse Septic Peritonitis."

This paper was discussed by Drs. A. F. Schmitt, J. A. Thabes, Arthur N. Collins, after which the discussion was closed by the essayist.

Dr. J. S. Holbrook, Mankato, read a paper entitled "Slight Symptoms in Gall-Bladder Disease with Marked Gross Pathological Lesions."

The paper was discussed by Drs. William R. Bagley, E. Z. Wanous, and A. W. Ide.

Dr. J. A. Masson, Rochester, followed with a paper entitled "Recurring Inguinal Hernia," which was discussed by Drs. A. F. Schmitt, T. E. Williams (Eau Claire, Wisconsin), Arthur N. Collins, A. W. Ide, and discussions closed by the essayist.

MINNESOTA STATE MEDICAL ASSOCIATION  
MINUTES OF THE FIFTIETH ANNUAL MEETING  
HELD AT DULUTH, AUGUST 28th,  
29th and 30th, 1918.

PROCEEDINGS OF THE HOUSE OF DELEGATES.  
FIRST SESSION—WEDNESDAY, AUGUST 28, 1918.

The House of Delegates met in the Commercial Club, Duluth, and was called to order at 2:30 P. M. by the president, Dr. Arthur J. Gillette, of St. Paul.

The President appointed as a committee on credentials Doctors Earl and H. M. Workman.

The committee reported 22 members present, and the President declared a quorum present, and stated that the House was ready to proceed with the transaction of its business.

The minutes of the meeting of the session of 1917 was the next in order.

It was moved that the reading of the minutes of the 1917 meeting be dispensed with and accepted as published.

The President: The next order of business will be the report of the secretary.

The secretary read his report as follows:

REPORT OF THE SECRETARY

The secretary reports receipts up to August 1st from 1426 members of \$5704 for roster of 1918, and \$18 from roster of 1917 received after our last annual meeting, making moneys sent to the treasurer by the secretary \$5722. The loss of our membership is easily explained by the number of men gone into service. 524 Minnesota physicians have accepted commissions. If all Minnesota physicians who have been recommended for commissions should be commissioned, we will have to our credit 619 commissioned medical officers.

Washington County reorganized during the year with a roster of 12 members. The societies generally met regularly and several of them have had enthusiastic meetings. From a society standpoint, medical matters are in a satisfactory condition. With the enthusiasm our profession has shown in serving our country in this time of stress, it would not be surprising if meetings of county societies should be limited in interest.

It is of vital importance that our members consider the matter of the great loss of the profession

in the county districts. Many communities have no medical representative and are forced to send from 10 to 30 miles for attention. The government is trying very hard to enthuse the profession and line up all its members so that if possible our profession will voluntarily see that all districts are taken care of even to the extent of voluntarily drafting men to do the country work. We are all vitally interested in having this war fought through successfully. It is of much importance that our civil population be taken care of, next to taking care of the boys on the fighting line. The Surgeon General is alarmed over conditions as they exist, and every effort is being made to arouse the profession to the necessity of even changing their fields of practice temporarily. It is also of importance that our ranks, that is, our membership, be purged of any and all members whose loyalty is impugned, if rightfully, and if disloyalty or sympathy with a brutal foe can be proven, he or they should be thrown out of all membership with respectable and patriotic physicians.

Thos. McDavitt,  
Secretary.

REPORT OF THE TREASURER.

Annual statement of the Treasurer covering period—  
October 1st, 1917 to August 26th, 1918

RECEIPTS

Thos. McDavitt, Sec'y—dues .....	\$ 5,722.00
Minnesota Medicine .....	2,266.39
Interest—Bonds and daily balances.....	206.66
Warrant No. 212—payment stopped.....	5.50
Bonds .....	4,000.00
Cash on hand, Oct 1, 1917.....	2,446.58
Warrants unpaid Aug. 26, 1918, No. 59, 60, 61	297.31
<b>TOTAL.....</b>	<b>\$14,944.44</b>

DISBURSEMENTS.

Journal Lancet—4 mos.....	\$ 537.30
Minnesota Medicine—8 mos.....	3,400.62
Thos. McDavitt, Sec'y, Office expense....	363.80
Salaries .....	400.00
Bond premiums, Sec'y and Treas.....	32.50
Delegates Expenses .....	61.24
Traveling Expenses—Sec'y .....	10.00
Office Supplies .....	6.30
Postage .....	22.56
Printing and Stationery .....	134.50
Returned dues .....	20.00
Safety Deposit Box .....	3.00
State Meeting .....	471.35
Other meetings .....	18.50
Legal Expense .....	3,258.44
Bonds .....	4,000.00
Cash on hand August 26, 1918.....	2,204.33

Total.....\$14,944.44

Moneys received from Thos. McDavitt, Secretary, October 1st, 1917 to August 26th, 1918, itemized as to component societies.

Aitkin County .....	\$ 20.00
Blue Earth County .....	120.00
Blue Earth Valley .....	76.00
Brown Redwood .....	112.00
Camp Release .....	192.00
Carlton County .....	28.00
Central Minnesota .....	36.00
Chisago-Pine .....	56.00
Clay-Becker .....	88.00
Dodge County .....	32.00
Fillmore-Houston .....	104.00
Freeborn .....	52.00
Goodhue County .....	68.00
Hennepin County .....	1,176.00
Jackson County .....	48.00
Kandiyohi-Swift .....	59.00
J-yon-Lincoln .....	68.00
McLeod County .....	48.00
Meeker County .....	40.00
Mower County .....	79.00
Nicollet-LeSueur .....	76.00
Olmsted County .....	224.00
Park Region Society .....	138.00
Ramsey .....	914.00
Red River Valley .....	180.00
Rice County .....	96.00
St. Louis County .....	500.00
Scott-Carver .....	60.00
Southwestern Minn .....	184.00
Stearns-Benton .....	160.00
Steele County .....	44.00
Upper Mississippi .....	276.00
Wabasha County .....	52.00
Waseca County .....	32.00
Washington County .....	48.00
Watonwan .....	28.00
West Central .....	68.00
Winona County .....	96.00
Wright County .....	44.00
Total .....	\$5,722.00

Earle R. Hare  
Treasurer.

The Secretary then presented the report of the attorneys of the cases that have gone through the courts the last year.

#### REPORT OF THE DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

The sixty-ninth annual session of the American Medical Association was held at Chicago, June 10-14, 1918.

The House of Delegates met at the home of the Association, 525 North Dearborn Street, using the large library room on the top floor. The first meeting was called to order June 10th, 1918, at 10 A. M. by Major Hubert Work of Pueblo, Colorado. Two full days, June 10th and 11th, and one half day of June 13th, were given over to the discussion, consideration and decision of the many questions of the Association. Your delegates, Drs. Geo. Douglas Head and Harry P. Ritchie were in attendance at

all meetings. The stenographic reports of the meetings are fully given in the Journal issues of June 15th and 22nd, 1918, to which reference may be made for all required detailed information.

Speaker Work in the opening address stirred the House by his eloquent citation of the splendid response of the medical profession to the call of the country, the high quality of its performance in its lines of duty and the particular work and sacrifice of individuals, many of whom have already been admitted to that superlative class which we designate as heroes. Speaker Work was himself in uniform, being attached to the Provost General's Office in a high capacity. In fact all during the meeting there was an atmosphere of intense interest, of deep concentration to the business at hand. It may have been that the House met in a smaller room than at the New York meeting and consequently elbows touched more often but there was a marked difference in the attendance, the committee reports seemed to have received more consideration and thought, the speeches were short and to the point and business went with force of swing and decision. There were a number in uniform and many distinguished guests in turn visited and addressed the House, injecting into the meeting great enthusiasm for past deeds of our allies, a deep seated optimism for their future, and an unswerving faith in the valor and military proficiency of our troops at the front.

Among the Reference Committees your Association received recognition on the Committee of Hygiene and Public Health.

The Secretary stated that 80,248 members of the State Associations constituted the membership of the American Medical Association. The Fellowship totaled 44,010 on May 1st, 1917, and 44,715 on May 1st, 1918, a gain during the year of 705.

A remarkable record of activity in co-operation with the Surgeon-Generals of the Army and Navy revealed the vast amount of personal data on file at the head office and made available to the authorities in Washington, told of the use of the machinery of the Association in circularizing the profession on the subject of Medical Reserve Corps and stated that the great amount of work involved can hardly be appreciated. That it was appreciated is shown by several official letters referring in highest praise to the inestimable value of the service rendered.

Dr. Thomas McDavitt, the Chairman of the Board of Trustees read the report of this important body:

Whereas the Report of the New York meeting viewed with concern the on-coming year with its problems of interest values and labor shortage, the uncertainty of continued and new subscriptions to the Journal and predicted a falling off in them with consequently a diminished income. The fact is an increase in circulation obtained to extent of 1654. The income from dues and subscriptions was \$318,487.25. From advertising the income was \$264,996.25 an increase of \$35,000. The Report continues to prove that the Association is well supported and generally appreciated especially in lending its great facilities to the progress of the war work as concerns our profession.



The Treasurer proved that the financial standing of the Association was sound.

Each of the Councils reported their activities and no one could hear them at first hand but would again and again have been impressed with the high ideals of this association, the indefatigable efforts of those in our higher offices to advance and place upon an exalted plane the principles governing the practice of medicine. The results of the work of the Council on Medical Education are so wonderful that their efforts would be alone sufficient justification for the organization. But the Council on Health and Public Instruction presents a year's work in propaganda in the control of disease and thereby adds evidence of the vast influence of good. So with other Councils, each dealing with its department in a business like way, their work must instil in every one of us a great pride in our profession, must create an abiding faith in its future, and must call for loyal allegiance to this Association.

Considering the great number of men in the service, the attendance at the Sections was surprisingly large. While many papers of scientific value were presented, those problems dealing with the injured were generously scattered through the proceedings. Of particular interest were the illustrated reports of the work already done in Canada and abroad in the reconstruction and rehabilitation of those wounded who have suffered loss of their extremities.

Moving pictures of the daily life of men in this country of like disability visualized the great possibilities for health, happiness and self support that the maimed may acquire if help is given in the selection of work which will accommodate itself to the abilities of the individual.

Of particular interest to Minnesotans were several reels of M. J. Dowling of Olivia, who with two legs, and one arm gone, and a crippled hand, refused to be overcome by his great loss. By industry and high purpose in spite of this handicap he is as you well know a man of responsibility and worth in his community and state, respected by all, and happy in the acquirement of most of the good things of life. It requires no stretch of imagination to recognize the influence that such an exhibition as he gave, must have upon those equally or less injured, in creating an optimism for the future. You will agree that Mr. Dowling has thereby rendered wonderful service to his country.

Plans for the perpetuation of the scheme for rehabilitation of the injured soldiers to continue after the war and their application to industrial workers of civil life brought forth great enthusiasm. Efforts to create a new section of Industrial Surgeons was recommended because of the great number of sections already established, but there was a sentiment in favor that will be difficult to disregard in the future.

The general meetings at the Auditorium and the Medina Temple brought forth over-flow audiences with orators of national repute who kept the enthusiasm and feeling of patriotism at a top notch. The address of Gov. Lowden of Illinois at the Auditorium was the very acme of patriotic fervor and

was given with a fine spirit and clearness of delivery that simply carried the audience off its feet.

The medical military meeting at the Medina Temple on Wednesday evening June 21st gave us the opportunity of hearing the delegates of our allies: Sir James Mackenzie of Scotland and England, Sir Wm. Arbuthnot Lane of England, M. Justin Godart and Major Edouard Rist of France, Col. Herbert Bruce of Canada and last, but not least, Capt. René Sand of Belgium. While each speaker was received with great applause, it has seldom been our lot to see, hear or take part in an oration that was as wild and tumultuous, prolonged and heart-felt, as that which received the representative of the Belgium nation. It can only be interpreted by the fact that Belgium has earned the highest respect and consideration by her courage and valorous deeds and is placed and will ever be on the topmost pinnacle of the world's approval.

The oration was likewise an expression towards Germany, of the reverse of all our feelings towards Belgium: that no more will the free people of the world recognize this insolent nation within their councils until their "might is right" and "superman" principles are forever crushed and buried deep, never to be resurrected during the habitation of the earth.

Both the representatives of France received almost equivalent recognition. With Belgium there is an element of compassion at their loss, a deep desire for more personal help, but with France it seems to be a feeling of exhilaration, of enthusiasm at the determined, dogged power of resistance to an overwhelming antagonist. One address was delivered in French and the generous applause only proved that greater interest than ever is manifested in this nation of different race and tongue, but now and forever our brothers in the progress of the world.

The British and Canadian delegates seem to be of us and their deeds were quite expected of them. We can sense their feelings, follow their reasoning and appreciate their plans more fully than the others.

Sir Herbert Bruce of our neighboring country is an orator and gave the most comprehensive, informative speech of the evening.

Our own speakers, Clark and Wilbur, more than rose to the occasion and carried the greatest, most impressive patriotic meeting of medical men to a successful issue.

The election of officers developed few contests except in the matter of president. By years of service on the Judicial Council, and an active interest in the general affairs of the Association, Dr. Alexander Lambert of New York was the logical candidate. In view of the militarization of a great part of our profession a movement was instituted to elect Surgeon General Braisted of the Navy as a mark of honor for the generally acknowledged efficiency of his department and in recognition of his rank. There was some rumor of an underlying reason in a question between the Medical Council of Defense and the American Medical Association as to which organization was rendering the greater service to the Surgeon General of the Army. The other rumor

was that the headquarters was becoming a Chicago Institution and that at Washington, the Capitol of the nation should be the proper location. Dr Alexander Lambert was elected President by three votes which was made unanimous.

This house will be interested to know that Dr. Thomas McDavitt of Minnesota was re-elected without contest to the Board of Trustees. I believe this to be the most responsible committee in the association. The splendid services he had rendered to the Association has been recognized within his committee by his election as Chairman of that body. It was a delightful opportunity for your delegates to place his name in nomination, and second to an unanimous election.

The 69th Reunion must be remembered in its history as a most exceptional gathering, giving as it does a great fund of information, offering patriotic thrills at every turn and stimulating a profound confidence in the progress of our profession in solving the present and all future problems.

It is indeed an honor and a privilege to represent our great State Association at these meetings.

H. P. RITCHIE,  
Delegate.

THE PRESIDENT: If there is no objection, this report will be accepted and placed on file.

Dr. J. W. Little, of Hennepin County, presented the following resolution:

WHEREAS, the House of Delegates at the annual meeting in 1916 unanimously passed a resolution that the matter of the official journal of the Association be referred to a referendum vote of the component societies of the Association; and—

WHEREAS, A Committee was appointed to consider the subject, to submit its report within six months to a referendum vote, and to report to the Association at its next annual meeting; and—

WHEREAS, In spite of the fact that the committee voted four to one against the publication by the Association of its own journal, and in spite of the further fact that no referendum vote of the component societies, thirty-eight in number, was taken owing to the fault of the chairman of the committee, as he himself admits; and—

WHEREAS, No society of professional men can afford to set the precedent of ignoring the rights of its component units or of fully ignoring in the legislative body of one year a unanimous recommendation of the legislative body of a preceding year; therefore be it—

RESOLVED, That the president of the Association for 1919 be instructed to appoint a committee of five to reconsider the subject and to submit the matter, with or without their recommendations, to a referendum vote of the component societies, and to report to the next annual meeting of the Association. (Motion seconded.)

DR. LITTLE (Speaking for the Resolution): To refresh your memory as to the personnel of that committee, I will say it was composed of Dr. Workman, of Tracy; Dr. Scofield of Benson; Dr.

Senkler, of St. Paul, Dr. Buckley, of St. Paul, and myself.

Dr. Buckley is a very pleasant and honorable man to meet, and we enjoy his counsel very much, and we have no criticism to make because he accepted the minority report. However, he overlooked a very important duty, and that was to submit a referendum vote to the various component societies, and we are asking in this resolution that that vote be referred now. I am sure Dr. Buckley will be glad to rectify any mistake he has made, and he certainly made a mistake in not bringing this matter to the attention of the various component societies that make up the Minnesota State Medical Association. With the thought of going into the war, with the expense of publication of such a journal, and other things being considered, we thought it would be advisable to defer this matter. Whenever the Minnesota State Medical Association wants a publication of this kind it is entitled to it and we should have exactly what we want. But certainly a great mistake is made in not referring this matter to the component societies. This journal being a child in the profession and born in this way certainly must be an illegitimate child and should be renamed or rechristened in the proper way.

DR. H. M. WORKMAN: I want to make one correction. I was not a member of that committee. I think that the other member of the committee was R. J. Hill.

DR. LITTLE: I thought I was wrong about that and I accept the correction.

DR. E. W. BUCKLEY: I would like to discuss that motion, but before doing so I rise to a question of personal privilege since my name was specifically mentioned by the maker of the motion. I have been attacked for my official action as a member of the House of Delegates last year, and before discussing the resolution I would like to read the following editorial which was published in the Journal-Lancet August 15, 1918.

Dr. Buckley then read the following:

"From the date of the adoption of an official organ by the Minnesota State Medical Association, a dozen or more years ago, the St. Paul Medical Journal sought to become such official paper, but the terms upon which it offered, from time to time, to assume such relations to the State Association form a series of comedies, its publishers (The Ramsey County Medical Society) seeming to think that the Association was without dignity or common sense.

"In none of their offers prior to that of 1916 was the question of an ethical journal raised, and for obvious reasons; and this point was robbed of its 'pull,' its efficacy, when it was understood that the Association's contract with its official journal gave the Association absolute control over all matter published therein. The point was not again mentioned, but the stress was laid upon the insignificant size (quantity of matter published) of both the St. Paul Medical Journal and The Journal-Lancet. A big journal, one worthy of the medical profession of Minnesota, was wanted—a journal that would provide space for the papers read before all the major so-

cieties of the state. "Bigness" seemed to be a telling point.

"A committee of five was appointed to consider the matter and to submit the subject to the component societies of the State Association for a referendum vote, and to do so within six months, the committee's findings to be submitted at the next annual meeting of the Association.

"A St. Paul man, who was a champion of the big journal suggestion, was made chairman of the committee of five, composed of two St. Paul men, two Minneapolis men, and one man outside of the Twin Cities.

"At an early meeting of the committee, the chairman was instructed to canvass the matter with the secretaries and journals of other states. Long after the expiration of the six months named as the time within which the referendum vote was to be taken, the chairman called another meeting of the committee, when the subject of establishing a state journal to be owned by the Association was voted upon. The vote stood four to one against such action, as reported at the next meeting, held at St. Paul in October, 1917. The chairman made a minority report, in which a glowing vision of a big journal and big profits and everything big was pictured before the House of Delegates. The majority report made by four members of the committee was a brief "no" to the question of publishing a journal by the Association.

"When inquiry was made concerning the referendum vote of the component societies as required in the resolution to appoint this committee, the chairman of the committee and the author of the minority report explained that no such vote was taken, and he generously and manfully assumed responsibility for failure to take it; but his generosity and his manliness went glimmering in his explanation for this breach of propriety and justice. He said he was sick in January, and this, together with the difficulty of getting answers to the questionnaire he sent to the state secretaries, left no time for the referendum vote; and he added that such a vote was a matter of no consequence.

"To every clear-thinking man it is evident that the chairman of the committee was the champion of the St. Paul Medical Journal, and that he deliberately prevented a referendum vote, which might have been taken at any time within the year, the matter of time being a minor consideration, and one which any body of fair-minded men would have waived so long as it did not affect the vote authorized to be taken. No group of professional men is justified in ignoring in one annual meeting a simple and just recommendation made at a previous annual meeting. Such action is, fortunately, left to dirty politics. The House of Delegates, at the smallest meeting of such House the writer ever attended, adopted the minority report, and they got for their reward a monthly journal called Minnesota Medicine, which has now been published eight months."

After reading this editorial from the Journal-Lancet, Dr. Buckley said: Regarding this resolution and the attack made on me in this editorial, I desire to state that nearly all of it is untrue and the rest of

it is distorted. I am beyond the age when I can be called upon to serve as a medical officer in the Army or Navy, but I did not feel, however, that I was beyond the age to do something, and when I was selected to go to France to map out a plan of procedure for the expenditure of fifty millions of dollars for the relief of our soldiers, I did not expect to be stabbed in the back while away. It was stated in the public press that I would be absent the greater part of the summer and the Journal-Lancet evidently believed I would not return in time to attend this meeting and defend myself. I challenge any one to show from the published proceedings of the House of Delegates that this report of the Journal Committee was to be previously furnished to the component societies for a referendum vote. If the secretary has the minutes of the 1916 meeting of the House of Delegates held in October, I think they will show I am right.

THE SECRETARY: I have not a copy of the minutes of the 1916 meeting of the house of Delegates.

DR. BUCKLEY: Without my knowledge or consent I was made Chairman of the Journal Committee and I was told afterward that the committee would be against the proposition. A motion was made requiring the committee to make a report to the association, not a referendum vote to the county societies, but to report their findings to the local societies six months before the annual meeting. The Delegate who made that motion was Dr. Farr, who informed me afterwards that it was made to prevent the shelving of the whole matter.

DR. FARR: My recollection is (although I cannot quote the exact words) that I made a motion to this effect, that the committee be given six months in which to make its report before the annual meeting of the association. In the original motion offered by Dr. Litzenberg I believe there was no reference made to a referendum vote.

DR BUCKLEY: As I have said, I defy anybody to show that a referendum vote was called for, and this editorial is a misstatement of the facts. I was instructed at the March meeting of the committee to send out to the state secretaries and to the editors of the various state journals, twenty-eight in number, representing thirty-three societies, a questionnaire asking their experience and the best methods of conducting and publishing a state medical journal. I did not put in that questionnaire anything about the "bigness" of the journal, as stated, but referred to the possibility of publishing a clean journal without any of the slime which comes from the proceeds of advertisements that are unethical.

Another thing stated in this editorial is that I was the representative of the St. Paul Medical Journal. A doctor sitting on my left, and a doctor sitting over there, and Dr. Taylor, were on the publishing committee of the St. Paul Medical Journal. At the 1916 meeting of the state association, I advocated a state journal without consultation with any one, and later I was called before the Ramsey County Medical Society publishing committee and charged by Dr. Dennis with attempting to ruin the St. Paul Medical Journal. Is not that true, Dr. Earl?

DR. EARL: That is true.

DR. BUCKLEY: I said at that meeting that if I understood the matter correctly, the St. Paul Medical Journal desired to be the official organ of the Minnesota State Medical Association. I favored a medical journal owned, edited, and published by the State Association which would carry clean advertising and if my position was not favored by the Publication Committee of the Ramsey County Medical Journal, I would drop the whole matter. I have had no ambition to be connected with the Journal. I stated to the House of Delegates in 1916 and again in 1917 that I did not want to be connected with the journal; that I had neither the time, the talent, nor disposition to be connected with it even though it would be a clean journal. My name was sent to the president of the state association by the Ramsey County Medical Society and I was made a member of the Publication Committee of the new journal to serve for only one year. I agreed to accept the appointment because I had advocated the establishment of such a journal. Previous to 1916, I had not attended the meetings of the Minnesota State Medical Association as my duties required me to be away a great deal and I did not have the time.

I have heard it stated that this fight was apparently between two medical journals, the Journal-Lancet and the St. Paul Medical Journal. With this dispute I have had no connection as I wanted a state journal, owned, edited and published by the state medical association. Thirty-three states had gotten rid of the rotten journalistic commercialism which is debasing our profession of medicine in America and I believed Minnesota should get in line. As a result of this stand, I got personal abuse in the Journal-Lancet and have been charged with things by innuendo and otherwise of which I was never guilty. I have nothing in this world but my good name and have worked for it for thirty years, and when a man attacks my good name and charges me with being a political trickster, I will follow him to the bowels of hell. I am here to answer any legitimate charge and to prove by the minutes that a referendum vote was never mentioned either in the original motion or at any meeting of the committee.

After the adoption of the minority report, a special committee of five was appointed by the House of Delegates to consider the publication of a journal and to report to the society at once. I was invited to meet with the committee at Dr. Earl's office, and suggested that Mr. Klein, publisher of the Journal-Lancet, be invited to attend the conference, and the committee did invite him, and I suggested that Mr. Klein be offered the management of the new journal if he saw his way clear to accept it. Mr. Klein declined. I then left the meeting for a few minutes, and Mr. Klein during my absence threatened to sue me for remarks I made on the floor of the House of Delegates. That is the kind of treatment any one may expect who dares oppose the plans of the Journal-Lancet. If you as members of this House of Delegates are not capable of passing on the question of whether you should have a journal or not, let us go back to the slime of commercialism and put

ourselves on record as being in favor of that kind of journalism. But we have a good journal, a clean journal now, and the report of your Committee on Journals stated what was done in the past and what action was taken last year. Let us not place ourselves before the medical profession of the United States as being in favor of any other kind of journal or of going back to a journal that carries unethical advertisements.

As to a "big" journal, which is referred to in this editorial I have read, you will get bigness in our state journal later on. A child creeps before it walks, and it walks before it runs, and the man who would start a big medical journal would be a fool in these times of high cost of paper, printing, publishing, with a diminishing subscription list on account of the war. I think Dr. Little should have waited to hear the report of the Publication Committee before this resolution.

I thank you for the attention you have given me. I leave it to you gentlemen whether I am right or wrong.

DR. LITTLE: I ask for the reading of the minutes of the 1916 meeting.

DR. FARR: I would like to state what my motion was again. Dr. Litzenberg made a motion for the appointment of a committee of five. I had a similar experience with reference to this journal business with the Hennepin County Medical Society, and as a result of my address before that society a committee was appointed to confer with a committee of three from Ramsey County Medical Society to talk over the matter of combining the journals or of doing something in the way of getting a new journal owned and managed by the state society. That committee of three did not have a meeting until I personally went to the chairman and told him that I was going to call on him for a report, and that I found he had his meeting the night before and the minority committee met to talk over matters relating to the state society which would meet in a few days. That was in my mind when I made the amendment to Dr. Litzenberg's resolution, and if I remember the wording correctly it was this: I move that this committee be requested to report back within six months all the information they can secure concerning the advisability of publishing a new journal.

Now, Mr. President, have I the privilege of discussing the motion?

THE PRESIDENT: Proceed.

DR. FARR: With relation to the motion and the grounds upon which it is presented, it seems to me that we have certain things to consider. In the first place, the members of this association and the delegates should know whether or not we want a medical journal and what kind. We should know whether or not we want a medical journal which absolutely refuses to remain ethically clean or one that is clean and ethical. We are capable of deciding on that point without any question. There is not a man in this hall who would have the temerity to stand up and say he is in favor of a journal that will not live up to certain standards of advertisers. It seems to me, the question here is whether or not

the House of Delegates last year had a right, knowing what this committee's report was, having had a majority report and a minority report, to decide if they wanted to publish a medical journal. That is all there is to the proposition. What is there to hinder us from going back to last year's transactions and asking for a referendum vote on any proposition? There can be no objection to it personally.

I would like to second Dr. Buckley's remark concerning the time of introduction of this motion. I have learned in the eighteen years I have been in Minneapolis to go to Dr. Little with many of my troubles, and I have the greatest respect for him with regard to everything I have ever had anything to do with, and still if Dr. Little feels as he does on this proposition, I do not see why he did not want the facts first. It appears to me, the report of Minnesota Medicine should be called for just as much as the report of Dr. Buckley's questionnaire should have been called for by that committee, and Dr. Hill should have known what was in that report before he voted by proxy through Dr. Little. This House should have our report and know what we are talking about. It would not make any difference whether the report is rosy or bad so far as this proposition is concerned.

Regarding this editorial in the Journal-Lancet, this House of Delegates has a right, if it so desires, to go back and consider a proposition that was submitted a year before. In the same way, following that work, is this House going to allow what the House of Delegates did last year to stand? What is behind all this? Is it a better state medical association, or is it a matter of what the future individuals want in this state society? That is what I would like to know.

Leaving out all personal feeling in the matter, I did not want to be on this journal; I know Dr. Buckley did not. We tried to keep off of it. Personally there is nothing in it that I know of, while on the other side it looks as though there are an interested few who are trying to keep the pot boiling. You had all the information last year that there was to be had, regardless of what had gone before, and it seems to me that this motion is absurd.

DR. BUCKLEY: I would like to discuss the resolution presented by Dr. Little with particular reference to a referendum vote. I regret that the minutes of the 1916 meeting are not here so that we can refer to them. I remember clearly the motion which was made for the appointment of such a committee. A committee was appointed to investigate this matter and report at the next meeting of the society, and my recollection is that an amendment was made asking the committee to report to the component societies six months in advance of the annual meeting. As a matter of fact, when the committee met in March four men voted against the publication of a state medical journal, and I did not, and I stated the chairman could not be expected to report for the whole committee, and Dr. Little suggested that Dr. Hill be requested and asked to make a majority report. Is that correct?

DR. LITTLE: I think so; I was not present.

DR. BUCKLEY: At the last meeting of the committee at the Minnesota Club Dr. Hill was not present and he was to be asked to make the majority report.

DR. LITTLE: That is right.

DR. BUCKLEY: At the annual meeting Dr. Hill requested Dr. Scofield to make the report for the majority. Nothing was said about a referendum vote at that time by any member of the committee or any delegate. This whole agitation was an afterthought to discredit the minority report and the whole House of Delegates which adopted it. The powers that be never believed that favorable action would be taken and are now endeavoring by every means at their command to destroy the new medical journal. It has been charged that this was a St. Paul-Minneapolis fight. I don't mind telling you that as a member of the Publication Committee of Minnesota Medicine, at the first meeting of that committee, a Minneapolis man was made chairman, and at the second meeting of that committee, I proposed the name of a Minneapolis man as editor of the journal, but for various reasons it was not thought advisable to select him. At the succeeding meeting I proposed that the journal be published in Minneapolis. Every member of the Publication Committee will bear me out as to the correctness of these statements: A Minneapolis man was selected as chairman. I nominated another as editor of the journal and proposed that the journal be published in Minneapolis. The representatives of the St. Paul Medical Journal introduced a resolution turning over that journal to the state association. The offer was referred to the Publication Committee, and our committee declined to accept anything—good will, advertising contracts, circulation, or anything else from the St. Paul Medical Journal. We had nothing whatever to do with it. We started a new journal—Minnesota Medicine—entirely independent and separate from any journal ever published in this State.

DR. EARLE R. HARE: I desire to say a few words with reference to the resolution which is before the House as the maker of the motion last year, that we accept or adopt the minority report. The intelligence of the House of Delegates was somewhat impugned last year with reference to this matter, and at that time I took the position that the House of Delegates was quite capable of deciding the matter for itself. The majority report, as the Journal-Lancet has stated in a recent editorial, was a simple "no." There was no reason given except that at this time it was unwise to begin the publication of a journal. The minority report took up the matter carefully and analyzed the situation from various angles in a most convincing manner, showing that the thing had been done and the reason for doing it. It seems to me, that even with a divided profession, a few who have been actively supporting Minnesota Medicine, and those who have been violently opposed to it openly and others not so openly, that we owe a great deal to the Publication Committee under the circumstances for producing the journal they have in the last eight months. With a united profession behind our own journal, its success would be far beyond

what it is, and I do not see the wisdom of opening up through this resolution the question that is our own, something that we cannot control, for we desire a state journal that will express the will of the medical profession of this state and be under the control of the state association as Minnesota Medicine is today.

I wish also to repeat what has been said, that to introduce a resolution of this kind at this time is very unfair because the facts with reference to the publication of this journal which I hold in my hand are now before you. There are a few men who know what the present status of this journal is, but there are very few. The information is with the Publication Committee and their report will be submitted to this House of Delegates, and it is the only fair thing and only just thing and only right thing for the profession of the state to get behind Minnesota Medicine and push it into greater prominence and make it not necessarily a big journal but a good journal, well worth reading and well worth having on our desks and keeping it entirely free from the dirty politics of which it has been accused. Let us support Minnesota Medicine and let us reject the resolution which is before us.

DR. LITTLE: The gentlemen seem to be working themselves into a frenzy in talking about extraneous things that have nothing to do with the resolution. There is nothing in the minutes opposed to it. We are not discussing the size of the paper or the value of the paper or anything of that sort. I am not saying that Minnesota Medicine is not the best publication in the world. I have not said it was good or bad. I have not said anything about the Journal-Lancet. I have introduced a resolution asking that a referendum vote be taken. If there is nothing in the minutes of the previous meeting referring to a referendum vote, then I am out of order, and you are right about it. I am not making a plea for anything. I don't care what journal it is. I am not having quarrels with Dr. Buckley or with his committee. I am making this as a plea for fair play. There is no dirty politics about it.

DR. O. F. FISCHER: We are wasting valuable time. As a matter of fact, if this resolution referred to in the editorial in the Journal-Lancet is not on our records, then the resolution of Dr. Little is out of order, and I would ask for a ruling of the chair.

DR. BUCKLEY: We have not the minutes of the 1916 meeting at hand, and it is unfair to ask the present presiding officer to rule on the minutes of a meeting when he was not there. You can adopt the resolution introduced by Dr. Little or reject it. The president cannot rule unless you have the minutes of the 1916 meeting.

DR. FISCHER: I withdraw what I have said.

The Secretary read the resolution offered by Dr. Little, and on being put to a vote, it was declared lost by a unanimous vote.

THE PRESIDENT: The next thing in order is the report of the Publication Committee.

DR. R. E. FARR; chairman, presented the following report:

#### REPORT OF PUBLICATION COMMITTEE MINNESOTA MEDICINE

(First Annual Report of the Editing & Publishing Committee. Presented to the House of Delegates, Duluth, August, 1918.)

Mr. President, Members of the House of Delegates: With your permission I beg to submit the first annual report of "Minnesota Medicine":

In accordance with the action of the Governing Body of the Minnesota Medical Association, the following appointees were named as the Editing and Publishing Committee: Louis B. Wilson, H. L. Taylor, E. W. Buckley, John E. Hynes and R. E. Farr.

This Committee held its first regular meeting in November, 1917, and at this meeting officials were chosen. Dr. E. T. F. Richards was selected as Editor and Mr. J. R. Bruce was chosen to act as Business Manager. The title, "Minnesota Medicine" was chosen for the new journal. The Committee has held monthly meetings during the year and has made every effort to assist the editor in every possible way.

The policy decided upon has been rigidly observed. All advertising matter of questionable nature has been refused, the standards of the Council of Pharmacy & Chemistry of the American Medical Association having been adhered to.

Your committee felt that at this critical period of the Journal's existence conservatism should be its watchword and that the scientific matter should be selected with the greatest possible care.

Notwithstanding the fact that our country is at war, that prices are exceedingly high, that your Committee was confronted with the proposition of selecting the editor, the manager, of outlining the policy of the journal, and the almost uncountable details which had to be worked out during November and December, 1917, the first issue appeared in January and since that time each number has been an improvement upon its predecessor. Nine issues of "Minnesota Medicine" have been published.

Each issue has shown an increase in volume of advertising over the preceding number with the exception of the issues for July and August,—two summer months which many advertisers omit from their schedule.

There are now many more contracts in prospect. Minnesota Medicine is not now on the list of some national advertisers for the reason that its publication was started after their advertising schedules were completed for 1918. We have every reason to believe that all these national advertisers using state journals will include it in the budget for 1919.

This business which we do not anticipate any trouble in holding, together with the normal increase which it is reasonable to expect as the journal becomes more generally known, promises business in such volume as to make the publication yield a much larger return in receipts over expenses than was at first thought would be possible for the first year or two.

Careful scrutiny of the advertising ledger shows a few accounts in arrears, but only three about which there appears to be any question of collection, and

these are not by any means hopeless. They amount to \$77.50.

We have now on hand stationery and other office supplies in sufficient quantity to last another year.

In conclusion, I would say that, notwithstanding the condition business is in, the inroads which have been made into the scientific phase of our work, our committee feels that it has every reason to be proud of the success so far attained and to be optimistic regarding the future of the journal.

Respectfully submitted,

R. E. FARR

President, Editing and Publishing Committee.

FINANCIAL STATEMENT OF MINNESOTA

MEDICINE

ASSETS

Subscription and Advertising Accts received.	\$2,275.89
Advertising Accts. due.....	1,441.00
Amount receivable from Minn. State Med.	
Association for subscriptions.....	1,440.00
	\$5,156.89

LIABILITIES

Expenses to date .....	\$3,399.96
Sept. Issue Estimated .....	420.00
	\$3,819.96

THE PRESIDENT: You have heard the report of the committee on publication. What will you do with it?

DR. C. L. SCOFIELD: I move that the report be adopted, and that the thanks of the House of Delegates be extended to the committee for its work. Seconded and carried.

DR. SCOFIELD: At the 1917 meeting Dr. F. R. Weiser offered the following resolution:

WHEREAS, Our country being at war against a nation which has defiled international law and the laws of humanity, it becomes necessary that all true American citizens stand by and support our Government in this conflict for right and democracy, and

WHEREAS, One of our members of the Minnesota State Medical Association, Dr. L. A. Fritsche, did as a public officer preside at a public meeting on July 25 last at New Ulm, Minn., in which he lent his aid in creating a disloyal sentiment among the people in his community in this time of national and world peril, and by so doing he has, as a member of our State Association, brought disgrace and insult upon us; therefore—

BE IT RESOLVED, That we as American citizens and physicians of loyal Minnesota hereby express our disapproval of his unpatriotic acts, and that a copy of this resolution be sent to him and spread upon the minutes of the Association.

After reading the resolution Dr. Scofield said: At that time the matter was pending before the Public Safety Commission, and after some discussion it was voted to defer the matter. I understand that this matter has ben acted on by the Public Safety Commission, and they have declared Dr. Fritsche guilty

and deposed him from office. This association has not taken action and has been criticised by people outside for not taking cognizance of this matter, and I move the adoption of the resolution as presented by Dr. Weiser at the last meeting.

THE PRESIDENT: Has the County Society taken any action in regard to this of which Dr. Fritsche is a member?

DR. SCOFIELD: I think not.

THE SECRETARY: The County Societies have not taken any action in regard to this resolution.

DR. WORKMAN: A short time ago, as a member of the State Committee on National Defense, I had occasion to write to Dr. Strickler of New Ulm, and I said to him in my letter that you have been severely criticized as the oldest and leading member of the Brown-Redwood County Medical Society in not bringing Dr. Fritsche to trial. You have applied for membership in the National Reserve Medical Corps and this will stand against you. You should have brought action against Dr. Fritsche. I am not passing on his guilt or innocence, but the case should have been tried by the Medical Society. Dr. Strickler replied, "I want to see you on your way to Duluth." He met me at the train with Dr. Reineke, secretary of the Brown-Redwood County Medical Society, and they told me that Dr. Fritsche would never be brought to trial because they were perfectly satisfied of his innocence. I said I had no desire to do so, although I brought the matter to the attention of the association in my presidential address the year before, and that I had no intention to prosecute an innocent man, but that if he is guilty or any other man is guilty he ought to be brought to trial.

DR. SCOFIELD: I have understood that Dr. Fritsche's position at the present time is one of absolute disloyalty, although Dr. Workman is in a position to know better than I as to that fact. I wish to call the attention of the House of Delegates to the fact that this resolution is not an act to expel Dr. Fritsche from this association. We have no authority of that kind, but the Minnesota State Medical Association certainly has authority to express an opinion in such a matter, and since the County society of which he is a member has declined to take any action in the matter, it occurs to me that we should go on record in the matter.

THE PRESIDENT: We have no official record that his local society has ignored this subject. The State Association is working to a certain extent through the county societies. It seems as though it would be highly proper for you or some one to introduce a resolution asking this county society to give us some report in regard to this case, then it is proper for us to take the matter up with the county society. We do not deal directly as a usual thing with members. We take up these matters with the local society. I would like to ask the secretary if I am not right in that respect.

THE SECRETARY: Yes, you are.

DR. EARL R. HARE: I rise to second the motion made by Dr. Scofield, believing it is entirely proper and right and within the jurisdiction of this House

of Delegates to pass such a motion which amounts to a motion of censure.

THE PRESIDENT: Where has he been tried?

THE SECRETARY: Before the Public Safety Commission.

DR. ALBERT THOMPSON: I came from a county adjoining Brown-Redwood and the feeling there is that something should be done in regard to Dr. Fritsche. One of the last things that a citizen in our city said to me was this: be sure to expel Dr. Fritsche from your society. This is the feeling among the lay-people, and my feeling is that we as a society should take some counter-action.

THE PRESIDENT: We must not make the society legally liable for something we cannot get out of.

DR. J. C. LITZENBERG: Can we not direct the constituent society to take this case up and furnish the facts in regard to it?

THE PRESIDENT: We ought to do so in a society like this.

THE SECRETARY: This resolution simply states that we as American physicians disapprove of his unpatriotic acts, and the resolution further states that a copy of the same should be sent to him and spread upon the minutes of the association. I feel that the best thing we can do is to pass that resolution at the present time, and there will be something else submitted after it is passed.

The resolution of Dr. Scofield was then put to vote and carried.

The Secretary quoted from the constitution and by-laws in regard to qualifications for membership in the component medical societies and the State Association bearing on the case of Dr. Fritsche and said that the legal way is for some member of the House of Delegates of the Minnesota State Medical Association demand that the Brown-Redwood Society take this matter under consideration. We do not say you shall find him guilty, but at least you should consider the matter, give him a dignified trial, and if you do not do it, the council is instructed by this House of Delegates to take your charter away from you and your memberships will all lapse in the State Association.

DR. WORKMAN: I move the Brown-Redwood County Society be instructed to bring Dr. Fritsche to trial on the evidence submitted to the Public Safety Commission, and to submit the entire proceedings to the council of the Minnesota State Medical Association before the expiration of three months, and failure to bring him to trial will result in the revocation of their charter.

\* Seconded and carried.

DR. C. W. PETIT: I move that the Minnesota State Medical Association remit the dues of all enlisted members for the time they are in the service.

Motion seconded to lie over until the next meeting of the House of Delegates.

DR. SCOFIELD: We have noticed the growth of litigation under our malpractice section, and it has been suggested that we attempt at the next session of the legislature to get an amendment to the statutes of limitation as to the time of beginning action for malpractice. At the present time the term is six

years, and during this time in many instances the physician has lost all his evidence, his assistants have gone, and then these claims are brought up, and it is very unjust and works to our disadvantage, and it has been suggested, and I would move, that we instruct our legislative committee to attempt to get a law, or an amendment to it, through the next term of the legislature limiting the time to two years in which these claims shall be presented.

Seconded by Dr. Workman and carried.

On motion, which was duly seconded and carried, the House of Delegates adjourned until ten A. M., Friday, August 30th

#### SECOND SESSION—FRIDAY, AUGUST 30, 1918.

The House of Delegates met in the Commercial Club, Duluth, Minnesota, on the morning of Friday, August 30th, 1918, pursuant to adjournment, and was called to order at 10 o'clock by the President, Dr. Arthur J. Gillette, of St. Paul.

THE PRESIDENT: I will ask the committee on credentials if they have any report to make.

DR. H. M. WORKMAN: Yes.

DR. E. W. BUCKLEY: Before we proceed to order, I move that Dr. J. E. Hynes be substituted for Dr. Aurand as delegate from Hennepin County as Dr. Aurand has gone home.

Seconded and carried.

Dr. H. M. Workman read a request by Dr. Kjelland, of the Red River Valley Medical Society, to the effect that Dr. Kjelland was not returned to the secretary as an alternate, but inasmuch as it was waived in one case, the credentials recommended that it be waived in another. And also as to delegate Dr. H. F. Peirson, of Mower County, alternate Dr. A. E. Henslin; and Dr. J. A. Thabes, of the Upper Mississippi Society; and D. C. W. Taylor, of St. Louis County; and Dr. W. L. Beebe, of St. Cloud; Dr. W. A. Piper, of Southwestern Minnesota; and Dr. E. E. Barrett, of McLeod County; and one other.

THE PRESIDENT: Those are here?

DR. WORKMAN: They are here now.

THE SECRETARY: Mr. H. Martin Johnson is on the floor as a representative of the State Pharmaceutical Association. I move you, Mr. President, that he be accorded the honors of the floor for a few moments.

THE PRESIDENT: If there is no objection.

MR. H. MARTIN JOHNSON: Mr. President and members of the Minnesota State Medical Association: As the doctor stated I am here as a representative of the Minnesota State Pharmaceutical Association, and I bring you greetings from that association, and I want to assure this association that the druggists are very anxious to co-operate with you, and our association has gone on record several times and is in fact at the present time co-operating with the State Board of Health on this new venereal disease proposition, and I am sure that the physicians appreciate the fact that the association is very anxious to co-operate. Of course we undoubtedly will have some druggists who will object quite strenuously, in view of the fact that it means money to them, but, as I say, our state association is going to co-operate in every way, shape and manner that it can.



At the present time I think it is very necessary that the physician and druggist work in closer co-operation, in view of the fact that the government is making new rules and new regulations which concern both of us, especially with reference to the new explosive act, which requires that if we want to sell a physician some nitric acid and potassium permanganate or other explosives, he has got to have a license. In fact, the physician has got to be licensed by the government.

Another very important matter is the alcohol proposition. At the present time we are unable to fill any prescription calling for alcohol, except by formulas as provided for by the government, or by some formula which makes it so that no one can use it for internal purposes; it has to be used externally exclusively. Probably the most popular formula is the one which provides for one part formaldehyde to 250 parts alcohol. And then there is another formula providing for 1 per cent carbolic acid to 99 parts alcohol. In fact there are ten different formulas.

As I stated before, on this venereal disease proposition it will be impossible for any druggist to sell any bottle of patent medicine, or sandal-wood oil capsules, santal midy, or anything of that sort, without a physician's prescription, and so, of course, it will be necessary to write a prescription for any of those preparations if the patient is going to get them. That is about all I have to say this morning. I thank you. (Applause.)

DR. WORKMAN: The credentials committee have to report further delegates, Dr. W. A. Plummer, of Olmsted County.

THE PRESIDENT: The next order of business, is the election of officers for the ensuing year. The first officer to be elected is a president.

DR. LITTLE: Mr. President, I wish to nominate as president a gentleman with whom I think you are all very well acquainted, and one who bears a fine reputation; he is a scientific man and a gentleman in every sense of the word, Dr. George Douglas Head, of Minneapolis.

DR. WORKMAN: Mr. President, I would like to second that nomination.

THE PRESIDENT: Are there any further nominations? If not, the nomination will be closed and we will proceed to ballot.

The nomination being declared closed, motion was made that the Secretary cast the ballot for Dr. George Douglas Head as president of the Minnesota State Medical Association for the ensuing year. Motion was duly seconded and upon being put to a vote was carried.

Dr. S. H. Boyer, of Duluth, was placed in nomination as First Vice President for the ensuing year, and on motion the Secretary was instructed to cast the ballot, and Dr. Boyer was declared duly elected.

Dr. E. P. Christensen, of Two Harbors, was placed in nomination as Second Vice President for the ensuing year, and on motion the Secretary was instructed to cast the ballot, and Dr. Christensen was declared duly elected.

DR. C. L. Haney, of Duluth, was placed in nomination as Third Vice President for the ensuing year, and on motion the Secretary was instructed to cast the ballot, and Dr. Haney was declared elected.

THE PRESIDENT: The next officer to be elected is the secretary.

DR. WORKMAN: I nominate Dr. Thomas McDavitt. DR. HUMPHREY (of Stillwater) nominated Dr. Earle R. Hare, of Minneapolis.

Doctors Robert Earl and H. M. Workman were appointed as tellers, whereupon a vote was taken and the tellers reported 34 votes cast, of which Dr. McDavitt received 17 and Dr. Hare received 17.

THE PRESIDENT: We will have to proceed to ballot again.

Another vote was taken, whereupon the tellers reported 34 votes cast, of which Dr. McDavitt received 16 and Dr. Hare received 18.

THE PRESIDENT: Dr. Earle R. Hare is declared elected as Secretary for the ensuing year.

THE PRESIDENT: The next officer to be elected is the treasurer.

Dr. F. L. Beckley, of Ramsey County, was nominated for the position of treasurer. On motion the secretary was instructed to cast the ballot, and Dr. Beckley was declared elected for the ensuing year.

THE SECRETARY: Mr. President, the next is the election of councilors. I have in my hands the resignation of Dr. G. E. Persons from the fifth district as a councilor, and I would move that it be accepted, and that a new councilor be elected for his unexpired term.

Motion seconded and carried.

Dr. H. M. Workman was nominated to fill the unexpired term and one year more. Moved and seconded that the Secretary be instructed to cast the ballot, whereupon Dr. Workman, of Tracy, Minnesota, was elected to fill the unexpired term of Dr. Persons.

THE SECRETARY: The term of office of Dr. C. Dampier, of Crookston, councilor for the first district expires now and there should be a councilor for the first district elected for three years.

It was moved and seconded that Dr. C. E. Dampier, be re-elected as councilor for the first district, and that the Secretary be instructed to cast the ballot, whereupon Dr. Dampier was duly re-elected.

Dr. R. J. Hill, of Minneapolis, councilor for the fourth district, whose term also expires, was duly re-elected.

Dr. F. A. Dodge, of LeSueur County, councilor for the seventh district whose term also expires was duly re-elected for three years.

THE SECRETARY: The next is the election of a delegate to the House of Delegates of the American Medical Association. Dr. George D. Head was elected last year for two years, and he would ordinarily have one year more. Dr. H. P. Ritchie's term expires.

Dr. W. H. Magie was placed in nomination for the office, and the nomination was seconded. Upon motion the secretary was instructed to cast the ballot, and Dr. Magie was declared elected as a delegate to the House of Delegates of the American Medical Association for two years.

THE SECRETARY: Now it will be necessary to elect an alternate. That will put Dr. J. W. Bell in for one year as an alternate and elect an alternate for two years.

THE PRESIDENT: Whom shall we elect as an alternate for two years? Nominations are in order.

Dr. J. L. Rothrock, of St. Paul, was placed in nomination as an alternate for two years, and the nomination was seconded. Upon motion the Secretary was instructed to cast the ballot, and Dr. Rothrock was declared elected as an alternate for two years.

THE SECRETARY: That ends the election of officers, Mr. President. All the balance of them are usually appointed by the president, with instructions to the house by the incoming president.

Motion was duly made and seconded that the incoming president be authorized to appoint all committees under the constitution and by-laws, and upon being put to a vote was carried.

THE PRESIDENT: The next in the order of business now is the place of meeting next year. Has anyone any suggestions to make in regard to it.

DR. R. E. FARR: On behalf of the Hennepin County Medical Society, I wish to extend an invitation to the State Association to meet at Minneapolis next year.

It was moved and seconded that Dr. Farr's invitation be accepted, and upon being put to a vote was carried.

THE SECRETARY: Mr. President, when we had our first meeting Dr. Beebe, the National Legislative member or delegate was not present. He is present today with his report. I move that we receive that report.

Motion seconded and carried.

THE PRESIDENT: Dr. Beebe, will you make your report?

Dr. Beebe then read the following:

"To the House of Delegates of the Minnesota Medical Association.

The Fourteenth Annual Conference of the Council of Medical Education, at Chicago, February 4th, 1918, was the most enthusiastic, successful and practical of the many that I have attended as the representative of this body. It was what might be termed a "War Meeting." Many United States Uniforms were sprinkled throughout the membership.

The Chairman of the Council, Dr. Horace D. Arnold, of Boston came direct from his office in the Surgeon General's office.

Dr. N. P. Colwell, of Chicago, Secretary of the Council, made his annual report in a paper with the title "Recent Improvements and Further Needs in Medical Education."

George G. Chambers, of Philadelphia, read a paper, 'Problems in the administration of Entrance Requirements to Medical Schools'. This paper was discussed by Dr. John M. Dodson of Chicago, President Robert E. Vinson of Austin, Texas, and President William O. Thompson, of Columbus, Ohio, and Mr. Augustus A. Downing, Albany, N. Y.

Dr. George Dock, St. Louis, read a paper, 'The Student's Clinical Course in Medicine.'

'Co-operation for Prevention of Medical Frauds,' Dr. David A. Strickler, of Denver, President of the Federation of State Medical Boards of the United States. Discussed by Drs. J. M. Baldy, Philadelphia, Walter L. Bierring, Des Moines, Iowa, Walter P. Bowers, Boston, Hubert A. Royster, Raleigh, N. C., Mr. Augustus A. Downing, Albany, N. Y., N. P. Colwell, Chicago, Herbert Harlan, Baltimore, Md., and Horace D. Arnold, Boston.

Mr. Francis W. Shepardson, Springfield, Ill., read a paper, 'The Civil Administrative Body of Illinois and Medical Licensure'.

Mr. Howell Wright, of Cleveland, Ohio, Secretary Cleveland Hospital Council and member of the Ohio Senate, read a paper entitled 'The General Problem of the Minor Forms of Healing'. Discussed by Dr. Joseph Byrne, New York City, Dr. J. Henry Carstens, Detroit, Mich., Dr. George F. Severs, Centerville, Iowa, and Dr. Arthur Dean Bevan, Chicago.

'The National Board of Medical Examiners, and the United Service Medical School,' was the title of a paper by Dr. Isadore Dyer, New Orleans, Dean of Tulane University.

But the paper of the meeting, the one eliciting the most enthusiastic discussion, was the one by the Chairman, Major Horace D. Arnold, with the title, 'Some Problems in Medical Education Resulting from the War'.

The important point in his address was, that it would be possible and advisable for the medical schools of America to have continuous sessions; to have three terms in twelve months, instead of two terms, as most of them have at present. If his plan were adopted, the Freshmen classes would be ready for service twelve months earlier than under the present plan, the Sophomores eight months earlier, the Juniors four months earlier, the Seniors not being affected.

Most of you probably have noticed that many medical schools have already adopted this plan. Most of the men participating in the discussion of the Major's proposition were in favor of it, and, to my mind, the best points made in its favor were by our Dean, E. P. Lyon, Minneapolis, and Dr. L. B. Wilson, of Rochester, Minnesota.

The following motion was put and carried by a vote of 37 to 16:

'It is the sense of this Conference, that a plan of intensive training, by which the time required to complete the course in medicine may be shortened by one year, without lowering the present educational standards, be approved as a war measure, and that State Boards and Universities be requested to take such action as will conform to it.'

W. L. Beebe.

THE PRESIDENT: What shall be done with this report? If there is no objection it will be received and accepted.

The report of the Committee on Necrology was presented as follows by Dr. A. E. Spalding, Luverne: "As Committee on Necrology, my report will be brief, owing, I hope, to the fact that there have been but few deaths among our members.

I am satisfied, however, that there have been more than I am able to report, owing to the failure of the secretaries of the county societies to heed my request for information regarding deceased members.

I may therefore be excused if I might have omitted names which should have been recorded.

It is my sad duty to report the death of Lieut. Col. Frank C. Todd of Minneapolis, one of our most active members and who was honored and loved by all who knew him. His worth was shown by the many honorable positions which he held. He was elected Second Vice President and Chairman of the Section on ophthalmology of the American Medical Association in 1913-14. He was Professor and Chief of the Dept of Diseases of the Eye, Ear, Nose and Throat of the University of Minnesota. He held many positions in the various hospitals of Minneapolis, was a member of the American Academy of Ophthalmology and Oto-Laryngology, and President of the Minn. Academy of Medicine and Hennepin County Medical Association.

Dr. Todd was born in Minneapolis Oct. 15th 1869. He received his medical education at the University of Minnesota, which later honored him with a professorship. He died of pneumonia in the Presbyterian Hospital, Chicago, July 4th, while in the service of his country.

He left a wife and four children, and I can well say, the whole medical profession of the State of Minnesota mourn his loss."

DR. J. C. LITZENBERG: The death of Dr. Todd perhaps calls for unusual action by this association because of his prominence and his well-known services to the medical profession, and I therefore move that a suitable expression of his loss be brought up by the incoming president and secretary of the association, and engrossed and sent to Mrs. Todd, and that the same be spread upon the records of this association.

Seconded and carried.

DR. C. W. PETTIT: I would like to resurrect the subject that was brought up at the last meeting. After talking this matter over with others it is thought better to bring this before you as a resolution at this meeting. Therefore, I present the following resolution:

Whereas a number of the members of the Minnesota State Medical Association have loyally responded to the call of our government in its present crisis,

THEREFORE, be it resolved: that said State Medical Association, through its House of Delegates, establish an "Honor Roll", to be determined by certificates sent to the Secretary of the State Society by the secretaries of the component societies of their members in service; and, further,

BE IT RESOLVED, that the State Secretary be instructed to remit the dues during the period of the war for all those members who are in active service and away from home.

It was moved that the report be adopted.

Seconded and carried.

THE PRESIDENT: Is there any further business?

DR. J. W. LITTLE: Inasmuch as the reading of

the minutes of the Association for 1916 or 1917 were somewhat in dispute, not having copies of them at our previous meeting, I would like to have the privilege of reading such part of the minutes as contains the action of the committee, in the Journal-Lancet. I will make it as brief as I can, so as not to detain you too long. This is the report of the meeting of 1917 of a resolution which was made by Dr. Litzenberg in 1916, and this is the copy of it. I have the other copy, too, but this is the true copy of it: "The President: The ruling of the Chair has possibly been questioned, and I have been asked to read the resolutions offered last year, offered by Dr. Litzenberg: 'There seems to be a general consensus of opinion that what is desired in this state is a better medical journal. There are limitations to the improvement of the present journal, largely financial perhaps. It would seem from the consensus of opinion of the representatives of the St. Paul Medical Journal, the representatives of The Journal-Lancet, and others who have expressed opinions, that we ought to get together and publish one journal. We have had submitted to us a proposition from the Ramsey County Medical Society, and I would, therefore, move that all matters in regard to a state medical journal be referred to a committee of five; said committee to report to the House of Delegates for final consideration at the next annual meeting; the report to be previously furnished to every component society for consideration and recommendation.' Motion was seconded. (I want to call your attention especially to this, as the matter was in question at our last meeting, you will remember: "Said committee to report to the House of Delegates for final consideration at the next annual meeting; the report to be previously furnished to every component society for consideration and recommendation." That was what I referred to as a referendum vote, and it is the same thing, as I understand it, and a referendum vote.) Dr. Farr: 'I move as an amendment that this committee be given six months in which to make its report before the annual meeting of the society. Amendment seconded. The original motion as amended was then put and carried.

Now it is said that this committee did not do as they were instructed, and the entire proceedings were not legal and that the Chair should have so ruled yesterday. It was submitted to you for your consideration.

DR. BUCKLEY: The committee was well aware of that instruction, and, if any fault lies with the committee in its failure to carry out its instructions, I think the chairman is to blame. The meeting of the committee was held, as I stated in my report, on the 23rd of March. I was instructed at that time to secure the information that was presented to you in my report, and, if anybody ever had anything to do with getting replies from twenty-eight editors, he will know that you cannot get them in a week. The matter dragged along, and it took two or three additional requests to get replies from twenty out of the twenty-eight.

Failure of the committee to report to the component societies was due to no fault of the com-

mittee, but was due to the fault of people from whom the committee asked information before being able to formulate a report. It seems to me that the instruction of the House to the committee to make a report was in the nature of an instruction, and not a part of the original motion, not a part that made the action of the committee valid in so far as this House of Delegates was concerned. The committee is open to censure perhaps for not complying with the instructions of the House of Delegates. If that is true, I want to assume the full responsibility for failure to do so, owing to the fact, as I say, that the committee did not meet until March. In January I was taken sick, and was sick for a month. I want to take the responsibility for the failure. The failure of the committee to make a report to the component societies of this House of Delegates is one for which, of course, this House of Delegates has full power to hold us to account or to condone.

The action of the committee, or the report of the committee, is it seems the principal thing at issue. The failure to carry out one of the minor instructions, it seems to me, is a technical one, of which those who are in the minority in the vote of the House of Delegates want to take advantage. If this House wants to do this, I bow in submission to the will of the House. I want to assume personal responsibility for the failure of the committee or any failure to do any of the work that was necessary.

DR. H. B. SWEETSER: Even if the House of Delegates either censures or condones the action of the committee, still the motion says that the report was to be previously furnished to each and every component society for consideration and recommendation. I do not believe any component society—and the component societies are the fundamental units of this Association—has been given any opportunity for consideration. And that is why some country members have been to me and said that that is the reason for bringing up this thing; they said they never had had an opportunity—had not been given any opportunity for consideration and recommendation on this very important subject. Well, there is more of that, but that is sufficient, I think.

DR. ANDREWS: I do not want to throw any cold water upon this proposition because I am favorable to it, but it has been intimated that this is not a vital question as to whether the report was submitted to the component societies or not, a mere technicality. I maintain, gentlemen, that it is not a mere technicality at all; it is extremely vital. If this resolution provided that this committee should submit their report, or the substance of their report, within six months, that the component societies might take this matter into consideration, it is not technical—it is vital. I do not want to see this House of Delegates go on record, if my assumption is true, that this is merely a technical mistake. It is not a technical mistake; it is a vital mistake. Now gentlemen, I want to know if we can approach this subject in a calm, dispassionate way,—

DR. BUCKLEY: I rise to a point of order. Dr. Little asked the privilege of reading the minutes of the meeting of two years ago. He wants to now

discuss it. I say that he is out of order, because it is practically discussing a resolution which was voted upon by this House of Delegates last Wednesday afternoon, and before any discussion is in order, that motion must be reconsidered.

DR. LITTLE: I am satisfied. I will ask, then, of course, that the previous motion be reconsidered, the one that was made last Wednesday.

DR. BUCKLEY: Did you vote in favor of it?

DR. LITTLE: No; nobody voted in favor of it, because we were waiting for these minutes, so that we would be absolutely sure that we were right.

DR. BUCKLEY: Is the motion seconded?

THE PRESIDENT: No. What is the motion?

DR. LITTLE: That the motion be reconsidered.

DR. BUCKLEY: I rise to a point of order. A motion to reconsider must be made by somebody who voted on the winning side. Dr. Little has not stated which side he voted upon.

THE PRESIDENT: Dr. Little said that he did not vote at all.

DR. LITTLE: I will say that there was no vote, because—

DR. BUCKLEY: I again rise to a point of order. Dr. Little is not stating the result of that motion. That is for the chair. I ask upon which side he voted.

THE PRESIDENT: Dr. Little did not vote on either side. Did you, Doctor?

DR. LITTLE: No.

DR. BUCKLEY: I rise to a point of order. His motion is out of order. It must be made by somebody who voted on the prevailing side, if you move to reconsider. I would like a ruling on that point of order.

THE PRESIDENT: That is correct. There is no motion before the house, Dr. Little. What is the next order of business?

DR. SCOFIELD: Mr. President, at our Minneapolis meeting two years ago the Minnesota Pharmaceutical Association, an association similar to the one whose representative we received this morning, had their representatives at our society meeting. At that time their delegates were received, and no further action was taken. It seems to me for many reasons, it is very desirable that these two associations work in harmony, especially during the legislative period. All legislative committees know the difficulties of combating bad legislation and getting good legislation through, and it has seemed to me that if we could co-ordinate these various medical committees of the different organizations of the state, it would assist very materially, and I now move that the incoming president of this association be instructed to appoint five persons as delegates to the State Pharmaceutical Association, as they have done with us, and that our legislative committee be instructed to endeavor to co-operate with other medical legislative committees in the furtherance of medical legislation.

Motion seconded and carried.

Upon motion duly made and seconded the meeting adjourned.

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## ORIGINAL ARTICLES

### THE EFFECTS OF UNDERFEEDING AND REFEEDING UPON THE GROWTH OF THE VARIOUS SYSTEMS AND ORGANS OF THE BODY.\*

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Minneapolis, Minn.

A few years ago, Waters ('08) made a remarkable discovery. He found that calves stunted by underfeeding continue to grow in height and width, even when the body weight fails to increase. Thus under these conditions the skeleton persists in growth at the expense of the remainder of the body, which becomes greatly emaciated. Aron ('10, '11) confirmed this result in dogs, finding that in puppies underfed for several months the skeleton, and apparently also the brain, continue to grow at the expense of the rest of the body. The loss was found to fall chiefly upon the fat and muscle, the viscera apparently undergoing but little change in weight. A few clinical observations by Variot ('07, '08), Freund ('09), Birk ('11), and Hess ('16) show a persistent tendency to increase in the length of the body in malnourished infants. This would indicate that the skeleton in young children likewise may continue to grow under conditions of chronic underfeeding or malnutrition with retarded or stationary body weight.

An extensive investigation of this matter was therefore undertaken in the Department of Ana-

tomy at the University of Minnesota in order to determine: (1) what changes take place in the various organs and parts of the entire body as the result of underfeeding; (2) whether the effects are different at different ages or with different degrees of inanition; (3) how the results on young individuals compare with those in adults subjected to acute or chronic inanition; and (4) how various periods of underfeeding the young, may affect their growth later when they are fully fed.

#### I. Effects of Underfeeding upon Growth in the Young.

The white (albino) rat was selected as the most convenient form for the experiments. It breeds rapidly and thrives in captivity. Its small size and rapid growth (reaching sexual maturity at 10 weeks, and adult size within a year) make it possible to obtain extensive data in a comparatively short time. The normal growth and variability of the rat and its various organs have also been worked out very thoroughly (chiefly by Donaldson, Hatai, Jackson and Lowrey), and normal growth tables by Donaldson ('15) are available for comparison. This is a matter of great importance, for the lack of knowledge concerning the normal structure and variability of the animal used frequently makes it very difficult to draw trustworthy conclusions from the results of experimental work.

The results of our investigations showing the relative changes in the weights of the component systems and organs are summarized in the accompanying table. The data are based upon the observations of Jackson ('15, '15a) and Stewart ('18). The relative changes in weight are indicated in percentages of increase (+), or decrease (—), in the weight of the organ or part

\*Presented before the Annual Meeting of the Minnesota State Medical Association, held at Duluth, Minn., Aug. 29 and 30, 1918.

Average Percentage Changes in the Weight of Systems and Organs in Albino Rats Underfed at Different Ages. Younger Normal Controls of Same Body Weight Used for Comparison, Excepting the Adult Rats, Where Controls of Same Initial Body Weight Were Used.

Organs	Young Rats						Adult Rats	
	Held at birth wt. av. 16 da. Body wt. 5 g. (Stewart '18b)	Underfed from birth to 3 wks. Body wt. 10 g. (Stewart '18)	Underfed from birth to 10 wks. Body wt. 15 g. (Stewart '18)	Underfed from age 3 to 10 wks. Body wt. 24 g. (Jackson '15a)	Underfed from age 3 wks. to 1 yr. Body wt. 52 g. (Stewart '18)	Underfed from 10 wks. to 8 mo. Body wt. 80 g. (Jackson '15a)	Acute Inanition Body loss 33% (Jackson '15)	Chronic Inanition Body loss 36% (Jackson '15)
<b>A. Systems.</b>								
Visceral Group	+ 46%	+ 28%	+ 38%	+ 1%	+ 1%	- 21%	- 40%	- 36%
Integument	+ 25	+ 0	- 48	- 36	- 11	- 16	- 31	- 39
Skeleton	+ 6	+ 19	+ 24	+ 28	+ 32	+ 0.2	- 0.4	+ 2
Musculature	+ 8	+ 8	+ 10	+ 3	+ 4	+ 25	- 31	- 41
Remainder	- 59	- 40	- 23	- 2	- 33	- 5	- 28	- 44
<b>B. Organs.</b>								
Testes	+374	+188	+ 51	+ 24	- 42	+ 2	- 30	- 40
Epididymis	+225	+ 95	- 6	-	- 32	-	-	-
Eyeballs	+146	+ 41	+ 66	+ 50	+ 73	+ 54	- 4	- 6
Brain	+125	+ 60	+ 8	- 0.5	+ 4	+ 0	- 5	- 7
Spinal Cord	+ 83	+ 70	+ 70	+ 36	+ 40	+ 36	- 0	- 4
Kidneys	+ 90	+ 21	+ 38	+ 4	- 6	- 7	- 26	- 27
Stomach-Intest.	+ 40	+ 17	+100	+ 28	- 27	- 26	- 57	- 57
Spleen	+ 38	- 49	+ 24	- 42	- 5	- 1	- 51	- 29
Hypophysis	+ 29	+ 33	+ 24	+ 18	- 3	- 6	- 26	- 25
Heart	+ 26	- 5	+ 27	- 1	- 10	- 6	- 28	- 33
Ovaries	+ 5	+ 83	+ 54	- 27	+ 17	- 54	+ 22	-
Suprarenals	+ 5	+ 60	+114	+ 26	+ 48	- 26	+ 2	- 9
Thyroid	+ 8	+ 5	+ 4	- 24	- 36	- 62	- 0	- 22
Lungs	+ 3	- 26	- 26	- 15	+ 28	- 13	- 31	- 40
Liver	- 23	+ 17	+ 64	+ 10	- 7	- 39	- 58	- 43
Thymus	- 49	- 30	- 80	- 90	- 90	- 90	-	-

in comparison with its weight in a normal animal of the same body weight. For the adult rats with acute or chronic inanition (last two columns), the normal organ weight at the initial body weight, at the beginning of the experiment, is used as a basis for comparison. So far as possible, normal controls were taken from the same litters as the test rats.

The first column in the table shows the average changes in a series of 15 rats (8 males, 7 females) held at birth weight (about 5 grams) by underfeeding up to 11 to 22 days of age, the average being 16 days. The rats were retarded in growth during this period by removing them from the mother for various successive periods to prevent nursing. Normally during this period the rats would more than treble their body weight, so the repression of growth is very severe. In the human species, it might be compared with an underfeeding sufficient to hold the newborn infant at birth weight for about a year (the time normally required to treble the birth weight).

The second column indicates the relative changes in a series of 7 rats (4 males, 3 females) similarly underfed from birth to 3 weeks of age. In this case, however, the underfeeding,

though extending over a slightly longer period, was somewhat less severe. The rats were allowed to increase slowly in body weight from about 5 grams to 10 grams. Normally they would reach 20 to 25 grams in the same period. Another series of rats (not given in the table) was underfed from birth to 6 weeks, the body weight increasing to about 13 grams. The results were in most cases intermediate between those of the second and third columns.

The third column indicates the changes in a series of fourteen rats (seven males, seven females) in which the underfeeding extended from birth to 10 weeks of age. After the weaning period (age of 3 weeks) the young were fed restricted amounts of bread and milk. They slowly increased to 15 grams in body weight, the normal at 10 weeks being more than 100 grams. In the human species, this would be roughly comparable to a child about 12 years of age stunted by underfeeding from birth so as not to exceed the normal weight of an infant at 1 year of age, or about 20 pounds.

The fourth column indicates the average results in a series of 19 rats (8 males, 11 females) in which the experiment did not begin until the rats were weaned at 3 weeks of age, with an

average body weight of about 24 grams. They were then held at constant body weight by underfeeding up to the age of 10 weeks.

The fifth column indicates the results in a series of 4 rats (2 males, 2 females) in which the underfeeding likewise began at 3 weeks, but extended over a much longer period, more than a year. It was impossible to maintain the rats alive at constant body weight for so long a period, the minimum of 52 grams representing an increase to about double that when the experiment began at 3 weeks. In human terms, this would correspond roughly to an adult dwarfed by underfeeding from infancy so that the body weight would not exceed that of a five year old child.

Another series of 6 rats (4 males, 2 females) were underfed from 3 weeks to about 10 months, permitting the weight to increase slightly more, the average final weight about 77 grams. The results (not included in the table) were in most cases similar and intermediate between those of the fifth and sixth columns.

The sixth column indicates the results in a series of 4 rats (3 males, 1 female) underfed at a later period, beginning at the age of 10 weeks and held at nearly constant body weight up to the age of about 8 months, the final body weight averaging about 80 grams. This in the human species would correspond to a period extending from the age of puberty nearly to adult age. For this group of rats direct controls were not available. They were compared with Donaldson's norms for the same body weight.

The last two columns indicate the change in weight of the various systems and organs in adult rats subjected to inanition. The acute inanition group included 15 rats (11 males, 4 females) averaging about 250 grams initial body weight. They were given water only for 6 to 12 (average 9) days, and were killed and autopsied with loss in body weight ranging from 25 to 39 (average 33) per cent. The chronic inanition group (6 males) were fed gradually decreasing amounts, so as to lose an average of about 36 per cent in body weight in about 5 weeks. As previously stated, the changes during adult inanition are reckoned on a basis somewhat different from that used for the younger rats, but the results are interesting for comparison.

We may now consider the individual systems and organs at various ages and under different degrees of inanition as shown in the table. The first part of the table ("A. Systems") gives the component systems: visceral group, integument, skeleton, musculature and "remainder"; while the second part ("B. Organs") includes the various organs of the visceral group.

**Skeleton.**—First, it may be noted that the data for the skeleton in every case indicate a persistent growth for this system in the stunted young rats. Their body length, and especially their tail length, in all cases markedly exceeds that in the normal controls of the same body weight. The figures given in the table are for the weight of the entire ligamentous skeleton, but the cartilaginous skeleton shows a similar increase. The dried skeleton shows a much greater relative increase, indicating that the solids are increasing relatively, as happens in the normal development of the bones. That the persistent growth of the skeleton in the undernourished body in these cases involves the normal process of ossification is likewise indicated by the appearance and union of various centers of ossification. The cartilage of the external ear shares in the persistent growth and the third molar teeth develop during the period while the increase in body weight is inhibited by underfeeding.

In the young rats held at birth weight, the skeleton and musculature were not separated. Their combined weight, however, indicates an average increase of but 6 per cent, which is much smaller than that for the succeeding periods. This suggests that during severe inanition immediately after birth the skeleton growth may be inhibited to a greater extent than later. This is rather surprising, since the normal growth rate of the skeleton is relatively greatest in the first week after birth (Jackson and Lowrey '12). The marked inhibition of skeletal growth in the first group may be due to the greater severity of the underfeeding, however, as in the second group with a less restricted growth over a slightly longer period the skeletal increase (average 19 per cent) is much greater. Freund ('09) and Birk ('11) likewise noted that malnutrition in the human infant retards growth in body length more in the newborn than at later periods. The data in the table

also indicate that the skeletal growth is feebler (practically at a standstill) in the rats underfed at a late period, from 10 weeks to 8 months of age. This is perhaps because the skeleton has in this case largely completed its growth before the inanition began. At any rate the conclusion of Waters ('08) and Aron ('10 '11) that the growth impulse during underfeeding is strongest in the skeleton apparently does not apply to the earliest postnatal periods, in which the growth is stronger in the integument and visceral group, nor to the later, adolescent period, where it appears stronger in the musculature. In adult rats, the skeleton remains nearly constant in weight during inanition, as shown in the table.

In general, the results are of clinical interest because they indicate that the growth impulse of the skeleton is especially strong during infancy and childhood, and tends to persist even in conditions of chronic malnutrition which prevent or greatly retard increase in body weight. Whether the same rule applies in conditions other than simple inanition, we do not know. It would in any event appear to be very desirable to have clinical records kept of the body length as well as of the body weight under such conditions. Cases in which the length of children remains stationary for any considerable period show a much more profound disturbance of the fundamental processes of growth, and should usually be considered much more serious than those in which merely the body weight is involved.

**Musculature.**—The changes in the weight of the musculature differ from those of the skeleton in showing generally but a slight increase during the various inanition periods. The conditions are reversed, however, in the later period of underfeeding beginning at 10 weeks. Here there appears a marked increase (average 25 per cent) in the weight of the musculature, although the skeleton apparently remains nearly stationary. Here the difference may depend upon the normal growth tendency, which at this period is much stronger in the musculature than in the skeleton (Jackson and Lowrey '12). In the adult, both acute and (especially) chronic inanition produce marked loss in the weight of the musculature, in which the loss is roughly pro-

portional to that in the weight of the entire body.

**Integument.**—The integument differs from the skeleton and musculature in that it generally shows a marked loss in weight in the young rats during underfeeding. The loss appears relatively greatest, averaging 48 and 36 per cent, in the two middle groups. At the later periods the loss is relatively smaller. In the group underfed from birth to 3 weeks, however, the integument remained about stationary, while in the first group, held at birth weight, the integument gained an average of 25 per cent in weight. As shown by Jackson and Lowrey, the normal rate of growth for the integument is relatively greatest during the first week after birth, which perhaps may explain its strong tendency to grow at this early period even under very unfavorable nutritive conditions. The loss in the weight of the integument during adult inanition is marked, and nearly proportional to that of the body weight. In this case, and in the later periods for the young rats, the loss in weight of the integument is doubtless largely due to loss of fat. The loss in the integument and musculature throws the more resistant skeleton into great prominence, giving the characteristic picture of emaciation of the body.

**Visceral Group.**—The visceral group as a whole varies remarkably in growth tendency according to the age at which the underfeeding period begins. The growth tendency appears strongest in the three younger groups, in which the experiments began at birth. It is most striking in those held at birth weight for an average of 16 days, the visceral group meanwhile increasing 46 per cent in weight. In the other two younger groups, the average increase is 28 and 38 per cent.

In the next two groups, the underfeeding beginning at 3 weeks of age, the visceral group has apparently lost its earlier growth impulse, and is now barely able to hold its own weight. The results at these two periods therefore agree with those of Aron ('11) in puppies stunted by underfeeding. In the rats beginning the experiment later at 10 weeks, however, there is a definite loss (average 21 per cent) in the visceral group. Thus as age advances the conditions tend to approach those of the adult rat,



in which there is in the visceral group during acute or chronic inanition a marked loss in weight, roughly proportional to that in the weight of the entire body. As will be seen later, however, the individual viscera are by no means uniform in their weight changes during inanition, the present result being merely the average for the whole group and being determined principally by the weight of the larger organs, especially of the liver.

**Remainder.**—The “remainder” in the table is the difference between the net body weight (excluding intestinal contents) and the combined weight of the skeleton, musculature, integument and viscera. It includes, in addition to loss by evaporation, certain small unweighed organs, together with the interstitial tissues and fluids, and the blood escaping from the organs at autopsy. This “remainder” is somewhat variable in amount, but is relatively largest in the new born (about 21 per cent of the body weight, according to Jackson and Lowrey), which is very rich in interstitial fluids. From one week of age the “remainder” normally averages 12 or 13 per cent of the body. In the table it will be noted that the “remainder” always decreases during inanition, although the amount varies at the different periods. The loss appears greatest (average 59 per cent) in the first group, held at birth weight, decreasing in the succeeding groups. In adult inanition the loss appears much greater in chronic inanition (44 per cent) than in acute inanition (28 per cent), due perhaps to a greater loss of fat in the former case.

Where the body weight remains constant, or where controls of the same final body weight are taken, it is evident that the increase in some parts should be offset by a corresponding decrease in others. Thus the gains in the visceral group, integument, skeleton and musculature in the first two series are counterbalanced by loss in the “remainder.” (Some apparent discrepancies in the results are due to experimental error, individual variations and lack of corrections for differences in body weights between test rats and controls.) At later stages, the gains in the skeleton and musculature are offset by losses in the integument and “remainder” and (in the last series) in the viscera. In the skeleton, the visceral group, and, to a cer-

tain extent, the integument, the conditions in the losses of the various systems in young rats at successive ages tend progressively to approach those found in adult rats with acute or chronic inanition. This rule apparently does not apply to the musculature or the “remainder,” however. In addition to the changes in growth reactions during underfeeding at different ages, there are evidently marked differences according to the severity of the underfeeding. This is evident by a comparison of the results in the first two columns, in which the age was nearly the same, but the extent of the repression in body weight quite different. Likewise in adults the results differ somewhat in acute and in chronic inanition.

**The Individual Organs.**—As shown by part “B” of the table, the individual organs of the visceral group vary to an extraordinary degree in their growth reactions during the underfeeding experiments. This applies not only to the various individual organs, but also in most cases to the same organ at different age periods and in different degrees of inanition. In the table, the organs are arranged in decreasing order of their growth tendencies in the first group, held at birth weight.

The testes show a most remarkable growth capacity in the earlier experiments. While the body is held at birth weight by underfeeding for 16 days, the testes gain an average of 374 per cent in weight. This extraordinary growth rate is less marked in the later periods, the gains being successively 188 per cent, 51 per cent and 34 per cent. In the long underfeeding experiment, extending from three weeks to a year of age, the testes decrease 42 per cent in weight, while in the group underfed beginning at ten weeks there is little change in their weight. In adult inanition, the testes suffer a marked loss in weight, roughly proportional to that of the entire body. The changes in the weight of the epididymis appear in general similar to those of the testes, though not so great. The data for the epididymis are less complete, however.

The eyeballs also exhibit a remarkable tenacity of growth during the underfeeding experiments. Although the increase of 146 per cent during the first period (maintenance at birth weight) is somewhat less than that of the

testes and epididymis, the growth impulse is more persistent and continues in marked degree. The increase throughout the various subsequent periods varies from 41 to 73 per cent. During adult inanition the eyeballs, like the skeleton, are very resistant, losing only 4 to 6 per cent in weight.

The **spinal cord** exhibits during the various periods of underfeeding a persistence of growth which is very similar to that of the eyeballs, though the increase is relatively less at most periods. The **brain** likewise has a very marked increase (125 and 60 per cent) in the first two groups, but its growth impulse rapidly declines so that it remains nearly constant in weight during the succeeding experimental periods. Stewart ('18a) has further shown that in the persistent growth of the brain in the very young underfed rats, the various parts tend to assume their normal weights, so the brain segments remain normally proportioned. Both the brain and spinal cord are also very resistant toward adult inanition, the loss in no case exceeding an average of 7 per cent.

The **kidneys** behave in a manner which may be considered typical for the viscera. They show a marked increase (average 90 per cent) in weight during the first period. In the next two periods the increase continues, but at a diminished rate (21-28 per cent). During the succeeding periods there is at first a slight increase (4 per cent), later a slight decrease (6-7 per cent). During adult inanition the kidneys lose considerably in weight, but somewhat less than the body as a whole.

The empty **alimentary canal** (including the stomach and intestines, with mesentery) exhibits the same tendency as the visceral group in general, with an increase in the earlier periods and a decrease later. The average increase in the second group appears rather small (17 per cent) and in the third group rather large (100 per cent), which may possibly be due to abnormal variations in the test rats or controls. During adult inanition, the loss in weight (57 per cent) is very pronounced, exceeding that in the body as a whole. The contents of the canal are also greatly decreased during adult inanition; but after the age of weaning (3 weeks) in the younger test rats the contents are usually

much increased, probably due to the large amount of water taken.

The **spleen** is very irregular in its apparent tendencies, the first four groups showing alternating periods of increase and decrease. In the fifth and sixth periods the decrease is very slight. There is a marked decrease during adult inanition, especially in the acute inanition group. The irregularity of growth in the spleen during inanition recalls the fact that it is normally one of the most variable organs of the body (Jackson '13).

The **hypophysis** exhibits a typical series of reactions during underfeeding, with a definite increase during the earlier periods and a slight decrease later. There is apparently a sexual difference in the weight of the hypophysis, which (together with the histological changes) is discussed in a paper by Jackson ('17).

The **heart** likewise shows a typical series of growth reactions, with a marked tendency to increase in the earlier periods, and a slight decrease later. The small apparent decrease in the second group is possibly abnormal. During adult inanition the loss in heart weight is nearly proportional to that of the entire body.

The **ovaries** exhibit a great irregularity of growth during underfeeding. There is apparently a slight average increase (5 per cent) in the first group, a very marked increase (83 per cent) in the second group, with alternating periods of increase and decrease in the succeeding groups. These irregularities may be in part due to variations in the sexual cycle, which probably account for the excessive variability found in the normal weight of the ovaries (Jackson '13). In this connection, it may be noted that severe inanition completely prevents the normal sexual functions. The young rats (males and females) do not mature sexually during the underfeeding periods, and the females are rarely able to breed when fully re-fed later, even when mated with normal males.

The **suprarenal glands** exhibit in general a definite tendency to increase, which appears slight (average 5 per cent) in the first group increasing to its greatest intensity (114 per cent) in the third group. In the fourth and fifth groups the increase is smaller, and in the sixth group there appears an actual decrease (26 per cent). The suprarenals are remark-

ably resistant toward adult inanition, losing little or none in weight. There is also a sexual difference in the weight of the suprarenal which (together with histological changes) is discussed by Jackson ('19).

The **thyroid gland** increased slightly in the first group, and shows a slight tendency to increase (4.5 per cent) in the second and third groups, with a progressive tendency to decrease in the later periods. In adults there appears to be no loss in the thyroid weight in acute inanition and only a moderate loss (22 per cent) in chronic inanition. The histological changes in the thyroid and parathyroid glands have been described in detail by Jackson ('16).

The **lungs** show a weaker growth tendency than any of the organs hitherto considered. There is an insignificant increase (average 3 per cent) in the first group, with an apparent decrease, varying from 13 to 26 per cent, in all the succeeding periods, excepting the 3 weeks to 1 year group. It is possible that the apparent increase of 26 per cent in this group is abnormal, as lung disease is very common in the older rats. During adult inanition, the loss in lung weight is roughly proportional to that of the whole body.

The **liver** exhibits a course somewhat parallel with that of the alimentary canal, but upon a lower plane of growth impulse. In the first group, there is a definite loss of 23 per cent (average). In the second group, there is a gain of 17 per cent, which increases to a maximum of 64 per cent in the third group. The growth tendency later wanes, showing in the successive groups a gain of 10 per cent and losses of 7 and 39 per cent. In adult inanition the liver loses heavily in weight, especially in the acute inanition group (58 per cent).

The **thymus** at all stages shows a great loss in weight, in accordance with its well known tendency to atrophy during inanition ("hunger involution"). In the experiments beginning at three weeks or later, the thymus loses 90 per cent in weight. This extreme loss during inanition is paralleled only by that of the adipose tissue.

### Discussion.

The growth tendencies of the various organs and systems during inanition at various periods may be compared with the normal growth rates,

as worked out by Jackson and Lowrey ('12) and Jackson ('13). In the first place it may be noted that the normal growth rate in the body as a whole is relatively much greater at first, decreasing as age advances. In the rat, for example, the body weight is normally doubled during the first week after birth. To double it again requires a period nearly twice as great, and for the third doubling a period fully three times as great. Thereafter the relative growth rate gradually decreases to zero in the adult.

The normal growth rate also varies in different parts of the body. The head of the rat is relatively larger in the earlier periods, and the tail smaller. The musculature is at first relatively small, forming only 23 to 24 per cent of the body weight during the first postnatal week, the proportion gradually increasing to about 45 per cent in the adult. The skeleton, on the other hand, is relatively largest in the first week, decreasing from 17 or 18 per cent then to about 11 per cent of the body weight in the adult. Similarly the integument, which increases from 20 to 26 per cent of the body weight between birth and one week of age, thereafter decreases relatively to about 18 per cent in the adult. The visceral group as a whole increases slightly from 18 per cent of the body in the newborn to about 21 per cent of the body weight at three weeks, thereafter decreasing steadily to about 13 per cent in the adult.

Of the individual viscera, the thyroid gland is apparently relatively largest at birth, the brain, spinal cord, eyeballs, lungs and spleen at the second week, the thymus, heart, suprarenals and kidneys at three weeks, the alimentary canal and liver at about six weeks, and the gonads at about ten weeks of age. These varying degrees of relative growth under normal conditions correspond only in part with the changing growth reactions of the organs during underfeeding. In general, the various systems and organs apparently tend to grow most strongly during underfeeding at approximately those ages when they normally reach their maximum relative size. This tendency is more or less evident in the systems,—integument, musculature and visceral group as a whole. In the individual organs, the same rule would apply especially to the suprarenals, thyroid (?), liver

and alimentary canal; and to a certain extent to the eyeballs, brain, spinal cord, heart and kidneys. The gonads, lungs, thymus and spleen apparently form exceptions, however. Some of the discrepancies may be due to differences in the length and severity of the various underfeeding periods, rather than the different ages at which they occur.

It is likewise evident that the tendencies to growth of the various parts during underfeeding of the young at various periods differ more or less from the tendencies of the corresponding parts to lose weight during adult inanition. It is true that some organs (skeleton, eyeballs, brain and spinal cord) which have a very persistent growth tendency throughout the younger periods of underfeeding have also a strong resistance to inanition in the adult. But there are many exceptions, especially in the earlier periods. In general, the resemblance to adult inanition increases with the age of the younger rats. It is, however, not surprising that the results of inanition should differ according to age, since the younger tissues have strong tendencies to both growth and maintenance, while in the adult only the tendency to maintenance remains.

It should moreover be emphasized that these experiments apply merely to simple inanition due to feeding restricted amounts of a wholesome, balanced diet. It is altogether probable that different forms of inanition, due to incomplete or unbalanced rations, would produce more or less different results in the various systems and organs. This, however, is an unknown field of research for future exploration.

## II. Effect of Underfeeding upon Subsequent Growth during Refeeding.

Another question which arises concerns the permanence of the effects of inanition upon the growth of the young. To what extent is recovery possible upon later full refeeding? Aron ('11) found that a puppy fully refed after a year of underfeeding became very fat and increased considerably in weight, but not in stature. The growth of the skeleton appeared permanently stunted. In some later experiments on underfed rats, Aron ('14) found that they grew rapidly upon refeeding, even after growth had been repressed up to the age of 280

days, when normally the adult size would have been nearly attained. If the underfeeding period was not too extensive, the rats when fully refed finally reached their full normal size and weight. But if the underfeeding was prolonged beyond 50 to 150 days, the rats upon refeeding failed to reach their normal size and weight, thus remaining permanently stunted or dwarfed. Aron therefore concluded that full recovery upon refeeding is possible only when the retardation of growth has not extended beyond the time of the normal active growth period. He found that growth is likewise retarded by qualitative deficiencies of diet, with subsequent recovery upon normal refeeding. A proteid-poor diet appeared to affect more deleteriously the subsequent growth upon refeeding than did a corresponding degree of underfeeding with restricted amounts of a normal diet.

Brüning ('14) found that young nursing rats underfed by removal from the mother for successive periods are greatly retarded in growth. The body weight was not fully recovered upon subsequent full feeding, but the experiment was not continued long enough to determine whether the effect was permanent.

Osborne and Mendel ('14, '15), on the other hand, in an extensive series of experiments upon the growth of rats with various inadequate diets, find a remarkable capacity for full recovery upon proper refeeding, even after growth has been suppressed for periods of time (up to 550 days) far beyond the normal growth period. They claim that the capacity to resume growth does not depend upon the size or age at which the inhibition of growth is effected and state that: "It is now reasonable to ask whether the capacity to grow can ever be lost unless it is exercised." Several cases are presented to support this conclusion, chiefly those in which growth was retarded by qualitatively deficient (inadequate protein) diet. In one case, however, a female rat in which growth was repressed by "limited quantity of food," the body weight of 53 grams at 39 days reached only 59 grams at 513 days. Rapid growth ensued upon full refeeding, the body weight reaching 220 grams (which is above the usual normal maximum) in about 130 days. Unfortunately no direct controls from the same lit-

ters were kept. It is admitted that "resumption of growth has not been as perfect in every instance as in the typical records here presented," but positive results are considered more valuable, since failure may be due to various causes.

These striking results of Osborne and Mendel are very surprising and contrary to the prevailing belief that severe and prolonged underfeeding affects unfavorably the subsequent capacity for growth. On account of the fundamental importance, both theoretical and practical, of the principles involved, a very extensive and careful investigation of the subject was undertaken by Stewart. Forty-six litters of albino rats were used, including over 300 individuals. So far as possible, normal controls for each sex were kept for every litter. All were kept under the same conditions, excepting the amount of food (graham bread soaked in whole milk) allowed the test rats. In experiments before the weaning period, the test rats were underfed by removal from the mother at successive periods. Water (city supply, from the Mississippi river) was allowed *ad libitum* in all cases. The experiments have extended over a period of nearly three years. In order to determine the internal changes, complete autopsies with weights of the organs and systems were made upon normal controls as well as upon test rats after various periods of underfeeding and at the end of subsequent refeeding experiments.

The experiments may be divided into three groups as follows:

Group 1. Rats underfed from birth to three weeks (8 litters), four weeks (1 litter), six weeks (5 litters), ten weeks (6 litters), and eleven weeks (1 litter); all being subsequently fully refed for periods usually up to one year or more. The underfeeding was severe, the body weight of about 5 grams at birth being restricted so as to reach only about 10 grams at three weeks (the normal being 20 grams or more; 13 grams at six weeks (normal about 50 grams) and 15 grams at 10 weeks (normal 100 grams or more).

Group 2. Rats underfed at maintenance (constant body weight) beginning at the age of three weeks and extending to the age of four, six and ten weeks (3 litters), and twelve weeks

(3 litters), with subsequent refeeding for various periods. In addition, two litters were subjected to alternating short periods of fasting and ample feeding. In general, the effects of the underfeeding were less pronounced in this group than in the others, the experiments beginning at a later age than those in the first group, and being less prolonged than those in the third group.

Group 3. Rats underfed from the age of three weeks to four months (1 litter) or to about one year of age (13 litters) and then fully refed until the maximum growth capacity was determined.

The experiments in group 2 were completed first, and the results published (Stewart '16). In general, there was obtained upon refeeding an increase in body weight even more rapid than the normal (for the same initial body weight at the earlier age), so the underfed rats upon refeeding sooner or later overtook the controls. This is shown clearly in the growth curves, the only possible question being in the males refed after seven weeks of maintenance, which seemed to lag slightly behind. These results therefore tend to confirm those of Osborne and Mendel, showing that underfeeding the young for considerable periods may not affect their capacity for later growth upon ample refeeding.

Stewart also found that not only the body weight, but also the weights of the various components organs and parts, which have been disturbed by the process of underfeeding, in this group of experiments rapidly regain their normal relative weights, usually within a period of four weeks.

Quite different results, however, were obtained in the first and third groups, in which the experiments have just been completed, the results being hitherto unpublished. In the first group, the underfeeding began at birth. In those refed after reaching the age of three weeks, the body weight reached that of the controls in only a few exceptional cases. Even in these cases, the result was apparently due to some unhealthy condition which prevented the control rat from reaching the usual normal growth in body weight. *In no case in which the underfeeding from birth was prolonged beyond three weeks did the test rats upon ample re-*

*feeding reach the maximum body weight of the normal controls in the same litter!*

The following cases may be cited as typical for the first group:

Litter No. St 122. Five males and four females. One of each sex full fed for controls. Remainder underfed from birth to three weeks, with increase in body weight from about 6 grams to 10.7 grams; then fully refed. Of the seven test rats, five died at various periods. Of the two survivors, one male (No. 8) reached a maximum body weight of 230 grams, and one female (No. 1) reached 208 grams. The normal control male (No. 2) reached 345 grams, the female (No. 6) 248 grams.

Litter No. St 71. Four males and four females. The males all died during the experiment. Of the females, the full fed control (No. 7) reached a maximum body weight of 175 grams. The three test females were underfed from birth (body weight 6 grams) to six weeks of age (body weight 13 grams), two of the rats dying during the experiment. The survivor (No. 2) reached a maximum body weight of 158 grams upon refeeding.

Litter No. St 76. Six males and five females. All the females and three males died during the experiment. Two full fed control males (No. 6 and No. 8) reached maximum body weights of 280 and 310 grams, respectively. One test male (No. 7) was underfed from birth (at 6.8 grams) to six weeks of age (15.6 grams) and then fully refed, reaching a maximum body weight of 171 grams.

Litter No. St 65. Seven males and five females. Two controls were fully fed, one male (No. 6) reaching a maximum of 217 grams and one female (No. 16) 196 grams body weight. The ten test rats were underfed from birth (weight about 5 grams) to ten weeks of age (body weight about 15 grams) and then fully refed. Of three survivors, one male (No. 4) reached a maximum of 158 grams, one male (No. 9) 138 grams and one female (No. 2) 117 grams body weight.

In the third group experiments, in which the underfeeding began (as in the second group) at three weeks of age, but was prolonged over longer periods, up to the age of four months to about one year, the results were even more striking than in the first group. *In not a single*

*case did the maximum body weight upon refeeding reach that of the normal controls in the same litter!*

The following may be cited as typical cases from the third group:

Litter No. S 33. Four males, six females. Of the two fully fed controls, one male (No. 117) reached a maximum body weight of 320 grams and one female (No. 116) reached 233 grams. The eight test rats were underfed from the age of three weeks (body weight about 20 grams) to age of four months (body weight about 36 grams). Four of the test rats died before the refeeding began, and one shortly afterward. Of the three survivors, two males (Nos. 118 and 119) reached maximum body weights of 233 and 236 grams, and one female (No. 120) reached 162 grams.

Litter No. St 29. Four males and seven females. Of the two controls, one male (No. 167) reached a maximum of 290 grams, one female (No. 169) 184 grams in body weight. The nine test rats were underfed from the age of three weeks (body weight about 21 grams) to the age of eleven months (body weight 36 to 59 grams). Five of the test rats were now dead, and two more died shortly after refeeding began. Of the two survivors, one male (No. 172) reached a maximum body weight of 157 grams, and one female (No. 166) reached 129 grams.

More complete details concerning the results, together with a consideration of the individual organs and parts, will be published separately.

It, therefore, appears that the suppression of growth in young rats affects their subsequent capacity to grow according to the age of the rats and the length and severity of the underfeeding. After the age of weaning (three weeks) the rats may be held at maintenance (constant body weight) by underfeeding for several weeks, with prompt recovery of the normal maximum body weight upon refeeding. A similar period of underfeeding beginning at birth, however, results in a permanent stunting of the body, which is incapable of recovery. The same is true of rats underfed beginning at three weeks of age, in cases where the underfeeding is prolonged over several months. In general, it appears that the injurious effect is inversely proportional to the age of the animal and di-

rectly proportional to the length of the underfeeding experiment.

These results, therefore, tend to confirm the conclusions of Aron and Brüning, opposing those of Osborne and Mendel. The more favorable results of the latter may be due, in the first place, to the difference in the method of underfeeding. It is quite possible that various inadequate protein diets fed in abundant amounts might have less injurious effects upon subsequent growth capacity than does the feeding of restricted amounts of a balanced ration, though Aron reached the opposite conclusion.

The apparently different results may also be explained in another way. Individual rats (and perhaps individual strains) vary greatly in their resistance toward inanition. In Osborne and Mendel's experiments, it seems that a few individuals were able to maintain their capacity for growth under conditions which would in most cases produce permanent stunting. To what extent this is true in their experiments is uncertain, since they do not state the total number of test animals from which the successful cases were selected. In our experience, as noted above, a large percentage of the animals die during the severe underfeeding experiments, either directly from inanition or indirectly through lowered resistance to disease. Practically all of the survivors are permanently stunted in their ultimate capacity for growth, although some upon autopsy reveal no evident disease. There seems no escape from the conclusion that while a considerable degree of inanition may be followed by prompt and complete growth recovery upon ample refeeding, more severe and prolonged underfeeding, especially in very young individuals, reduces materially their capacity for subsequent growth.

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### PROBLEMS OF INFECTION.\*

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The chemistry of the world's activities is developed through the functional activity and protoplasm of the cell. The first forms of life, unicellular organisms, are lawless in their growth, multiplying without limit as food and environment are secured, either living together, or the stronger destroying the weaker. The common type of microbe lives on the weaker animal, on the plant, and even on inorganic life, completing its existence from lack of food or the resistance of the host, it then dries into spore form to again spring into action under suitable conditions. The lawless existence naturally, in unicellular organisms is in marked contrast to orderly multicellular life. When the multicellular organisms appeared, true death entered the world. Under necessary control of growth and function, through community existence, they became the prey of the unicellular organism. We should not complain of the adverse action of a few of these organisms, because through cell action occurs the evolution of the world, and the ill effects of certain germs under abnormal and usually preventable conditions may be far outweighed by the other factors of their existence.

If the countless numbers of unicellular organisms are considered, many so small as to require the highest power of the microscope,

and many of whose existence we know and have failed as yet to identify, it will be found that few in proportion to the total number are destroying agents. The greater part of the disease germs will be under the control of man's intelligence, if he has the power to enforce the preventive measures known to the world today. It is through such measures applied in earlier years of life, that during the last thirty years the life of man has been lengthened appreciably. The microbes causing disease in man eventually bring about a period of his life in which sudden death occurs from affections of the heart, brain and kidneys, between the ages of 52 and 62, as we have in no way changed middle age or advanced many more persons into old age. Death which is not accidental is due to the effects of the action of microbes, a result that may be acute and sudden or chronic and slow in its termination.

The contagious character of various diseases has been appreciated for untold ages, and it has been known that certain of these brought about some change in the individual which rendered him immune to a second attack of the disease. The first disease for which a vaccine was developed was that of smallpox, and, while it was used in China and India long ago, it was first used in Europe in Belgrade, and was given to the English-speaking people by the discoveries of Jenner.

A study of the blood in disease, as varying from its condition in health, and the action of its cells in developing antibodies capable of transmission, has been of wonderful value to mankind, since through this study, acute diseases that have an immunity are reduced in morbidity and mortality by increasing the resistance of the patient, as in tetany, typhoid, paratyphoid, typhus, etc. Many of the diseases that formerly decimated mankind have been almost driven from the earth.

It is because of this wider knowledge of medicine that it has been possible to continue the present war without the destruction of the enormous armies by diseases which, if carried to them, would long since have brought the war to an unsatisfactory termination.

We find, then, that there is developed in the blood stream in acute diseases and fevers, an immunizing agent. On the other hand, with

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certain diseases, there is in some place in the body, a small foci of bacteria continually maintained, developing not an immunity but an anaphylactic reaction, breaking down, instead of elevating the resistance of the patient against the germ, by the constant supply of microbes or microbe toxin. Such persons are subject to recurring colds on the slightest provocation, recurring neuralgias, recurring myositis, muscular rheumatism, lumbago, etc. It has been enough in the past for the patient to say he is subject to such trouble, and for the doctor to make local applications and allow time to complete the cycle of improvement until, from any cause, lowered body resistance again renders the liability to an attack,—and any part once affected by microbes becomes more liable to repeated attacks.

We have also protein poisoning. Many persons are unable to eat various grains or berries, milk, fish, etc., which cause them to develop asthma or chronic diseases of the respiratory tract, or of the mucous membrane or skin, shown by local swelling, diarrheas or eczema.

There are but few places in the body in which man quite regularly carries bacteria; they are always in the mouth, often in the tonsil, and about the teeth in pyorrhœas, alveolar abscesses, and buried crypts of tonsils. All tonsils capable of reacting to infection are of good size, 3 or 4 on the scale of 4, and are usually not the cause of chronic disease, but of strictly local involvement, and, when inflamed temporarily, develop systemic disturbances. A decision as to the real condition is most difficult for many physicians who have but recently come to a knowledge of the danger of a focus in these cases not realizing that the blood stream is the carrier of the infection. In such cases the localizing trouble in the sciatic nerve or in the joint did not begin there, but arose from the existence of bacteria in a minute pocket, and if that pocket is under tension, the disease is essentially chronic and recurring. The physician examines the throat and says the tonsils are not inflamed or that they are graded 1 or 2 in size and cannot be the source of the trouble. We must learn that the dangerous tonsil, as a carrier of disease, is the one that is classified 1 or 2, without any effects of local inflammation

on its surface. The teeth through disease are often local foci of infection, and the X-ray has been of inestimable value in determining the presence of alveolar abscesses, absorbed roots, or absorbed bone about the roots. The findings are striking, when positive, but many such pockets do not show in an apparently good X-ray picture. The dangerous tooth is a crowned tooth, and if it is necessary from the seriousness of chronic, recurring diseases which affect the heart, as a myocarditis, the kidneys, joints or nerves, then small tonsils must be removed, and teeth most carefully inspected, rayed and when diseased extracted on the basis of symptoms, should they be of major importance. Endarteritis and overgrowth of bone about the joints, including the hip and spinal vertebra, are also associated with minor types of bacteria, which are probably in pockets, or in open surface infections not under tension. Are they the cause of such infection or do they find here a home? We have far less fear of bacteria where nature holds them loosely; the dangerous ones are usually under tension and in small areas, although we must now come to the acceptance of the fact that the blood in apparently healthy persons often contains microbes.

In almost every conceivable place in our bodies, with almost no evidence of it, are living and growing the ameba, the syphilitic spirochete, the hookworm and other germs too numerous to mention, and often apparently doing no more harm temporarily than trout in spring water. In many of us a little blood drawn and time given for growth will show some kind of microbe to be present. We have wandering leukocytes with almost the power of animals to leave the blood stream and forage for material dangerous to life, and then return to the circulation. The stomach does not destroy all the bacteria taken into it; some may pass into the blood by the chyle duct and probably more commonly enter the blood stream by way of the portal circulation, when they are destroyed in the liver. No matter how well our food is prepared the germs in the mouth are carried on into the stomach, and after all food has left it, there are numerous bacteria living in the gastric juice in the majority of persons. The dangerous varieties of bacteria are those of the

acid type, while the alkaline type are nuisances.

Next in importance to the microbe, from a biologic standpoint, is their environment in the chemical fluids of local areas. This is similar to the results obtained from seeds planted or blown on different soils. They may be planted to no purpose on the wrong soil, and they may be blown everywhere to take growth to advantage in proper environment. Bacteria carried throughout the body by the circulation are able to take up local growth only when carried to that area. This accounts for the specificity of bacteria in their location causing acute and self-limited diseases, or chronic recurring or relapsing diseases. The acidity, the oxygen tension and the condition of the general health, or local injury, may all be factors. Some forms will grow only in a certain place, as poliomyelitis in the fluid of the brain and spinal cord, others in the sheath of nerves, the first causing acute conditions, self-limited, and the latter, recurring neuritis. Thus we have rheumatism appendicitis, gall-bladder inflammation, ulcers of the stomach, and valvular diseases of the heart; in fact nearly all the local and general diseases of which we have knowledge, are in this manner produced, yet often the foci cannot be found. The question is, can a temporary focus develop a condition which is self-contained or does the chyle duct carry from the intestine?

The factors of safety are largely within the control of man, in preventing the diseases, and in the transference of immunizing resistant bodies, such as have been developed for the cure and prevention of diphtheria, typhoid fever, smallpox, poliomyelitis, and many others.

Diseases of middle life are increasing. They are microbial, of a chronic, recurring character, and are carried into the blood stream from a few foci, the mouth being the greatest danger. A crowned tooth is not a "crown of glory" and may cover a multitude of germs. Modern dentistry is relieving the world of much of its misery by watchful care of foci connected with the teeth, the trend of modern medicine and dentistry bringing the fields again closely together.

In prevention and treatment we may search for and destroy the local foci if found, we may

raise the immunity of the individual by vaccination, we may use serum, blood transfusions, and drugs for the increase of leukocytes. We may treat locally chronic, recurring secondary inflammations, increasing hyperemia, by Bier's method; heat may be used, and injections of mild irritants, and, on the biochemical theory, increasing the alkalinity of body fluids and the fluids of local areas to change from alkaline to acid and from acid to alkaline, in order to develop environments opposite that in which the bacteria are thriving.

Suppuration, unexpectedly appearing in incisions, is usually from the inoculation of the wound with skin types of bacteria. To avoid this it is necessary to protect the skin field while suturing. The result of such infection is shown early by the temperature. Late infection of wounds is usually due to faulty closure, —a dead space with blood clot which becomes inoculated by bacteria, temporarily or chronically contaminating the patient's blood. This is accompanied by little or no rise of temperature. A rise of temperature indicates that the infection was caused from without, the patient being unused to it.

Problems of infection, prevention and treatment are being developed by the war. If a wound can be cleansed and the ragged borders excised within a matter of hours, primary suture with healing is a frequent result and prevents infection. This is not possible in a large percentage of cases because of necessary delay leading to much suppuration, thus more attention has been paid to overcoming suppuration and rendering the wound sterile for secondary closure. The results of the Carrel-Dakin method and of the Dichloramine-T, especially the modified form, have been most encouraging when used in conjunction with the greater care of the wound.

The frequent testing of the secretion for microbes has been of great benefit, but probably the greatest gain has come from the frequent inspection and the personal supervision of the wound permitting the intelligent use of antiseptics, wound stimulants and antibodies.

(For discussion see page 419.)

## RHEUMATOID ARTHRITIS.\*

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I have selected for discussion this topic, the treatment of so-called rheumatoid arthritis, because I want to emphasize my belief that there is no such pathological entity as rheumatoid arthritis or arthritis deformans; because the profession at large looks upon these cases of chronic joint rheumatism as hopeless; because I believe the dictum of H. O. Thomas that a sensitive joint must be given rest is just as true today as 45 years ago, and applies to all kinds of painful joints as well as to tuberculosis, and because I believe that there is a method of treatment of these chronic joint cases, which promises great relief and often cure if properly carried out. This latter belief is due to an experience of twenty years with all kinds of cases of this type, and today instead of looking upon these old chronic joint cases as hopeless, for which little or nothing can be done, I have come to feel that they furnish some of the most satisfactory results of any of the long list of chronic joint ailments that naturally fall to the orthopedic surgeon.

Under the names of rheumatoid arthritis, arthritis deformans, osteoarthritis, etc., are designated a large number of chronic joint ailments, which, for the lack of better or more definite pathologic knowledge, have been called rheumatoid. But undoubtedly disease of several types and of great pathologic variety have been grouped under this term. There is no department of medicine or surgery in which more clear and definite knowledge is needed, or in which original research work along lines of etiology and pathology promises more satisfactory or startling results.

I am thoroughly familiar with the work that has been done by Rosenau and others in experimental production of acute arthritis by injection into the blood stream of animal of toxic substances or bacteria taken from human beings afflicted with similar acute or chronic diseases, but there is still an enormous field to

be explored and particularly in the careful study of the gross and microscopical anatomy of the changes in these joints.

I have here some specimens which will illustrate perhaps better than anything else the point which I wish to make as to the differences in gross pathology. The first specimen is a segment of a spine which was stiff from one end to the other, a case of so-called spondylitis deformans or "poker-back", the spondylose rhizomelique of the French pathologists. You will see upon looking at the specimen that the anterior spinal ligament has been replaced by a definite bony growth along its whole length. The intervertebral discs have practically disappeared. The fact that the bone was deposited in the anterior spinal ligament is shown by the fact that the fibrous structure of the ligament is plainly seen reproduced in the new bony growth. The ribs which are broken off were firmly ankylosed to the transverse processes by this same bony growth which extended up and down the sides of the vertebrae as well as along the front.

In contrast to that, I will show you another specimen, with a rib attached, in which the vertebral discs have become much thinned, the edges of the vertebrae where they met the intervertebral discs have become thickened and overhanging, (the so-called "lipping" of the vertebrae), and along one side of the vertebrae is a new bony growth extending outward to the ribs and the transverse process, which looks as though the melted bone had been poured down the side of the spine and allowed to harden. This specimen represents the osteoarthritis or hypertrophic type of spondylitis as described by Goldthwaite.

The next specimen shows two vertebrae firmly fused together throughout their entire length by a new deposit of bone which has evidently destroyed the intervertebral substance and has even extended to the spinous processes, firmly uniting them together. Yet from the appearance of the upper and lower surfaces of these vertebrae, it seems quite evident that the process was confined to one joint. While the specimen in some respects suggests ankylosis which occurred between the spinous processes or articular processes of the spine in tuberculous disease, there is no evidence of any destruction

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having taken place in either of the vertebrae, and we have never yet had any evidence to prove that the intervertebral cartilage is ever the primary location of tuberculous infection, or is ever involved until long after the vertebrae themselves have undergone destruction. I do not know what name to give this, but I do not believe it is tuberculosis. I believe it belongs to one of the so-called rheumatoid class.

The next in contrast to all of these specimens that I have shown you, is a sacro-iliac articulation which has become completely fused along its parietal surface; in fact, so completely united are the joints that you cannot distinguish that there ever was any joint there, while the posterior and inferior surfaces of the joint are sharply distinct.

Now the symptomatology in these different types varies quite as much as the pathological changes, and why should we, therefore, cling to the idea that the cause of these chronic joint changes are the same? I do not believe they are. A few years ago when the theory of focal infections as the cause of chronic arthritis was announced, we hailed it with a great deal of joyous anticipation because it seemed a very rational explanation for all these chronic joint ailments which we had not before been able to explain, so we began taking out teeth, tonsils, gall-bladders, pelvic organs, and everything else that could be accused of harboring infection, and in a few cases,—I must say from my own experience **a very few cases**,—we saw some improvement; perhaps rarely, **very rarely**, a case of complete recovery. But the cases in which the evidence of a distinct etiologic connection was demonstrated, or could be demonstrated, between the tissue removed and the patient's joint disease was so rare that I believe the pendulum of enthusiasm has begun to swing back again, and we are thinking twice before we advise our patient to have all of his teeth removed, or his tonsils taken out, or something else sacrificed because he has chronic inflammation of some joint. Because, after all these things are done, we are still confronted, at least I have been confronted, in 90% of the cases with the necessity of doing something more in the way of treatment for the old chronic joint trouble which still persists. And it is with the

belief that the patient is entitled to something more than empty theory, and with the hope of some principle in these chronic rheumatic types, that I have evolved the following course of treatment which is practically a routine procedure in all these cases.

An over-stout woman of forty to sixty years of age comes into the office and says: "Doctor, my knee is getting so troublesome and painful," etc., etc. On examination the knee looks full, joint outlines are lost and there is a boggy feeling all around the joint, but no edema. If the patient is not too fat, a distinct nodular feeling in the joint can be detected, especially over the inner condyle alongside the patella. Floating of the patella can rarely be demonstrated, but usually one or two very sensitive spots can be located. Motion is limited in both flexion and extension and usually a rather coarse grating on movement can be felt or heard. Distinct bony thickening around the tibial edges or behind the condyles—usually the outer—can frequently be felt or heard. In many cases the fixed flexion is so marked, the patient cannot stand straight, and walks with knee bent. Attempts to completely straighten or flex the joint are very painful.

1st. So, to secure absolute rest, the patient must be put to bed. Forty or fifty years ago Hugh Owen Thomas of Liverpool preached the doctrine that a sensitive joint should be given absolute rest, and that dictum is as true today as it was then. But I am constantly amazed at the slowness with which that truth impresses itself upon the medical profession. There is not a week that goes by in which cases of chronic joint trouble do not come to me with a history of having been treated by from one to a dozen different physicians in which the disease has lasted from one to three years without ever having been advised to give the joint rest. Many times they say they have been told that if they don't keep moving the joints, they will get stiff. Evidently the advisor had never appreciated the fact that it is the **disease** that makes the joint stiff, and so long as constant motion and function is continued, the disease will continue.

2nd. If the joints are painful, in addition to the rest in bed, they are treated with local applications of heat. Personally, I do not know

that it makes any difference what kind of heat is used, but I have noticed that patients seem to find the quickest relief from moist heat, by using hot fomentations made by wringing heavy flannel out of hot water, wrapping it closely around the joint, surrounding it with a rubber sheet, and outside of the rubber sheet put a hot water bottle or an electric pad. This fomentation is renewed as often as it begins to feel cool to the patient. If the joints are very sensitive and painful, compresses are put on next to the skin soaked with a modified lead water and opium lotion, which seems to be a distinct help in many cases, the hot fomentations being put on directly over the wet compresses.

3rd. Traction, to be efficient, must be constant and **painless**. Let me describe just how such a case as I have cited with a knee fixed in flexion, can be straightened out with certainty and comfort (illustrates method).

4th. As a very large percentage of these cases have an excess of indican and other putrefactive products in the urine, the patient is put onto a strictly meat-free diet, and tea and coffee are interdicted. Large quantities of other fluids, and especially fruit juices, are prescribed, and the diet is limited strictly to fruits, vegetables and cereals. The only animal protein that is allowed for the first two weeks is buttermilk and cottage cheese.

When the pain and sensitiveness have disappeared, and the deformity overcome, which may take from three days to three weeks, the joint is immobilized, and personally I prefer plaster-of-Paris cast to any other immobilizing apparatus. Undoubtedly this is because I am more familiar with the use of plaster, and I find that I can immobilize any joint in the body more completely, and more comfortably so far as the patient is concerned, by that method than by any other. The immobilizing apparatus is continued for from two months to a year, depending upon the length of time in which the disease has existed and upon the rapidity upon which the tissues about and inside the joint improve.

During the time the joint is immobilized, the patient is encouraged to be up and out-doors as much as possible without putting any weight upon the affected joint. The meat-free diet is continued with perhaps an occasional admission of a strip of bacon, a soft egg, a little fish, or a

sweetbread. As a matter of fact, most of these patients after being deprived of meat for a while say that they do not miss it in the least, and many patients are so enthusiastic, not only over the improvement in the joint, but about the improvement in their general health and well-being, that they voluntarily declare that they will never go back to meat-eating again. One of the important things in the treatment, I believe, is keeping the patient's excretions very active, and in addition to the giving of large quantities of fluids, I make sure that the patient has at least two or three loose evacuations of the bowels each day. I find the two things that are most useful in producing this are phenolphthalein and mineral oil. I like to give one grain of phenolphthalein night and morning, and an ounce of mineral oil in the middle of the day, and before supper in the afternoon. These produce no gripping or other discomfort, and are more efficient, I believe, than salts or cascara, or many of the other cathartics.

Now, I have spoken only about the treatment of the so-called rheumatoid joints in general. But there are many practical points which make for success and which should be observed, which relate chiefly to the mechanics of the different joints. All joints should be immobilized in the position of the greatest usefulness, so that if upon recovery the motion is limited or gone, the joint will be as useful as possible.

#### DISCUSSION ON DRS. MAYO'S AND PORTER'S PAPERS.

DR. ARTHUR J. GILLETTE, ST. Paul: I was rather disappointed in Dr. Porter's paper because I had supposed he was going to present quite a different one. When I was asked to open the discussion on his paper I wrote him and requested that he give me some idea of the points he was going to make in it, and he replied that he did not know himself. Therefore, I did not know what he was going to speak about until I heard what he has said this evening.

I am surprised at the position that he takes or rather in the character of his paper. I had supposed that in view of what we have been through of late with regard to infection of joints and suppurative joints and the operations performed to cure these conditions, that the essayist would begin by telling us that infection of the frontal sinuses bears some relation to the infection of various joints, whether of a suppurative or rheumatic nature, and that then he would go to the tonsils and tell us of

the various cases he had known which had been improved and relieved, if not cured, by the removal of the tonsils. I had supposed, furthermore, that he would give us a clinical picture of crowned teeth, referred to by Dr. Mayo, as having a casual relation to the involvement of joints, and following the removal of these crowned or infected teeth there would be relief of the joint trouble. I had also supposed that he would go on and speak of the stomach and intestines and tell us how by shortening the intestines, relief of joint conditions would follow; and that he would also take up the bladder and urethra, abscesses of the rectum, and so on. However, he did not do this at all, and I was prepared to talk on that phase of the subject, and to tell him what a terrible mistake he had made, and that how rarely did we see joint infections following these various local foci of infection. I know I am getting into trouble and into deep water in taking the position that I take in regard to this matter. However, I wish to say that I have seen a great many tonsils removed; I have seen a great many abscesses all over the body that were supposed to be the cause of joint trouble. Mind you, I am not saying it does not occur, because I know better, but I want to say they are mighty rare. I have seen a number of young people going around looking like old folks on account of having their teeth extracted for the relief or removal of infection situated elsewhere, and yet these patients were no better. They could not talk as plainly as they could before, nor chew as well. I am getting so tired of seeing such patients that I would not hesitate to walk around the block to get away from them. I think that a great many practitioners feel the same way as I do. Relief does follow sometimes the removal of infected or decayed teeth. I have seen it once in a while. One reason why we do not see more relief is because we do not diagnose these cases early enough. You and I have patients come into our offices on crutches, and when they begin to talk and you look at them you will find that in some of them teeth have been removed, but the teeth have been removed after joint changes have taken place; this is too late I take it. The most enthusiastic man about removing decayed and abscessed teeth for the relief of joint troubles would not do so in a given case if this or that joint is completely destroyed as it is then too late, and yet there are some practitioners who are resorting to such operations all the time, in these cases of old chronic and completely destroyed joints. If I can impress upon you the importance of letting these partially ankylosed joints referred to by Dr. Porter alone unless there is some active trouble there, I feel that I shall have accomplished a great deal, because there is no question but what it is going on and on and we have local inflammatory conditions which are not due to the teeth, to the tonsils, or to any suppurative condition elsewhere. Right along this line, those of you who treat tuberculous joints and tuberculous abscesses seldom see these old tuberculous abscesses. They may start as tuberculous, but sooner or later become

mixed infections, and seldom do we see a rheumatic joint, as we commonly call it, or arthritis deformans develop from decayed teeth or diseased tonsils alone. There are hundreds of old tuberculous joints where we never get any secondary infection of abscesses in other joints, or other parts of the body. Perhaps I should not say never but seldom, yet from the teeth according to some we must expect multiple joint infections, abscesses, etc. I do not wish to be understood as minimizing the importance of the teeth and tonsils in these cases, but I would urge you to look for other forms of infection as well, before attacking the teeth and tonsils. A short time ago I asked my office girl to give me some idea of how many cases of so-called rheumatism had been relieved by removing the tonsils (and these tonsils were removed by men who know how to do it), and she could only find eight cases. I am sure we have removed the tonsils and decayed teeth in a great many cases that were relieved of their joint trouble by so doing, but these cases were mostly in children with enlarged tonsils, seven or eight of them, that have been relieved of rheumatic trouble.

I had hoped to tell you how much benefit you could gain in these old chronic rheumatoid arthritis cases, and so on, by properly adjusted plaster casts, braces, immobilization or operation but Dr. Porter has stolen all my thunder.

What I wish to impress upon you today is that we have many, many forms of joint trouble lesions which are not in any way connected with the tonsils, teeth or intestinal canal. First of all do not forget that we have a tremendous proportion of tuberculous joints, we have gonorrhoeal joints, syphilitic joints, gouty joints, typhoid joints and pneumococcal joints. We have synovial infections from the various exanthemata, etc., but do not expect by simply removing the tonsils to get any benefit in these cases of ankylosed, atrophied or destroyed joints, for, as stated, it is too late. All you can do for these joints is to treat them as Dr. Porter has suggested by forcibly straightening them, etc. Never expect to restore normal joint motion in such cases by removing the tonsils or adenoids, etc. Certainly if you find a diseased condition elsewhere in the body it is always well to eradicate this infection but do not expect to get any improvement in such joints as Dr. Porter has reported here today, by removing the tonsils or adenoids.

DR. E. C. ROSENOW, Rochester: I wish to corroborate the statement that Major Mayo regarding the importance of the small tonsil as the place of entrance of bacteria. The large tonsil, which shows reaction to infective processes, is less dangerous, generally speaking, to the individual, than a small tonsil which shows little or no reaction. There can be no question as to the importance of diseased tonsils being places of entrance for infection. This has been proved by clinical results and by experimental investigations in animals.

The importance of pent-up infections, so well emphasized by Major Mayo, in relation to systemic dis-

orders, is another point that needs to be emphasized. When drainage is good little harm will come from an infected area, but when bacterial growth occurs under pressure, severe symptoms or metastatic infections are prone to occur.

The means of distributing infection from localized foci such as occur so commonly in tonsils, in abscessed and pulpless teeth and in sinuses, is chiefly the blood stream.

Everyone realizes the danger of a pent-up infection, but if the infection is of a low grade and symptomless the etiologic relationship to systemic disease is still doubted by some. Infected tonsils, apical abscesses, infected root canals with or without rarefaction demonstrable by the x-ray, or other definitely pent-up infections, are bound to be teaming with bacteria. They afford entrance into the bloodstream, not only for bacteria, but for their toxic products as well. These localized foci must be regarded as veritable experiments.

Granting that sensitization of tissues, occupation, stress and strain of certain organs, fatigue, abuses of stomach from indiscretions in diet, exposure to cold, etc., make certain organs more susceptible to infection, the factor which determines the place of localization, more than any other, is the selective action of the bacteria at hand.

Regarding the chief cause of the changes in spondylitis deformans, so splendidly illustrated by Dr. Porter tonight, there can be only one answer, namely, infection. I was very glad to hear Dr. Porter so thoroughly emphasize the importance of treating patients after foci of infection are removed. It is not to be expected that advanced cases, such as those illustrated by Dr. Porter, will recover promptly by simply removing the tonsils or other foci of infection without adequate after-care. The importance of physiological rest, of thorough elimination, of a properly balanced diet in these cases, deserves emphasis. The important thing to remember in these cases is the fact that we are dealing chiefly with an infectious process which in the beginning is undoubtedly due in many instances to focal infection. The removal of foci, as pointed out by Dr. Gillette, in the early stages of the disease does much good, but even here if there is extensive involvement, such as in arthritis deformans, not too much should be expected. Of course, some, as Dr. Gillette points out, have been guilty of wholesale removal of teeth without strict regard to the conditions at hand. This, of course, should not be practiced, nor should negative results thus obtained discourage us from thorough search for and removal of foci whenever possible. Until more is known regarding the nature and specific treatment of spondylitis deformans, thorough search for and removal of foci of infection whenever possible, combined with adequate subsequent treatment as practised by Dr. Porter, should be followed.

DR. M. S. HENDERSON, Rochester: I have nothing in particular to add to this discussion except to emphasize one point which to my mind stands out clearly. Dr. Gillette, Dr. Porter and myself are

orthopedic surgeons. We usually see our cases late. They come to us after everything has happened to them, seeking our aid. Many of these cases have, or have had, some focus of infection and they are suffering from the effects of this infection. In some instances, perhaps the focus of infection has been removed, and there is nothing that we can do. If we can get at these cases early, by careful general examination of the patient we will often find a focus of infection. Patients come into the office of physicians with indefinite pain, and are not given a thorough examination. If in such cases the nose and throat are examined thoroughly, the teeth and the tonsils carefully gone over, a focus of infection may be found as the cause of the trouble and if that focus of infection is removed, it is possible in many instances that disaster in the future may be averted. The reason we do not bring about a cure in many cases after the removal of the focus of infection is because the patients are in the last stages of arthritis deformans. However, because the majority of these patients we, as orthopedic surgeons, see, do not get relief by the removal of a focus of infection does not prove by any means that the infection is not the cause of the trouble.

DR. A. G. LONG, Mankato: There is very little to add to what Major Mayo and Dr. Rosenow have said relative to the question of infection. I was glad to hear Major Mayo emphasize the importance of preventive medicine. In these days, when we have cantonment inspection, the establishment of venereal disease clinics, and prophylaxis for paratyphoid and typhoid in communities, to get an endorsement of this work from a man of such standing as Major Mayo is of great importance.

He mentioned the protein reactions. There is a great field for the ordinary practitioner in the protein reactions, in the diagnosis and treatment of cases of asthma and eczema, these proteins are put out in soluble form and can be applied in four or five tests in the forearm in a few minutes and the patient treated intelligently at very little expense.

I was very much pleased to hear Dr. Rosenow point out the difference between the large tonsil and the small tonsil. I have a case in mind particularly, of a girl who contracted diphtheria last July. She had persistent positive cultures right up to December. They were virulent for guinea pigs. We advised the removal of the tonsils. They were removed, but they were very small. They were submerged, and the operator said they were adherent. Probably that accounted for the persistent virulence of the organisms which were present. The peculiar condition was this, that after the tonsils were removed, for about two months virulent bacilli remained present in the throat, even though there was no tonsillar tissue left. After the throat had entirely healed the cultures that were taken proved to be negative. Whether the reaction of the tissues had been changed, whether they became acid or alkaline I do not know; I had no means of testing, but following

out Dr. Rosenow's theory there must have been a change in the tissue reaction.

Regarding hematogenous infection, I am sure that all of you have had cases of endocarditis occur in patients in whom you could find positively no source of infection. The teeth were all right; the tonsils were all right, and, so far as you could determine without illumination, the antrum and the frontal sinuses were all right, but I am sure that was a case where you had a subacute infection and the organisms were circulating in the blood.

I saw some work done in Montreal where in animals they were able to recover living bacilli from the liver and kidneys within two or three hours after a meal, and it was said that these organisms had been circulating in the blood and were lodged in the tissues. They took two or three days to grow after they were removed because they were inhibited. They were almost dead. Their vitality was greatly lowered, but this is an instance that hematogenous infection is an actual fact.

DR. PORTER (closing): I called attention in my paper to the fact that the treatment which I have discussed was for those patients who had tried everything else and failed to get relief, cases in which the symptoms of pain, disability, and stiffness of joints had not been relieved. It is hardly necessary for me to explain how a patient who has had focal infection for years and years will not get over it by simply removing the focus, and I tried to emphasize the point very strongly that the removal of the focus does not cure all the symptoms. It is true, we always look for the focus in every case in conjunction with the treatment I have described.

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## MYOCARDIAL DEGENERATION.\*

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Because degeneration of the heart muscle is much more common than is usually appreciated, especially during and after the fifth decade, and is often so difficult to recognize clinically, it seems worth while to bring it to your attention and point out methods for its recognition.

There are two main circumstances that produce degenerative changes in the myocardium, one the cicatricial or inflammatory form following acute and chronic infections and chemical intoxicants—the other the cardio-sclerotic form following arterial changes.

Both these types affect the musculature and the valvular apparatus as well, and the changes

in both are very similar, i. e., replacement of muscular tissue by fibrous tissue and a shrinking of the valve apparatus; so that the symptoms in both types are often identical.

Too little attention is paid to the fact that during the course of any acute infection there is always more or less acute myocarditis with swelling of the muscle fibres, some outpouring of exudate, and round cell infiltration.

If the infection is mild and of short duration, the swelling subsides, the cells and exudate are absorbed, and the heart muscle returns to normal.

If however, the infection is severe though of short duration, or mild but prolonged, then we may get the muscle cells undergoing necrosis, the destroyed cell being replaced by fibrous connective tissue.

Or instead of the cell being destroyed there may be a deposition or minute fat droplets within the cell substance and we have fatty degeneration.

Usually both pathologic processes are present, the one or the other predominating at autopsy, depending on the causative factors and how they operated; but the symptoms ante-mortem are often indistinguishable.

The process is seen following chronic sepsis, typhoid fever, rheumatism, syphilis, influenza, sometimes after diphtheria if untreated, etc., and after such intoxicants as alcohol, lead, arsenic, phosphorus (seen in miners and smelter workers).

Babeock reports several cases of myocardial degeneration accompanying such a chronic infection as cholecystitis; and it is commonly found in anaemic states, such as chlorosis or pernicious anaemia, whether due to the anaemia with its poor oxygen supply to the heart muscle, or to the infection which probably produces the anaemia, it is impossible to state. Hidden foci of infection may also be a cause—such as chronic sinusitis, pus in innocent looking tonsils, abscessed teeth, chronic prostatitis, pyonephritis or salpingitis, infected hemorrhoidal or varicose veins, and possibly the toxins from intestinal stasis.

According to Krehl, the most frequent site for **inflammatory** changes is in the papillary muscles of the left ventricle and in the museu-

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lature of the left auriculo-ventricular (mitral) ring.

The fibrous tissue composing this scar tissue is relatively poor in elastic fibres and consequently weaker than the rest of the heart fibres.

Leaving the results of inflammatory changes let us turn now to the results following arterial changes, chief of which is arterio-sclerosis.

The pathological processes are much the same as in the previous type, i. e., fatty degeneration and connective tissue overgrowth.

Whether the arterio-sclerosis is localized in the kidneys, the heart, or the brain, or is a general process, the first effect is a narrowing of the finer capillaries—what Mackenzie calls “a narrowing of the capillary field.”

As a result, there is less **free** exchange of blood between capillaries and veins, and a certain amount of malnutrition of the tissues ensues.

This leads to atrophy of the muscle fibres and connective tissue overgrowth, on the one hand, and fatty degeneration from imperfect metabolism, on the other.

Osler says. “that there appears to be an especial proneness of the heart muscle to fatty degeneration. So great is its need for an abundant oxygen supply that it feels at once, any deficiency, and is, in consequence, the first muscle to show nutritional changes.”

This arterial form of fatty degeneration is much less acute than that due to anaemic or toxic states and is more patchy in distribution.

The changes are often limited to a branch of the coronary artery, usually the right or anterior branch of the left coronary.

Furthermore, the changes are more or less permanent, due to poor collateral circulation in the coronaries: while in the degeneration of the heart muscle from anaemia or toxemia, repair may take place following improvement in the quality of the blood supply.

Hearts which are the seat of general fatty degeneration, from coronary obstruction or narrowing, are always large hearts, and this often furnishes an important clue to their clinical diagnosis.

This increase in heart size is due, in part to increased thickness of the heart walls, and in part to dilatation of the heart chambers, for although the walls are tougher, there is a di-

minution in their resilience and contractile power. There follows a gradual yielding to increased capillary resistance from the narrowed capillary field, or to increased blood pressure, each stage of yielding becoming permanent.

Coronary thrombosis and coronary embolus need not detain us here. These conditions are always terminal states, the first causing death in a few hours to a few days, the latter sudden death.

Huchard reports autopsy findings in 145 cases of sudden death. In 128 of these cases death was due to coronary embolus.

There is another type of heart that should be mentioned in connection with fatty degeneration and that is the so-called **fatty infiltration** or fatty overgrowth of the obese. Normally there is sub-pericardial fat along the grooves and sulci of the heart. In obesity, this normal fat increases, and may spread over the entire heart, encasing it like a glove. The fat also penetrates the heart muscle along the course of the blood vessels, pushing the fibres aside, and even reaching to the bases of the papillary muscles. This makes a double mechanical burden for the heart, first of having its muscle fibres pushed apart, and second of having to lift this fatty envelope with each beat.

With an understanding of the pathological processes involved in degeneration of the myocardium, let us review the **symptoms** that these processes produce.

We find that the earliest symptoms are almost entirely subjective, i. e., concerned with the patient's own sensations, and are merely manifestations of myocardial insufficiency due to a narrowing of the “field of cardiac response.”

Normally the heart has a large reserve force, estimated at thirteen times its minimum working capacity, consequently this reserve force can be greatly reduced before marked signs of distress and **objective** symptoms appear.

Failure to appreciate this point leads many physicians to regard as functional or neurotic, these early **subjective** symptoms, and a golden opportunity is lost to arrest, or slow up, the degenerative process.

This is the crucial point in the early diagnosis of myocardial disease, namely, the proper evaluation of **subjective** symptoms. Until the

medical profession learns to do this we are going to continue to lose many valuable lives prematurely.

We have all come to realize the importance of recognizing and treating tuberculosis in its incipency. It is just as important to recognize myocardial degeneration in its incipency and treat it.

When a middle aged man, with myocardial degeneration, can take out a \$10,000 life insurance policy, and be assured by the examiner, four weeks before he dies of acute cardiac dilatation and coronary thrombosis, that he is in fine physical condition, something is radically wrong.

Now what are these early **subjective** symptoms? Perhaps one of the earliest symptoms is a sense of causeless fatigue—the patient may state that “he feels rotten” or “feels tired.” His daily work is an effort, where formerly it was done easily. He may come home early and take a nap before supper, doze over his evening paper and after going to bed wake around four A. M. and be unable to go back to sleep. He may grudgingly admit that he is not as “fit” as he used to be, or he may loudly boast that he is still just as good as any of his fellows. Beware this middle aged boaster, and be suspicious of his myocardium. His very boast may be a sign that he himself knows he is slipping, and is trying to hide this knowledge from his friends and even his physician.

Along with this feeling of fatigue goes a sense of shortness of breath on stairs or hills, or after slight unusual exertion. This often happens after emotional excitement or hurry.

There may be a sense of tightness or suffocation in the chest after exertion or after a hearty meal. It is at such times, too (after a hearty meal), that we often get anginal pains in the *præcordium*—due undoubtedly to the upward pressure on the diaphragm from a distended stomach, embarrassing a weakened heart.

Associated with these symptoms often go cerebral manifestations, shown by gradual changes in the patient's disposition. He becomes peevish, irritable, quick tempered, may be morose and melancholy, suffer from loss of memory or inability to concentrate, may get sleepy if working over a brief or sermon, etc.

The heart's action may begin to be felt by the patient, where previously such was not the case, and he may have more or less sensation of tenderness or pain in the *præcordium* and down the inside of either arm or across the shoulders. This pain often called *intercostal neuralgia* or *neuritis*, and many times not mentioned by the patient unless specifically questioned, is a very important symptom, frequently present.

Turning to abdominal symptoms we find a host of complaints such as epigastric pain, dyspepsias and indigestion, gas in stomach and bowel, hemorrhoids, etc., all due to venous stasis producing passive congestion and poor functioning of these organs. It is worth noting that this stasis may be wholly without physical signs.

Time after time patients come complaining solely of their stomachs when their hearts are primarily at fault, and treating the heart relieves the stomach symptoms. Often the only way to differentiate between primary stomach and primary heart lesions is the therapeutic test of rest in bed and direct cardiac medication.

I would like to pause here long enough to speak of the sudden deaths of middle aged men one often reads about in the daily press attributed to acute indigestion. I believe these deaths are really due to an acute dilatation of the heart or to coronary thrombosis or embolus. Often from the friends or relatives a history of preceding dyspnea or *præcordial* pain or other sign of myocardial degeneration can be obtained.

Now I realize that many of these **subjective** symptoms, above enumerated, are not peculiar or wholly related to myocardial degeneration, but they do form a picture of suggestive symptoms which call for a very searching examination of the heart. Oftentimes the diagnosis must be made by inference or exclusion and confirmed by response to treatment.

Physical examination may reveal a middle aged man of florid complexion, showing some dilated venules in his face and perhaps a slight duskiness in his lips. We may often find just a slight pitting to pressure along the tibiae towards the end of the day.

The heart may be enlarged or normal in size and the sounds clear with no murmurs. More

often we find a shortening up of the apical first tone, with a blurring or weakness in its quality or even a very soft, faint, systolic blow, confined to the region of the apex, and intensified by exercise. **A change in the quality or intensity of the valvular tones is more often present than an actual murmur and is just as important to detect.** There is usually an accentuation of the basal pulmonic second tone, due to venous stasis in the lungs. If the blood pressure is elevated we may get an accentuation of the aortic second tone, often of ringing quality (though this occurs in only one-third of the hypertension cases).

Sometimes there is a soft or harsh systolic murmur at the first and second right intercostal spaces due to a roughening or kinking of the aorta and its arch.

The pulse is usually a trifle more rapid and tends to accelerate on slight exertion and to return but slowly to its normal rate. Furthermore we may find auricular fibrillation, extrasystolic irregularities or even Cheyne-Stokes respiration.

Percussion, checked up by the long focus radiograph, shows either a normal sized heart with rather straight sides, the so-called "pyramidal heart," or else considerable enlargement, at times only of the left ventricle, but more frequently involving both ventricles, the so-called "cor bovis" or universal dilatation (frequently found in syphilis of the heart).

The blood pressure may be low, normal or elevated, there often being an increase in the diastolic reading to 120 millimeters or more.

The urine may show an increase of the night output over that of the daytime, with a moderately high specific gravity, a trace of albumin, an occasional hyaline or granular cast and even a few red blood cells.

The phthalein test usually reveals a total excretion of 50-60 per cent of the dye at the end of two hours and ten minutes. This is a valuable differential point, as in chronic nephritis the phthalein output is usually below 50 per cent.

The prognosis in myocardial degeneration depends upon the patient's age, strength, heredity, length of time the condition has existed, and finally his ability and willingness to care

for himself, and lastly his response to treatment.

**Treatment:** The first and most important thing is rest, physical and mental. There is nearly always some slight dilatation of the heart with passive congestion and venous stasis. The rest removes this dilatation and stasis, quickens the coronary circulation and consequently the nutrition of the heart itself. This makes for more vigorous heart action, giving a better systemic circulation, promoting improved tissue nutrition and function throughout the body. In addition, the diet must be carefully regulated so that simple, easily digestible food is taken in moderate quantities, limiting the fluid so as to avoid upward pressure on the diaphragm. The bowels must be regulated very carefully—an occasional active saline often relieving passive congestion in the splanchnic circulation.

As to medicines, digitalis, cautiously administered to determine the patient's tolerance, is a very valuable drug. It is supposed to be contraindicated in fatty degeneration, but even here, in certain cases, and if given in small doses for periods of three to four days and interrupted for a like interval, it is, I believe, of distinct value.

Iron and arsenic and calcium lactate seem also to have their place and some individuals become very dependent upon strychnia. Furthermore a careful search must be made for foci of infection and their removal accomplished, not forgetting the detection and treatment of syphilis, if found.

Following the period of rest, physical activity should be resumed very gradually, and any increase of exercise controlled by percussion and auscultation of the heart. Graduated exercise is a very important therapeutic agent, of which walking is one of the best forms. But it must be properly supervised by the physician and stopped or modified on the reappearance of any of the earlier symptoms. After this the patient may perhaps be allowed to resume a part of his business, but should report at intervals to be checked up, and occasionally take a few doses of an active preparation of digitalis.

Nothing is more valuable in following these cases than checking up the cardiac outline by means of the X-ray, using a uniform technique

and a long focus. Sometimes the changes in size and shape are quite dramatic.

The patient must be willing to adjust himself to new standards of living, avoid all excesses, over-fatigue, sudden exertion, anger and great emotional strain. If he is willing to do this, then we may prolong his life many years and perhaps save a valuable citizen for the community and his family.

At another time perhaps we may discuss the part that syphilis plays in myocardial degeneration. The development of the Wassermann test is revealing an ever-increasing number of cases due to this agent. As our knowledge increases and autopsy records multiply we may find the chapter on the pathology of fatty degeneration of the heart muscle rewritten, with lues playing the leading role.

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## THE AMBULATORY TREATMENT OF HEMORRHOIDS.\*

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It is the purpose of this paper to describe a method for the treatment of hemorrhoids during which the patient may carry on his usual occupation. The ambulatory method has never been given the general attention it deserves, and I hope in this paper to give a simple method which may render it more popular. The method to be described is being used successfully in my private practice, and at the University Dispensary. To date the most commonly used method for the cure of hemorrhoids has been their surgical removal under general anesthesia. This entails a ten day stay in the hospital, a loss of time from business, and considerable pain and the usual fear of "an operation." Any method which will eliminate these obstacles is worthy of consideration.

In so far as treatment is concerned, it must be remembered that there are two general types of hemorrhoids, internal and external. As external may be designated those which lie within the grasp of the internal sphincter or below it. Also should be included the so-called skin tags which are usually old thrombotic piles. Concerning the treatment of this type of hemorrhoids there is an unanimity of opinion,—excision. All agree that these may be easily excised in the physician's office under local anesthesia. The reason it is not done more frequently is that there is no advantage in removing the external hemorrhoids at the office when the patient has to go to the hospital to have the internal ones removed. By the procedure I will describe, the entire treatment may be carried out at the office, the internal hemorrhoids being injected and the external ones excised. The external piles are usually treated last unless they are tender and inflamed.

The procedure I use for the external piles is as follows: If the patient is employed, the

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work is usually done on Saturday afternoon so that he may have Sunday to rest before returning to work on Monday. The night before the treatment he is given a C. C. pill, followed by saline in the morning. If convenient, he is given an enema shortly before treatment, but this is not essential. For treatment the patient is placed in the Sims position and the area cleaned with fifty per cent. alcohol. Each external hemorrhoid is then injected with a one per cent. apothosine solution and a V shaped piece removed from each tumor. This leaves some mucous membrane around the anal circumference, even though there has been a complete ring of hemorrhoids. If there are any bleeders they are crushed with a hemostat. A pledget of cotton or gauze soaked in 1:1000 adrenalin is placed against the area of operation and then a large cotton pad which is held snugly in place with a T binder.

There has never been more than slight oozing of blood in any cases I have treated. If it were remembered that there are no vessels of any size below the sphincter, it would save considerable catgut and useless worry. The patient is directed to defer bowel movement for twenty-four hours and to keep the stool soft. For this I usually prescribe mineral oil. After each bowel movement he washes the parts with lysol, a teaspoonful to a quart of water; or boric acid, a teaspoonful to a pint of water. This is all the treatment necessary, although a mild dusting powder may be employed if advisable. Confinement to bed is not necessary, and Monday he resumes his usual occupation. There is usually some pain for a few hours following the treatment, so I give the patient one one-quarter grain tablet of morphine, to be used if necessary.

Granting that the external piles can be treated at the office, the next step is to devise a method whereby the internal hemorrhoids may be cured. Briefly let us consider with what we have to deal. Extending above the internal sphincter for a distance of one and one-half inches, is a plexus of vessels formed by the hemorrhoidal veins. This plexus entirely encircles the rectum. It is a varicosity of these vessels which forms our internal piles. The hemorrhoids may vary from a slight bulging of these vessels into the lumen of the rectum to

the mass the size of a hen's egg, which protrudes with every strain of defecation. Unless they are fibrosed or thrombosed by repeated inflammation, they are purplish in color, soft and velvety to touch and easily compressible. They bleed from the slightest prick.

For these internal hemorrhoids four general methods have been devised and are being successfully used in office treatment. The first is the ligation of single hemorrhoids under local anesthesia; the second, electrolysis; the third, the injection of the hemorrhoid with some caustic so as to produce a slough; the fourth, the injection of some substance which will produce a fibrosis of the hemorrhoid, thus shrinking it and obliterating the vessels composing it. It is not the intention of this paper to go into detail concerning the first three methods other than to say that they are being used by a number of men. The fourth method is the one which I usually employ and which I shall describe in detail.

Before describing the technique, I wish to say something of the advantages and disadvantages of the method.

1. It will not produce a cure where the hemorrhoid is already hard and fibrous, but these are rare.

2. In all other cases a cure can be produced by this method, as thousands of successfully treated cases will testify.

3. It can be done with very little pain to the patient.

4. It does not detain the patient from work, and so eliminates the loss of time and hospital expense incident to an operation.

5. It eliminates the fear and dread of an anesthetic and "an operation."

6. It has the disadvantage of taking from two to six treatments to cure, whereas the operation can be completed at one sitting.

7. The mortality is as small or smaller than from the operative procedure.

I realize that this last statement may be doubted by many general surgeons and some proctologists. Death following hemorrhoidectomy is almost always due to sepsis, and it is the danger of sepsis which is generally advanced against the injection method of treatment. Among the men who have done the most rectal work there is a pretty generally ad-

mitted mortality of one-tenth of one per cent. Naturally, this does not include the many cases of milder sepsis which recover. No one who has observed a larger number of hemorrhoidectomys but will be struck with the large number of post-operative rises in temperature. This is not to be wondered at when we consider the nature of the operative procedure. The rectum can not be made sterile for any length of time, and when the raw stumps are left exposed in the rectum, infection of slight or severe grade is certain to take place. In every case the stumps will show a bacterial membrane. If this be caused by some harmless saprophyte or the colon bacillus, the constitutional reaction will usually be slight and transient, but if we are unfortunate enough to have a virulent streptococcus or staphylococcus present, then we have reason to fear serious trouble. With the injection procedure we do not have the excellent nidus of infection which the stumps offer. The site of injection is cleansed with iodine and alcohol and the injection made with a fine hypodermic needle, which when withdrawn leaves practically no abrasion. If done properly, this certainly offers a minimum chance of infection. I know of but one death following injection, and I am not certain that there was proper cleansing before injection. What occasionally does occur following an injection of too much fluid is a sterile slough. That this slough is sterile is shown by absence of a rise in temperature. In this case, which occurs in only a small percentage of cases, we do have some raw surface in the rectum where the slough separates. There is though the decided difference; the slough does not separate before the third day and before this time the irritation has called forth a defensive leucocytic wall at the point of separation, so that when the slough does loosen, exposing a raw surface, there is a wall of leucocytes protecting the lymphatics of the rectum.

The theory of the injection treatment is the same as that for the treatment of nevi. We all know that these are frequently treated by the injection of boiling water, quinine urea hydrochloride, zinc sulphate solution, etc., the object being to produce sufficient irritation and fibrosis to obliterate the net work of blood vessels forming the nevus. In the hemorrhoid we

have practically the same condition, and the same principle of treatment is applied. For the purpose of injection I use a five to seven per cent. solution of quinine urea hydrochloride. Stronger solutions may produce a slough which while not serious is just as well avoided. The patient is placed in the Sims position and a short speculum (I prefer the Ives) is lubricated and inserted into the rectum. The speculum is then rotated slightly, bringing the hemorrhoid to be treated well into view. The pile is then swabbed with half strength tincture of iodine, and then fifty per cent. alcohol. A fine hypodermic needle is then inserted into the tumor, care being taken to insert the needle deep and well above the sphincter muscle. Enough fluid is then injected to moderately distend the tumor, and the needle quickly withdrawn. Bleeding is never more than a slight amount. I usually inject two piles at a sitting, but more can be injected if there is need for haste in completing the cure. Treatments are usually repeated every three to five days until all the hemorrhoids have been treated. Occasionally a pile may have to have a second or even a third injection. From three to eight treatments usually cure. After treatment the patient is allowed to pursue his usual habits and occupation.

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#### NURSES IN WAR TIME.

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EDA R. WING, R. N.,

Supervising Nurse, Minnesota Public Health Association.

*St. Paul, Minn.*

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The needs for nurses in the various war fields were the most important issues discussed at the National Convention of the nursing organizations held at Cleveland, Ohio, May 6 to 12, 1918.

Possibly the most momentous decision was the endorsing of the Surgeon General's plan to establish training schools for nurses at the various cantonments throughout our country. Through affiliation with the civil hospitals, plans will be perfected whereby candidates in the military nursing schools will receive a complete course in nursing. This project will also meet the demand for nurses to take care of the men in the camps, just as the sick are cared for

in civil hospitals by women in training under expert supervision.

The Vassar scheme of training college women for nurses was also discussed at some length. Its sponsor, Mrs. Blodgett of Grand Rapids, Mich., told how applications from all over the country were pouring in at the rate of a hundred a week. These women are to receive three months' intensive theoretical training at Vassar college this summer. In the fall they will be returned to the hospitals in their respective states for a two years' regular hospital training. This plan saves the student nurse nine months' time.

The education of the nurse for public health fields was another war measure receiving much discussion; whether to use the third year or require a fourth year as post-graduate work to supplement the regular hospital training, was argued pro and con.

Public health nurses are at present not available to carry on the home work and maintain the standards of health which this war has made an absolute necessity. Public health nursing is a distinct field; therefore it requires special training. The concensus of opinion was that not less than a four months' post-graduate course would in any way give a nurse just graduated from a hospital a proper education for the public health field. Except for the war an eight months' course would be recommended. Scholarships should, of course, be available to assist the nurse in this extra training.

Inadequate salaries was one reason advanced to explain why so few nurses enter the public health field where opportunities are so great. Since the public health field demands a specially trained, high-grade nurse, an effort is being made to raise salaries in this branch of the service.

The returned tuberculous soldier was discussed at some length by Dr. Thomas Palmer, Executive Secretary of the Illinois Public Health Association. That Association, in agreement with the Anti-Tuberculosis Society of Illinois and the Central Division of the American Red Cross, aim to provide examination for each of their men rejected from the army or by the draft boards because of tuberculosis, and "shall

outline the proper method of care and treatment to be pursued and shall make every possible effort, in conjunction with the local chapter of the American Red Cross, to provide means for the more permanent care of such returned soldiers. It is understood in this connection that relief problems involved in the care of the families are to be worked out by the Home Service Section as may seem best in a given community.

"It is further understood that the Central Division of the American Red Cross, through the Home Service Sections of its local chapters, shall provide care for returned tuberculous soldiers during the interim between their return to their home communities and the time that more permanent provision is made for them, and shall contribute one-third of the expense for the more permanent care."

Mary E. Lent, R. N., supervisor of this special branch of nursing under the United States Public Health Service, emphasized the need of public health nurses for extra cantonment zones. Miss Lent told of the purposes and duties of the cantonment-zone work, and also related many interesting incidents and experiences which have taken place since she began her work in November of 1917.

Nursing, as it relates to the war, was presented from different points of view by representatives from the several war departments, the Army, the Navy, the American Red Cross, Home Public Health Nursing, etc., at a joint evening session of the three national organizations. This meeting was perhaps the most spectacular and the most inspiring. Pupil nurses, in full uniform, from the different Cleveland hospitals attended and occupied the entire lower floor of the meeting place. This in itself was a wonderful picture; but when the Boy Scouts formed two lines down the center aisle and about twenty Red Cross nurses, wearing the different uniforms of war service, marched to the front, the scene was complete in its effect.

Many more pages could be written of the convention this year; many pages will be written. Those nurses who had the opportunity of being in Cleveland realize that they attended a War Council.

“CHRONIC SIMPLE GLAUCOMA” AN EXCEEDINGLY COMMON DISEASE.

EDWARD J. BROWN, M. D.,  
Minneapolis, Minn.

“Chronic Simple Glaucoma” to the fairly well informed medical practitioner means a condition characterized by a more or less tense condition of the globe easily recognized by the finger, a bluish color of the sclera, a shallow anterior chamber, a more or less dilated and sluggish pupil, with the optic nerve-head considerably depressed below the level of the retina and overhung by the scleral ring, attended by more or less impairment of central vision and with the fields so contracted that they may easily be estimated by the old conventional hand movements. The better informed eye-man recognizes the fact that there may be no external signs of the condition, that even a depression of a part of the disc extending to the scleral ring may be glaucomatous, that central vision and form field may be normal, and that no discoverable increase of tension may be present; but he does not suspect that cases of beginning simple glaucoma are constantly passing through his hands unrecognized.

The conventional idea that glaucoma means a demonstrable increase of tension over the normal has done an enormous amount of damage. In a paper read before the American Academy of O. & O. L. in 1917 I spoke of the writings of Priestly Smith and S. D. Risley as having left no excuse for the thoughtless rejection of the opinion of Schoen of Leipzig, published in the *Ophthalmic Record* in 1902, that the physiologic excavation of the optic nerve-head was probably pathologic and the result of pressure. In the discussion of my paper I was glad to hear Dr. Risley say that he was sorry the word glaucoma had been invented.

There seems to me no room for mystery about the development of the condition under consideration. There are many conditions, toxic and otherwise, which may contribute to such development, but the one universal cause is eye-strain. Women suffer more frequently than men from frank glaucoma, because the woman is using a needle while the man uses a shovel,

and dressmakers and seamstresses suffer more than other women for the same reason, that they are especially the victims of eye-strain. The difference between the development of myopia and glaucoma, as Priestly Smith and Risley long since made clear, was a difference in the toughness and elasticity of the sclera. In the one case the eye elongated, in the other the less resistant optic nerve-head was depressed and atrophied and the lens and ciliary processes crowded forward to encroach upon the iris angle.

Naturally the process is not a clear-cut one in the one case or the other. The eye which becomes glaucomatous may at the same time elongate as in the case of Mrs. M. who came to me in 1891 wearing plus 1.75 lenses; and twelve years later, long before she became totally blind, accepted only plus 0.37 cylinder. On the other hand the eye which becomes myopic, at the same time may and generally does in my opinion yield not only axially to the excessive pressure, but more or less also in the depression of the nerve-head, and the giving forward of the lens and suspensory ligament.

Miss J., 18 years old, has corrected vision 20/15, about five diopters of myopia, with two and a quarter and one and a quarter diopters of astigmatism. Both temporal and inferior halves of the nerve-heads are from two to three diopters concave and with pronounced scleral rings, both form fields contracted from ten to thirty degrees and the red fields from twenty to thirty degrees. Fortunately her corneas are 13 mm. in diameter.

I think it is Priestly Smith who says that any eye with a cornea not over 10 mm. will be glaucomatous if the individual lives long enough. H. C. B., age 24, salesman, had attacks for several years past, vision getting dull, attended with a severe headache. This occurred two or three times a week. He had had several changes of glasses and was wearing + .75 s. V. 20/15 and he accepted: R. + 25 s. + 25 c; L. + 25 c. The corneas were 11 mm. and subnormally sensitive. The temporal discs were pale and very slightly concave, the fields for white nearly normal, for red mostly within twenty and ten degrees.

Mary B., age 12, came on account of frequent styes which she has had opened at the univer-



sity dispensary, where she had two years ago been given + 1.75 spheres. Under scopolamin I found:

R. + 50+ .25 cyl. axis 15 temp. =20/20.

L. +.25 cyl. axis 15 nasal =20/20.

Both temporal discs were about one diopter concave, the fields for white nearly normal, for red mostly inside twenty degrees.

Alex C., age 21, clerk, has about eight and nine diopters of compound myopic astigmatism, corrected vision 20/20, corneas 11 mm. and subnormal sensibility. Both discs have large central and temporal concavities. Fields for white are nearly normal, for red mostly inside fifteen degrees.

Rose G., age 19, stenographer, has lately left the hospital after eleven weeks of typhoid fever. Has always suffered from headaches, has a very moderate amount of compound myopic astigmatism, exophoria in accommodation 11 degrees, abduction 8 degrees, and corrected vision 20/20. Corneas 11 mm. and subnormally sensitive, both temporal discs two diopters concave, fields for white nearly normal, for red mostly inside twenty degrees.

In 1905 I published in the *Northwestern Lancet* a detailed statement of the conditions as to cupping of the disc or otherwise in 160 refraction cases, of which 39 not presenting other or temporal concavity of the disc, practically all had defective fields for white. There were only four exceptions. Later experience convinces me that a more general determination of the color fields and a more careful use of the ophthalmoscope would have shown that statement to be shamefully conservative. Those results and tentative deductions were presented to the Ophthalmologic section of the A. M. A. at the 1904 meeting at Atlantic City, in the discussion of the late Dr. Beard's paper. In my paper before the Academy last October, in which I detailed a considerable number of cases, I presented the following conclusions:

1. A cupping of the optic disc and especially a concavity extending to the temporal margin whether deep or shallow is probably pathologic.

2. A large percentage of cases presenting such concavity of the disc will show more or less contraction of the visual fields, especially for colors, and many of them one or more other

symptoms of glaucoma, especially subnormal sensibility of the cornea, questionable excess of tension or unequal tension of the two eyes, or engorgement of the episcleral vessels.

3. An examination of the eyes, which fails to take account of such signs, is an incomplete examination and must lead to the overlooking of a large number of cases of glaucoma in their earlier and more manageable stages.

I wish most emphatically to reiterate those conclusions.

As I am writing, a mother and son have come in, the former for the first time. The son, 35, a business man, has a half diopter compound myopic astigmatism, 20/15 vision, corneas 12 mm., normal sensation, right temporal disc slightly concave, the left more pronounced, white fields nearly normal, red fields mostly inside twenty degrees, blind spots slightly enlarged.

The mother, 59, a well preserved woman, a widow for four years, has a splendid family of six sons and seven daughters, all in good health. She has worn for seven years for near plus 2.75 spheres. She has hyperopia of 1.25D. and a quarter and a half diopter astigmatism against the rule. Corrected vision 20/30 plus. Corneas 11 mm. and anesthetic. She had complained only of frontal and vertical discomfort on near use of the eyes for the past three months. Pupils 3 mm. and normal reaction. The irides were dull. Tension 25 mm. of mercury. There was moderate general concavity of both optic discs. The fields for white contracted from ten to thirty-five degrees, for red the right mostly inside ten degrees and the left extending from ten to twenty-three degrees. The blind spots were 35 and 30 c. at two meters.

Mrs. H. S., age 32, Jewish, came to me ten days ago. In my absence from the city three years ago she had consulted a busy and competent colleague, who had treated her inflamed eyes; and had given her about two months ago:

R. +0.50+2 cyl. axis 45° nasal, L+1+0.25 cyl. axis vertical. I found under homotropia, R.+0.75+3.50 cyl. 45° nasal, L+.75+.75 cyl. vertical, which with contracted pupils gave 20/15 vision. She had esophoria of fifty degrees, suppressed the right image in distant vision but used both eyes for the near. She has had severe headaches all her life. The left con-

conjunctiva was inflamed and hypertrophic and the skin eczematous. Corneas 10 mm. and anesthetic. Pupils were 2 mm. and would not dilate to 1 per cent cocain. A half disc of homatropia was used in each eye. Both temporal discs were two diopters concave, and the fields were generally contracted, parts of the temporal fields more than fifty degrees, the red fields being about twenty degrees.

As I write, two patients come in, Miss Margaret S., an old-time friend and Mrs. A. J., referred by the Red Cross.

Mrs. A. J., 27, headaches always, an unusual amount of the lower sclera visible, accepts: R.+0.75 cyl. vert. = 20/30, L.+0.50 cyl. vertical = 20/15. Under homatropia ( $\frac{1}{2}$  disc): R.+0.25 +1.50 c. vert., = 20/30, L+1.25 c. vert. = 20/15.

The corneas are 10 mm. and anesthetic, the discs are fully vascular and very slightly if at all concave, the fields for white nearly normal, for red greatly contracted in parts, only reaching or going beyond twenty degrees.

Miss S., age 44, bookkeeper, came to me eight years ago with complaint of dim vision especially on horizontal lines of figures. Vision 20/20 plus, improved by +0.25 cyl. horizontal,

which with addition of +1 was ordered for work. Exophoria 2 and abduction 9 degrees. Four years later +2 was added to distant correction. No note was made of the condition of the disc. Now she accepts: R.+0.50+.25 cyl. hor. = 20/30, L.+0.50+.50 cyl. vert. = 20/30. Addition of +2.50=J. 1, 10 to 18 inches. Corneas are 12 mm. and anesthetic, both temporal discs concave, tension "normal." Both anterior chambers shallow. Both fields for white contracted from ten to twenty degrees, and for red mostly inside fifteen degrees.

Luther C. Peters says (Transact. Am. Acad. O. & O. L., 1916) that 90 per cent of our field studies are made on well advanced pathologic cases. I would say that that 90 per cent. is only ten per cent. of the cases that ought to be studied. When we become awake to the urgent need of intelligent study of our other 90 per cent. of cases that now slip through our hands as simple refraction cases we shall deserve to be called ophthalmologists.

We shall then serve the true function of ophthalmologists as stated by George M. Gould, that of saving our patients from surgical operations.



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## EDITORIAL

### PROPHYLACTIC VACCINES IN INFLUENZA.

The present widespread epidemic of "influenza" has put the medical profession on its mettle. The treatment of cases after they have developed is not very satisfactory and it behooves us to do everything possible in the way of prophylaxis. The recent demands in the newspapers for the use of serums and vaccines makes it necessary that all physicians should understand the exact status of this question. Influenza in itself is a comparatively benign disease. The causative organism is still a mooted question, the influenza bacillus being found in only a small percentage of cases in this locality. The great danger of the epidemic is from pneumonia, and in practically all cases of pneumonia so far examined either the streptococcus or the pneumococcus has been isolated.

The use of vaccines as a prophylactic is theoretically sound and has worked out well in prac-

tice with typhoid and other vaccines. The prophylactic use of streptococcus and pneumococcus vaccines has never been tried on a large scale and hence their value is at present unknown. However, when properly prepared and administered they are harmless. Considering the fact that we have no specific therapy, the prophylactic use of such vaccines is justified. Whether they are really of value can be determined during this present epidemic.

Dr. W. P. Larson, Professor of Bacteriology at the University of Minnesota Medical School, is preparing these vaccines on a large scale. He is preparing them from several strains of streptococci and pneumococci isolated from fatal cases according to his own method of disintegrating the organisms, a method which seems to increase their antigenic properties.

The University of Minnesota will distribute this vaccine free to any physician in the state upon application to Dr. Larson, Department of Bacteriology, University of Minnesota.

### A FIVE MILLION ARMY MEANS FIFTY THOUSAND MEDICAL OFFICERS.

With an army of three million men in the field or in training and, as contemplated, an expansion of this force to five million men, the Surgeon General must have in the Medical Reserve Corps at least fifty thousand doctors.

The Medical Corps must keep pace in growth with the army expansion and it behooves every doctor in the United States between the age of 21 and 55, who is physically, morally, and professionally fitted, to arrange at the earliest possible moment his personal affairs so as to offer his services to his country in the capacity of a medical officer.

The United States is in the war to do her part in winning the struggle and this can only be accomplished by a large and well-trained body of troops adequately cared for by sufficient number of medical officers. The importance of the doctor's service and its relation to the successful outcome of the war cannot be underestimated.

As the mobile forces increase in size, so is there an expansion of base hospitals and other institutions for the care of the sick and wounded and there should be no lack of offi-

cers, when required, to give to our patriotic boys that professional attention which is so essential.

It is well for the medical profession of the United States to realize at once that a Medical Reserve Corps of at least 50,000 doctors will be required to meet the demands of the Surgeon General, and upon which corps he can draw for his medical officers.

We believe by this time that the profession of this country must be fully alive to the needs of the service, so let every doctor who is qualified, feel that he is doing not only his patriotic duty in offering his services as a medical officer, but is relieving the tension of the Surgeon General's Office by placing at the command of the Chief Officer of the Medical Department an adequate force without the frequent beating of drums to supply the necessary number with each increase of the mobile forces.

If you have not already received an application blank for commission in the Medical Reserve Corps, your nearest examining board or the editor of *Minnesota Medicine* will be glad to supply you.

**AN URGENT NEED.**

The Medical Advisor of the Northern Division of the American Red Cross advises us that there is an urgent demand for medical men for foreign service with the American Red Cross. There is especially at this time a very insistent call for a medical commission for Siberia. The men desired at once are as follows: one meta-

bolist, one tuberculosis specialist, one X-ray specialist, two oculists, and four pharmacists. The latter are required to have experience in hospital accounting. Men speaking French, Russian or Slovak, will be given preference for these positions.

Men up to fifty-five years of age will be eligible for active service. The length of service is for one year, and the Red Cross will defray the expenses, provide the transportation, and in exceptional cases, will allow a limited amount for the support of the family.

Any medical man who feels that he can possibly take up this very important work is urged to write for further details to the Medical Advisor, Northern Division, American Red Cross, 202 Essex Building, Minneapolis, Minn.

**BOARD OF HEALTH.**

**Division of Venereal Diseases.**

Quarterly Report. Ending September 30th.

The average monthly expenditure has increased somewhat over that of the previous quarter and totals within about \$200.00 of the monthly estimate under our appropriation. It has averaged \$2703.99. The expenditures, to date, total \$13,464.65 leaving a balance of \$22,205.35 out of the original appropriation of \$35,670.00. In spite of the fact that up to date, we are approximately \$10,000.00 under the estimated expenditures for the eight months, the monthly average indicates the need of the boards recommending at least an equal appropriation for the coming year.

The following tables indicate the expenditure for the quarter:

**Personnel and Salaries.**

The employees engaged in the work of the Division together with the period of their service and salaries are given in the table below:

Title.	Name.	Date.	Present rate of salaries.
Director	H. G. Irving, M. D.	July 1st to Sept. 30th.....	\$208.32
Ass't. Director	L. W. Freezer	July 1st to Sept. 30th.....	165.00
Supt. of Education	M. S. Ulrich, M. D.	July 1st to Sept. 30th.....	250.00
Chief Social Worker	A. G. Ashbrook	July 1st to Sept. 30th.....	200.00
Protective worker	C. Olinger	July 1st to Sept. 30th.....	100.00
Protective worker	E. Seeberg	July 3rd to Sept. 30th.....	100.00
Protective worker	Mrs. Ada Davis	Aug. 19th to Sept 30th.....	75.00
Ass't. Educ. Worker	Margaret Sheridan	Aug. 1st to Sept. 30th.....	100.00
Exhibit Demonstrator	R. C. Rawson	July 1st to Sept. 15th.....	60.00
Stenographer	Edith Zeigler	July 1st to Sept. 30th.....	85.00
Stenographer	Eleanor MacDowall	July 1st to Sept. 30th.....	85.00
Stenographer	Ruth Carlson	Sept. 5th to Sept. 30th.....	40.00
Clerk	Nettie Greenberg	July 1st to Sept. 30th.....	35.00

## EXPENDITURES.

	July	Aug.	Sept.	Total
Salaries	\$1,292.32	\$1,346.32	\$1,544.16	\$4,182.80
Equipment	396.36			396.36
Supplies	43.02	17.89	164.94	225.85
Traveling	101.61	151.36	269.54	522.41
Tel. & Tel.	2.93	23.25	4.11	30.29
Express and Exhibit	19.55	91.96	330.97	444.48
Printing	18.52	438.69	135.56	592.71
Postage	262.80	10.00	100.12	372.80
Salvarsan	1,200.00			1,200.00
Laboratory Service			144.18	144.18
Total	\$3,337.11	\$2,079.47	\$2,693.48	\$8,111.88

(Note: All items are indicated under the Month in which the bill is audited and paid.)

Following the action of the board in passing the regulation prohibiting the sale of venereal disease remedies, the division mailed a circular letter to all pharmacists in the state (copy appended) quoting the regulation and asking their co-operation. Approximately fifty favorable replies were received. Immediately after this the Chief of the Bureau of Food and Chemistry of the Department of Agriculture had a conference with the director. The Bureau had received instructions to investigate and get inventories of all stocks of venereal disease remedies in the district. Following the conference a circular letter written in co-operation with the division, was mailed to all pharmacists by the Bureau (copy appended). Data from the replies to this second letter are now being compiled. During the past month investigations have been made by Mr. Freezer, Ass't Director, into the sale of these remedies. Positive evidence of violation of the regulation was obtained at the following stores: St. Paul Drug Co., 7th and Wabasha Sts., St. Paul; Neff & Rosenquist, 160 E. 7th St., St. Paul; Frank C. Friedman, 7th and St. Peter St., St. Paul; Liggett Drug Company, Nicollet Hotel Block, Minneapolis; Liggett Drug Company, 5th and Hennepin St., Minneapolis; and Service Drug Company, 217 Nicollet Ave., Minneapolis.

After a conference with Drs. Bracken and Smith, it was decided to cite some of the firms before the Board at its formal meeting rather than proceed at once in court.

At the last meeting of the Board the director asked and secured permission to use some portion of the Division's fund toward inaugurating clinics. In arranging for Minneapolis and St. Paul Clinics the director has been materially assisted by committees of the Minnesota Social Hygiene Commission under Dr. Beard and Dr. Aronovici. As a result of the efforts in this direction there is an evening clinic for women conducted by the Minneapolis City Health Department at the City Hospital. Beyond furnishing arsphenamine, this clinic is not supported

by our funds. A men's evening clinic has been inaugurated at the University for two evenings a week. We are financing this to the amount of \$115.00 a month with a limit of six months. An evening dispensary will be opened, possibly this week, in St. Paul for men and women both. The division has pledged \$100.00 a month to this clinic with a limit of \$1000.00. A clinic for men and women opened Oct. 1st in Duluth under the auspices of the local Duluth Department. This was financed locally. A limit has been placed on expenditures in this direction, but the director feels that it would be advisable and proper if the state received federal assistance to the expected amount of \$23,000.00 to maintain and finance entirely all of these evening dispensaries. A number of others should be established in the smaller communities. We have already felt the need of this in handling cases in many small towns. It is difficult to secure necessary expert examinations and arrange for gratuitous treatment when needed.

During the past quarter Arsenobensol has been distributed as follows:

INSTITUTION	DATE	6 SIZE	4 SIZE
Duluth Health Dept.	Sept. 24th	12	12
University Dispensary	July 25th	24	36
Minneapolis City Hosp.	Sept. 17th	25	25
Minneapolis City Workhouse	Sept. 3rd	—	120
University Dispensary	Sept. 5th	12	36
St. Paul City and County Hosp.	Sept. 12th	50	50
Dr. Schwartz, Duluth, Minn.	Sept. 10th	3	—
Dr. Schwartz, Duluth, Minn.	Sept. 14th	—	3
		126	282
	Grand Total		408

152 Wassermanns have been done.

57 examinations have been made for Gonorrhoea.

The educational work is being continued by all members of the department wherever there is opportunity, although of course, the bulk of this work falls on Dr. Mabel Ulrich. Dr. Irvine has addressed the Social Service Club, the Minneapolis Rotary Club at a large noon meeting, the Women's Co-operative Alliance and the Ad Club of Duluth. He entertained a delegation of Duluth officials and demonstrated the treatment of workhouse inmates in the Twin Cities. Rochester was recently visited and the program gone over with the Mayo Clinic and Rochester officials. Mr. Freezer recently showed the film "Fit to Fight" to a group of railroad men in Staples. This was arranged in cooperation with Dr. Ide of the Northern Pacific Railroad. Dr. Irvine and Dr. Ulrich presented papers on the work before the State Medical meeting in Duluth. "Fit to Fight" was also shown. The stereomotorgraph has been used in the club rooms of the Street Railway Company; at the State Fair; and in some of the army stations.

Dr. Ulrich has given approximately forty-five (45) lectures reaching about 1200 people. The lectures

have been given to summer schools, normal schools, State University, department stores, factories, girls' recreation centers, school nurses, federated union clubs, State Medical Association, and business women's clubs. At these lectures about 2000 pieces of literature were distributed. Our exhibit consisting of about 55 posters in two sets, one for men and one for women, was shown at five county fairs and at the State Fair. We estimated an attendance of 10,000 at the men's exhibit at the State Fair, and about 8000 at the women's exhibit. About 8950 pieces of literature were distributed.

One new pamphlet written by Dr. Ulrich and Dr. Irvine on our state program has been published.

The system of reporting cases was inaugurated August first. In August 620 cases were reported by 137 doctors; syphilis 256, gonorrhoea 249, chancroid 15. In September 438 cases were reported; syphilis 225, gonorrhoea 199, and chancroid 14. 44 physicians have been added to the list reporting. The reporting of success of infection offers a wonderful opportunity to apprehend, place under treatment, and control the clandestine prostitute. The division is making an effort to stimulate the physicians to secure this information. In this regard the director believes the social service department under Miss Ashbrook is doing a really remarkable piece of work. Since August first from information on report card, 156 cases have been handled. 38 were delinquent patients who were either returned to their physician or placed elsewhere. 52 sources of infection were investigated and in a large majority of cases, were apprehended and placed under treatment. Investigations for some other special reason were made in 65 cases. In addition to this work resulting directly from our report system, there were handled 98 cases referred by various social agencies, and 51 by penal agencies, making in all a total of 305 cases for the quarter. This work is gradually spreading over the state as physicians realize what a valuable service can be rendered. Already work has been done in Henning, Hampton, Mankato, Fairbault, Owatonna, Wadena, Winona, and Sebeka. As each new town is visited an effort is made to get in touch with the physicians, and the civil authorities, giving them personally some definite ideas of the work and using the cases under investigation as concrete examples. Under Miss Ashbrook, Mrs. Olinger has handled successfully many sources of infection, and a great deal of court work. Miss Seeberg has been engaged in special investigations and has made mental examinations in fifteen cases. Mrs. Davis has been detailed to do protective work around the Overland Training School, and in the dance halls of Minneapolis.

Attention should be called to the Habeas Corpus case brought in the district court in Minneapolis in which the quarantine power of the Board in venereal disease was upheld by the court.

From now on educational work especially in our industrial plants should be emphasized, plans for this are already under way. Reporting should be

stimulated in every way and particularly should physicians be urged to secure data on sources of infection. Dispensary facilities should be increased and the efficiency of all carefully investigated.

The director wishes to take this opportunity to express his appreciation of the enthusiastic support of all members of the department, including stenographers and clerks upon whom a considerable amount of extra work has fallen, necessitating working frequently over time. The best of assistance and co-operation has been given by all other departments of the Board.

Respectfully submitted

H. G. IRVINE

Director.

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## NOTICE.

### THE SOUTHERN MINNESOTA MEDICAL ASSOCIATION.

The annual meeting of the Southern Minnesota Medical Association will convene at Mankato, November 25th and 26th. It is expected that the programs will be sent to members about November 5th.

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## OBITUARY

### Dr. Edward C. Slater.

We deeply regret to record the untimely death of Dr. Edward C. Slater from pneumonia following influenza, which occurred at the University Hospital on October 5, 1918.

Dr. Slater at the time of his death was fulfilling his duties as a house officer in the Department of Medicine, at the University Hospital, and his fatal illness was directly contracted in the course of his attendance on patients ill with the same malady from which he died. He was establishing for himself a splendid record of faithfulness to duty and a studiousness and earnestness which bespoke well his keen appreciation of the higher ideals in medicine.

The entire Department of Medicine of the University of Minnesota hereby wishes to record its great sorrow in his passing, its deep sympathy with his sorrowing parents in the loss of an only son, and its sincere appreciation of his excellent work in the department.

Edward C. Slater was born in Camden, N. J., October 22, 1893, and came to Minnesota when

six years of age. He lived in Anoka for eleven years and graduated from the Anoka high school in 1912. He received his degree of Bachelor of Medicine from the University of Minnesota in June, 1918, and immediately entered upon his duties as medical house officer in the University Hospital, University of Minnesota. His funeral was held in Anoka on October 8, 1918.

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### IN MEMORIAM

**FRANK FAIRCHILD WESBROOK, M. A.,  
C. M., M. D.**

**Dean of the Medical School, University  
of Minnesota, 1906-1913.**

The Medical School of the University of Minnesota receives with profound sorrow the tidings of the death of its former Dean, Frank Fairchild Wesbrook.

The men and women of the Faculty who worked with him and knew him intimately for many years know that "A master in Israel has fallen." They know that a scientist in medicine who ranked among the marked men of his day is gone. But they know, too, that a leader whom they gladly followed, an administrator who directed with intelligent power the destinies of the school, a counsellor in whom they trusted, a friend of golden days gone by whom they loved, has passed into the Great Beyond. His going reminds them of the strong man he was, of the great work he did, of the worth of his friendship and the joy of his companionship, which again, with renewed consciousness of loss, they lose.

To Mrs. and Miss Wesbrook they send the message of their sympathy and the assurance that his memory will be cherished in the hearts of his associates who remain and in the annals of the school he so greatly helped to upbuild.

With the death of their old Chief a significant chapter in the history of the Medical School of Minnesota is closed.

E. P. Lyon, Dean.

Richard Olding Beard, Secretary.

## OF GENERAL INTEREST

Dr. Howard Kerns of Granite Falls, died at his home on October 17th. He is survived by his wife and one son, David Marlowe Kerns. Dr. Kerns received his medical education at Johns Hopkins University.

Dr. Myron Sherper, St. Paul, recently received a commission as lieutenant in the medical reserve corps, with orders to report for duty at Fort Riley, Kan.

Dr. H. B. Cole, for many years a practicing physician of Franklin, has moved to Redwood Falls, where he expects to be associated with Dr. Pease of the Redwood Falls Hospital.

Dr. Pierre C. Pilon, Pyanesville, has been promoted to major in the medical reserve corps.

Dr. W. J. Cochrane of Lake City was recently awarded the commission of captain in the medical reserve corps, and is now stationed at Camp Greenleaf, Ga.

All the friends of Dr. J. S. White of St. Paul, now in France, are delighted to hear of his well earned promotion from major to lieutenant colonel.

Dr. F. A. Bordwell, formerly of Stillwater, but who has been practicing at Marmath, N. D., for the past fifteen years, passed away at Miles City, Mont., on Friday, October 11th, of pneumonia brought on by a severe attack of influenza.

Dr. L. A. Guyer, Waseca, recently received a commission as lieutenant in the medical reserve corps, and left for New Haven, Conn., where he will take up intensive training at U. S. A. General Hospital, No. 16, Yale.

Dr. L. F. Schmauss, formerly a practitioner of this state and now practicing in Alexandria, Ind., and proprietor of the Alexandria Hospital, was recently elected President of the Eighth District Medical Society of Indiana, at its annual meeting.

Dr. Albert G. Schulze, recently of Duluth, has moved to St. Paul where he has opened offices at 1009 Lowry Building. Dr. Schulze will limit his practice to obstetrics.

Dr. Stanley R. Maxeiner, Minneapolis, who has been with the British forces in France for the last fourteen months, has been placed in charge of the X-ray Department of Casualty Clearing Station, No. 54.

The present address of Capt. Stephen H. Baxter, M. R. C., Minneapolis, is 60th Infantry, A. E. F., France.

Dr. L. N. Klove, formerly of Wanamingo, has located in Chokio.

Word has been received of the death of Dr. Emil King, formerly a resident of Fulda, Minn., and one of the best known physicians in Southwestern Minnesota. He was an army surgeon and was killed in action while serving in France.

Dr. G. L. Gosslee, Moorhead, was recently commissioned a captain in the medical reserve corps, and left on October 15th for Fort Oglethorpe, Ga. Dr. Gosslee is the third Moorhead physician to receive a call to the colors.

Dr. C. Graham, Rochester, has been named medical director for Olmstead county by the state medical corps.

Lieut. John Felix Traxler and Miss Marie Fitzgerald were married at San Antonio, Tex., on August 31st. Lieut. Traxler is a graduate of Creighton University, and up to the time of his entering the service practiced at Henderson, Minn.

Dr. James E. O'Donnell, Minneapolis, recently received a commission as first lieutenant in the medical reserve corps, surgical division, and was ordered to report at Fort Oglethorpe, Ga. Dr. O'Donnell is a graduate of the University of Minnesota.

Dr. W. J. Taylor, Pipestone, has been named director of Pipestone county for the Minnesota Branch of the Volunteer Medical Reserve Corps.

Dr. S. G. Pake, formerly of Duluth and Superior, who has during the last two years been superintendent of a hospital at Hayward, Wis., has been called into military service, and is now stationed at Camp Jackson, S. C., with the rank of captain in the medical reserve corps.

Dr. L. A. Nelson, St. Paul, left a few weeks ago for Fort Oglethorpe, Ga., to take up his duties as a captain in the medical reserve corps. Dr. Nelson is an oculist, and his work at the fort will consist of examining the eyes of the incoming recruits, as well as looking after the condition of the men in training.

Dr. F. M. Manson, formerly of Worthington, has been made assistant chief of staff of the surgical section of the base hospital at Camp Dodge, Iowa.

Dr. J. C. Rothenburg, Springfield, has been appointed to represent Brown county in the Volunteer Medical Service Corps of the Council of National Defense.

Dr. Van H. Wilcox, Minneapolis, has been commissioned captain in the medical reserve corps and has gone to Camp Cody, Deming, N. M.

Dr. Knox Bacon, St. Paul, was recently commissioned a captain in the medical reserve corps.

Dr. C. V. Lynde, formerly of Parkers Prairie, and for many years a practicing physician of Northfield, has moved to Waubun where he expects to make his future home.

Dr. J. A. Regner, who has been practicing medicine at Wahkon and Isle for the past few years has decided to locate at Grantsburg, Wis.

Dr. Charles Lyman Greene, one of St. Paul's best known physicians, who was commissioned a captain in the medical reserve corps a few weeks ago, has, we are pleased to learn, been promoted to the rank of major.

Dr. E. J. Huenekens, Minneapolis, wishes to announce that from now until June 1, 1919, he will devote all his time to the University of Minnesota and the Child Welfare Division of the State Board of Health. He will give up private practice during that time but will be privileged to see cases in consultation with other physicians.

Dr. Harry McIntosh, St. Paul, died at Camp Sherman, Ohio, on October 6th, of Spanish influenza, according to word received by his parents.

Dr. McIntosh was thirty-one years of age, a graduate of the College of St. Thomas, and of



the Chicago College of Medicine and Surgery, and had practiced in St. Paul about five years. He entered the service in July as lieutenant in the medical reserve corps.

Dr. Nellie Barsness, the first woman physician in St. Paul appointed to overseas war service, left for New York a few weeks ago expecting to sail at once for France where she will serve in the new hospital for the treatment of gassed soldiers, established by the National American Women's Suffrage Association.

Dr. W. J. Cochrane of Lake City, Minn., recently received his commission as captain in the medical reserve corps, and is now stationed at Camp Greenleaf, Ga.

Dr. Thomas A. Lee of Hibbing, who received a commission in the medical reserve corps recently, left on October 1st, to begin a course of intensive training at Camp Greenleaf, Fort Oglethorpe, Ga.

Dr. Howard Lankester, former health commissioner of St. Paul and for forty years a prominent physician in Minnesota, offered his services to the government for whatever use it could make of him.

He recently received a telegraphic order from Surgeon General Blue of the United States Public Health Service, appointing him acting assistant surgeon and directing him to report to Charleston, W. Va., to the state commissioner of health to assist in combating the influenza epidemic there.

Dr. Lankester's assignment is for "temporary duty," and he will return to St. Paul when the epidemic abates.

The Mississippi Valley Conference on Tuberculosis was held on October 2d to 4th, at St. Louis, Mo., and pertained largely to the prevention and control of tuberculosis in the army and navy.

Dr. H. W. Hill, executive secretary, Minnesota Public Health Association, gave an address on "A State Program for the Eradication of Tuberculosis." The paper was discussed by Dr. Robinson Bosworth, St. Paul, representing the advisory commission for the study and prevention of tuberculosis, and Dr. C. E. Smith, St. Paul, of the state board of health.

Dr. J. Warren Little, Minneapolis, has been chosen by the Volunteer Medical Service Corps as the Minneapolis representative on the state executive board, the central governing board announced recently.

Other members of the state board are: Drs. Thos. McDavitt, St. Paul; W. M. Magie, Duluth; Eugene L. Mann, St. Paul; A. J. Gillette, St. Paul; H. M. Braeken, St. Paul; H. M. Workman, Tracy.

The Volunteer Medical Service Corps, which is being organized throughout the nation, was authorized by the Council of National Defense, January 31, 1918. Its purpose will be to keep a record of all medical men and women in the United States, to co-operate with the army and navy medical corps, and to systematize civilian service.

Dr. Charles Henry Norred, for many years a prominent physician of Minneapolis, died September 14th at Battle Mountain Sanitarium, Hot Springs, Ark., at the age of 76. He went to the Hot Springs Sanitarium in June, accompanied by Dr. G. G. Eitel of Minneapolis. Dr. Norred was born in 1842 in London county, Virginia.

A joint meeting of the Goodhue County and Wabasha County Medical Societies was held at Frontenac Inn, Old Frontenac, Minn., on Wednesday, October 2d, with the following program:

1. Syphilology and Dermatology, Dr. J. H. Stokes, Rochester.
2. Acute Mastoiditis, Dr. J. Bowers, Lake City.
3. Focal Infection of Teeth, Dr. B. Featherstone, Red Wing.

**Wanted:** Physician for the Out-Patient Department of the City and County Hospital; attractive salary with maintenance and use of car. This is an unusual opportunity for a man wishing to build up a city practice. Answer with full particulars; age, married or single, experience, references, etc., and if draft exempt.

Address: ARTHUR B. ANCKFR, Superintendent, City and County Hospital, St. Paul, Minnesota.

## NEW AND NON-OFFICIAL REMEDIES

During September the following articles were accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

### Non-proprietary Articles:

**Benzyl Alcohol**

**Armour and Company:**

**Corpus Luteum Capsules, 2 Grains**

**Thromboplastin Solution—Armour**

**Gilliland Laboratories:**

**Antipneumococcus Serum, Type I**

**Hynson, Wescott and Dunning:**

**Phenmethylo—H. W. and D.**

**Phenmethylo Ampules, 1 per cent., H. W. and D.**

**Phenmethylo Ampules, 2 per cent., H. W. and D.**

**Phenmethylo Ampules, 4 per cent., H. W. and D.**

**Riedel and Company:**

**Salipyrine Tablets, 7½ Grains**

**E. R. Squibb and Sons:**

**Chlorcosane-Squibb**

**Halazone-Squibb Tablets, 1-16 Grain**

**Solargentum-Squibb**

**Chlorcosane-Squibb.**—It complies with the standards for chlorcosane, N. N. R. Chlorcosane is a liquid, chlorinated paraffin containing its chlorine in stable (non-active) combination. It is used as a solvent for dichloramine-T and is itself without therapeutic action. E. R. Squibb and Sons, New York.

**Thromboplastin Solution-Armour.**—An extract of cattle brain in physiological sodium chloride solution prepared according to the method of Hess. It complies with the description of Solution Brain Extract, N. N. R. As a hemostatic, the solution is applied directly to bleeding tissues or applied by means of a spray or tampon. See New and Non-official Remedies, 1918, p. 136 under "Fibrin Ferments and Thromboplastic Substances (Kephalin). Armour and Co., Chicago.

**Corpus Luteum Capsules, 2 Grains.**—Each capsule contains 2 grains of corpus luteum-Armour (see New and Non-official Remedies, 1918, p. 237). Armour and Co., Chicago.

**Salipyrine Tablets, 7½ Grains.**—Each tablet contains 7.5 grains of salipyrine (see New and Non-official Remedies, 1918, p. 275). Riedel and Co., New York.

**Antipneumococcus Serum Type 1, Gilliland.**—It is marketed in vials containing 50 c. c. The Gilliland Laboratories, Ambler, Pa.

**Phenyleinchoninic Acid-Abbott.**—A brand of phenyleinchoninic acid, U. S. P. (see New and Non-official Remedies, 1918, p. 269). The Abbott Laboratories, Chicago.

**Parresined Lace-Mesh Surgical Dressing.**—Net mesh gauze impregnated with and containing from 45 to 50 per cent. of parresine (see New and Non-official Remedies, 1918, p. 247). The Abbott Laboratories, Chicago.

**Halazone-Squibb.**—A brand of halazone complying with the standards for halazone, N. N. R. It is marketed only in the form of Tablets Halazone-Squibb 1-16 grain, each containing halazone-Squibb, 1-16 grain, anhydrous sodium carbonate, 1-16 grain, and sodium chloride, 1½ grains. Halazone tablets are used for the sterilization of drinking water one or two tablets being added to one quart of water. E. R. Squibb and Sons, New York. (Jour. A. M. A., Sept. 28, 1918, p. 1059).

### PROPAGANDA FOR REFORM.

**An Italian View of the Proprietary Evil.**—A. Murri, Professor of clinical medicine at Bologna, protests against the way he is importuned to prescribe only made-in-Italy pharmaceuticals. He declares his unswerving patriotism, but insists that the physician's duty is to prescribe that which is best to restore the health of his patients. He holds that to elevate the pharmaceutical industry of Italy, there must be founded a supreme council of chemists, pharmacists and clinicians who will examine the made-in-Italy pharmaceuticals with the severest scientific impartiality (Jour. A. M. A., Sept 7, 1918, p. 840).

**Dr. A. W. Chase's Nerve Pills.**—According to the label, these pills are "used in the treatment" of "thin and watery blood, nervous disorders, brain fag, nervous headache, nervous dyspepsia, irregular heart action, sleeplessness," etc. A circular in the box calls attention to the use of these pills in the treatment of almost everything from pale, sallow complexion, to paralysis and locomotor ataxia. An analysis made in the A. M. A. Chemical Laboratory indicates that "Dr. A. W. Chase's Nerve Pills" contain iron, possibly in the form of ferrous sulphate which is in a state of more or less decomposition, manganese dioxide, aloes or aloin, vegetable extractive, and a trace of alkaloidal drug (Jour. A. M. A., Sept. 7, 1918, p. 844).

**Two Misbranded Nostrums.**—Brazilian Balm, directly or inferentially, was claimed to cure consumption, prevent lockjaw and "clear out of the system" the germs of typhoid and diphtheria. A shipment of the nostrum was seized by the federal authorities and ordered destroyed by the court.

Wright's Indian Vegetable Pills were claimed to cure yellow fever, smallpox, erysipelas, consumption, cancer, venereal disease, paralysis, epilepsy and other conditions too numerous to mention. The government, having seized a shipment and charged that the claims were false, the proprietors of the pills admitted the allegation (Jour. A. M. A., Sept. 7, 1918, p. 844).

**Bitro-Phosphate.**—The A. M. A. Chemical Laboratory reports that this appears to be a five-grain tablet of calcium glycerophosphate. Since a bottle containing forty-two tablets sells at one dollar and

this price is sixteen hundred per cent greater than the cost of the calcium glycerophosphate contained therein, it is asked if this comes within the excess profit tax. The claims made for Bitro-Phosphate are those which were made for calcium glycerophosphate when it was erroneously supposed that organic phosphates were more readily assimilated than inorganic phosphates. Bitro-Phosphate is sold by the Arrow Chemical Company. E. S. Prather, the present owner of this company, has been interested, directly or indirectly, in a considerable number of questionable products and schemes (Jour. A. M. A., Sept 14, 1918, p. 921).

**The Patriotic Medical League in Italy.**—In a recent issue of the *Unione dei Medici Italiani per la Resistenza Nazionale* of Italy, the work of the A. M. A. Council on Pharmacy and Chemistry is described in detail. The description of the work of the Council is by Dr. V. Ronchetti, physician in chief of the Ospedale Maggiore of Milan. He refers to the work of the Council to show what is being done in the United States in this line, "in a truly, admirable, simple and practical manner," and compares this with the ineffectual control of pharmaceuticals in Italy. He holds that it should not be a difficult matter to co-ordinate certain departments in Italy's universities to form the nucleus for an *istituto di controllo* for medicinal products—an institution which would serve as a guarantee for sick, as a guide for the manufacturing chemists in their production, and for physicians in their application of the products (Jour. A. M. A., Sept 14, 1918, p. 918).

**Eatonic.**—If one believes the claims of the Eatonic Remedy Co., Chicago, "the Advanced Scientific Thought of the Medical World has been called upon to produce Eatonic"! According to newspaper advertisements, Eatonic "Instantly relieves heartburn, bloated, gassy feelings, stops acidity, food repeating, and stomach misery." From the analysis in the A. M. A. Chemical Laboratory, it appears that Eatonic comes in the form of tablets each containing approximately 5.5 grains calcium carbonate, 15 grains sugar, 3.25 grains charcoal, with peppermint and undetermined material. Eatonic will do nothing that cannot be done as well by a "sodamint tablet" (Jour. A. M. A., Sept. 21, 1918, p. 993).

**Campetrodin and Campetrodin No. 2.**—The A. M. A. Chemical Laboratory reported to the Council on Pharmacy and Chemistry that from the advertising of the A. H. Robins Company, Richmond, Va., it appeared that Campetrodin and Campetrodin No. 2 are claimed to contain elementary (free) iodine in an "oleaginous solvent," and that the second preparation contains twice as much iodine as the first. The Laboratory's examination demonstrated, however, that there was but a trace of free iodine in the preparation; that practically all of the iodine appeared to be in combination with a fatty oil, and that the second did not contain twice as much iodine as the first. Having considered this report of the analysis and the claims made for the preparations, the Council declared Campetrodin and Campetrodin No.

2 inadmissible to New and Nonofficial Remedies because of false statements as to composition and therapeutic action (Jour. A. M. A., Sept. 21, 1918, p. 993).

**Sugar Treatment of Tuberculosis.**—Bomenico Lo Monaco, professor of physiologic chemistry of the University of Rome, has studied the influence of the secretions of sugar parenterally introduced. He found that when persons with copious bronchial secretions are given subcutaneous injections of 4 or 5 gm. of sugar (saccharose), expectoration rapidly diminishes and ceases completely in many cases. It is claimed that an intramuscular injection of strong sugar solution is of considerable value in the treatment of the tuberculous in that by diminishing the bronchial secretion, it diminishes the cough and annoying night sweats. It is further suggested that the treatment will be useful in that it will decrease the amount of sputum scattered about by consumptives (Jour. A. M. A., Sept. 28, 1918, p. 1083).

**Carminzym Not Admitted to N. N. R.**—The Council on Pharmacy and Chemistry reports that Carminzym (Fairchild Brothers and Foster) is declared to contain in each tablet approximately 32 mg. of an extract of pancreas, 50 mg. sodium bicarbonate, 172 mg. prepared chalk, 1.5 mg. powdered ipecac and "aromatics q. s." Without considering other possible conflicts with its rules, the Council held the preparation inadmissible to New and Nonofficial Remedies because it is an irrational mixture, the use of which is detrimental to therapy. The Council explains that the employment of mixtures of pancreatic extract, alkalis, ipecac and carminatives in fixed proportion leads to slipshod treatment and tends to make the practice of medicine mere guesswork (Jour. A. M. A., Sept 28, 1918, p. 1081).

**Deterioration of Argvrol Solutions.**—The manufacturers of argyrol advise that argyrol solutions be made freshly when required. The need for this precaution is confirmed by a report of work which indicated that the gonococidal activity of an argyrol solution began to decrease a few days after it had been made and had decreased 75 per cent after two months (Jour. A. M. A., Sept 28, 1918, p. 1084).

**Instability of Fluidextract of Ergot.**—There is some difference of opinion among investigators as to the keeping quality of fluid-extract of ergot. However, it is clear that it loses its activity quite rapidly and may become inert within a year (Jour. A. M. A., Sept 28, 1918, p. 1084).

**The Administration of Quinin.**—From a study of the elimination of quinin in different diseases, it appears that for optimal effects it is best in most cases to give quinin every three or four hours in approximately 0.25 gm. doses, preferably by mouth except when there are gastro-intestinal disturbances, and here subcutaneous or intramuscular injection is indicated. Needless to say, the daily 2 gm. should be exceeded in cases of pernicious and primary malaria. The intravenous method should be employed in pernicious cases (Jour. A. M. A., Sept. 28, 1918, p. 1086).

## CORRESPONDENCE

To The Editor, Minnesota Medicine,  
St. Paul, Minn.

Dear Sir.

The Northwest has given so splendid a quota of physicians and nurses to the work overseas that the following report written this summer by Miss Mary Anderson, one of the Young Women's Christian Association secretaries, in charge of the hut at base hospital No. 27, will be of interest:

"I am so glad that I can report that our hut is nearing completion. The walls are to be of red tile with a cement floor and wooden beams stained dark brown, and there is to be a real fireplace. It is ideally situated, overlooking a small lake bordered with weeping willows and between the nurses' barracks and the hospital. We are already making many plans for the house-warming and wish that you all might be here to help us to celebrate.

"Now that we are so busy in the hospital my weeks have a schedule too. On Wednesday mornings I distribute roses to all the wards. Up in the surgical wards where every patient is a bed patient I take the basket around and let each man choose the rose he wants. On Saturday morning I drive downtown to the flower market and always come back with a carload of potted plants and flowers. Yesterday the flowers happened to be deposited in the hallways at the hospital just as the first group of patients were going to mess, and they stopped and feasted their eyes upon them. As one man said, 'You see, Miss, when a fellow has been up at the front for five months and has not seen a flower all that time they certainly look good to him.' And as I go through the wards they all like to tell me about their mothers' gardens. They also like to wear one flower, and yesterday I gave away a large bunch of carnations—one to each man. They love the bright colored flowers and the ones that have some odor.

"On Monday and Thursday mornings I go to town to do errands for the nurses and often at other times. There are always watches to be repaired, if nothing else. And every afternoon I serve tea in the parlor, except on Sunday afternoon when it is served in the grove.

"It is more important, now that the nurses are so busy, that they take their half days and get away from the hospital atmosphere, so this week we have had two picnics with four at each picnic. We went to a little cafe where we have gone several times, and which is perched on the top of a high cliff overlooking the valley of our beautiful river for many miles. The hostess of the cafe is a most hospitable old French woman. She made an omelette and a salad for us and set our table outdoors. When we cleared the table I admired the heavy white cloth and asked if I could buy anything like it here. She said, "No, indeed," that her mother had woven it for her with her initials in the corner and she begged me to take it as a gift, saying that there was nothing

too good for the Americans. When I said that I could not take it, she was discouraged because she thought I had not understood her—(she does not speak a word of English)—and begged me so to take it as a souvenir of France that I finally said I would if she would accept a souvenir of America, and that an American flag was the only thing I had. That pleased her very much. The finishing touch to our day came when, as we walked home along the river road, we heard singing in the woods above us and discovered that it was a group of French soldiers singing the Marseillaise. They sang it three times while we stood and listened together with two peasants who had been pitching hay in the field beside us, and as they finished singing they waved a French flag.

"Yesterday we took the flag out to the old lady and she put both the American and French flags above the door and brought up from her 'cave' a small bottle of French wine, determined that we should drink a toast together. She proposed the toast and we could not refuse. 'Vive la France, Vive L'Amérique, Victoire a nos chers absents.'"

The establishing of nurses' huts at the various base hospitals has been part of the big war work of the Young Women's Christian Association. Fourteen of these huts are now in operation with American secretaries in charge. Sincerely,

EDITH KIRKWOOD,

Publicity Director.

Minnesota State Committee, Y. W. C. A.

## PROGRESS IN MEDICINE AND SURGERY

**THE GONOCOCCIDAL ACTION OF PROTEIN SILVER:** H. Culver (Jour. Lab. and Clin. Med.) found that protargol and nargol are practically equal in effectiveness as gonococidal agents. This being also true of silvol and argyrol. All the above preparations deteriorate after standing for a time or exposed to light. Argyrol especially loses 75 per cent of its gonococidal strength after standing exposed to the light for two months; protargol, nargol and silvol lose about 50 per cent in the same time. They all lose more or less of their value after heating, especially protargol.

Exposing of a culture of gonococci either continuously or intermittently to gradually increasing concentration of any single silver solution produces apparent increased tolerance in the organism for the particular silver solution used. This tolerance applies only to the particular salt used as any other member of this silver group will act against the drug fast organism the same as an untreated organism. The conclusions should be: 1. Old silver solutions should not be used. 2. Heating silver solutions is not advisable. 3. In treating gonorrhoea silver solutions should be occasionally changed if results are

not being obtained on account of possibility of a tolerance being established for the particular solutions being used.

C. D. FREEMAN.

**PITUITRIN IN TONSILLAR AND NASAL HEMORRHAGE:** S. Salinger (Therapeutic Gazette, Jan. 15, 1918) reports, on the basis of 87 tonsillectomies (52 under general, 35 under local anesthesia), the results with pituitrin used as a hemostatic in the presence of hemorrhage have been very gratifying. In five cases of secondary tonsillar hemorrhage the pituitrin alone was sufficient to control the bleeding. In six cases of secondary nasal hemorrhage following operation, in all but one the pituitrin alone brought about a cessation of the bleeding within an average of 15 minutes after injection. In the unsuccessful case the hemorrhage came from an artery in the base of the septum which must have been sliced in its long axis, making its obliteration by packing difficult as there would be a violent hemorrhage upon removal of the pack until finally it was left in situ for five days. Where a secondary hemorrhage occurs, unless it is arterial, the pituitrin is successful and in most cases will obviate the necessity of repacking the nose.

CARL L. LARSEN.

## BOOK REVIEWS

**THE HOSPITAL AS A SOCIAL AGENT IN THE COMMUNITY.** (By LUCY CORNELIA CATLIN, R. N., Director of Social Service Work and Executive Director of the Out-Patient Department Youngstown Hospital, Ohio. Illustrated. Published by W. B. Saunders Company, Philadelphia and London, 1918. Price, \$1.25 net.)

Students as well as hospital executives interested in Hospital Social Service will welcome this volume. It not only states that a Social Service Department or Out-Department should be an established part of every well organized hospital, but it goes further, by outlining a very definite and tangible method by which this colossal task may be successfully accomplished. That the authoress has a broad knowledge of human character with all its frailties, peculiarities, vices and virtues, is plainly shown by the manner in which she deals with each and every patient brought to her observation. Her keen insight shows her how utterly useless it would be to hope for the best results of many post-operative patients, if the family of the said patient would have to suffer, or if the patient himself should lack the proper support after leaving the hospital. She even shows how by kindness and correlation with other Social Service Agencies, many people, instead of becoming mental or moral delinquents, are encouraged and eventually prove to be men or women of ability.

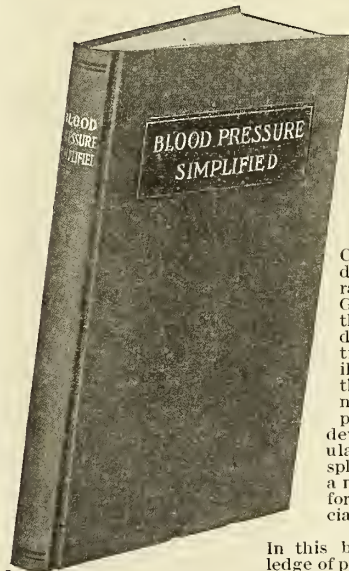
In a very few chapters Miss Catlin has drawn a very graphic picture of the tuberculous patient; as well as those who suffer from epilepsy, feeble-mindedness, and insanity. The hospital child patient and the unmarried mother are also considered. She shows how each of the above conditions may exist and how the people may be dealt with. The concisely written description, coupled with the illustrations of many of these cases, make this book not only interesting and readable, but practical as well.

DOLORES M. POSCH.

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# Minnesota Medicine

Journal of the Minnesota State Medical Association

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## ORIGINAL ARTICLES

### THE PROBLEM OF HUMIDITY INDOORS.\*

E. P. LYON,

Professor of Physiology, University of Minnesota.

Minneapolis, Minn.

The air is usually described as a mixture of three gases. Really there are four, nitrogen, oxygen, carbon dioxide and water vapor. While all may vary, relatively or actually, the proportion of water vapor varies far more than any of the others.

When at any given temperature the air contains as much vapor as possible the air is "saturated." Table I shows the weight of water in saturated air of various temperatures. Note that at 70° F. the capacity of the air for water is sixteen times as great as at 0° F. and seven times as great as at the freezing point.

TABLE I

#### PER CENT HUMIDITY NOT ALLOWING FOR EXPANSION

Grains per cuft.	0°	10°	20°	30°	40°	50°	60°	70°	80°
.5	100%	45%	33%	23%	16%	12%	9%	6%	4%
1.1		100	70	50	36	26	19	14	10
1.5			100	68	50	35	26	19	14
2.19				100	70	50	38	27	20
3.06					100	72	53	40	29
4.24						100	73	53	40
5.82							100	73	54
7.94								100	74
10.73									100

It is evident that if saturated air at 0° is raised to 70° F., 7.5 grains of water must be

\*Read at the Annual Meeting of the Minnesota State Medical Association, Duluth, Aug. 29, 1918.

added to each cubic foot in order to saturate the air under the new temperature. Or looking at the matter in another way, if air saturated at 0° were raised to 70° F. without addition of water this air would then be only 6% saturated.

Every intermediate degree between 0% and 100% of saturation is possible at each temperature. Hence the idea of relative humidity or percentage of saturation. This is the quantity obtained by the dew point or by the rate of evaporation test. It is valuable for certain considerations, particularly when temperature does not change. But the relative humidity changes with temperature, as has been indicated. I am therefore tentatively suggesting the term mass humidity to indicate the total quantity of water per cubic foot of air.

Since the absolute zero Fahrenheit is minus 459°, on the absolute scale our climatic fluctuations of temperature would be about 25%. The atmospheric pressure varies a few percent at any one point and perhaps 30% among the habitable localities. The variation of N<sub>2</sub> is negligible and of O<sub>2</sub> and CO<sub>2</sub> even including our closed houses is small. But the water vapor may be hundreds of times greater at some times and places than at others.

The human mechanism stands these variations well and probably there is no optimum humidity *per se*. Probably, however, there is an optimum humidity for each temperature. No one knows exactly what it is. Our first problem if we are to modify humidity artificially is to decide upon some sort of standard.

The whole question is intimately related to the loss of heat from the body. We must lose heat as fast as we produce it; otherwise the temperature of our body would rise.

The various forms of heat loss are represented in table II.

TABLE II.  
TOTAL HEAT LOSS

	Vierordt		Atwater Resting Man		Atwater Working Man	
	Cal.	%	Cal.	%	Cal.	%
Urine and feces..	47.5	1.8	31	1.4	26	.6
Warming Air . . .	84.5	3.5				
Evapor. from lungs.	182	7.2	548	24.2	859	20.3
Evapor. from skin..	364	14.5				
Radia. and conduc..	1792	73	1683	74.4	3440	79.1
	2470 100%		2262 100%		4225*100%	

\*Also did external work equivalent to 450 calories.

Note that the greatest loss under usual conditions is through radiation and conduction. The rate of this loss depends on the difference in temperature between the surface of the body and its surroundings.

The second method of heat loss in degree of importance at moderate temperatures, is evaporation. Evaporation is conditioned from the outside by the temperature of the air in contact with the body and the amount of water vapor already in this air. From the body side, evaporation is conditioned by the area of moist surface exposed. Such surface is exposed (a) in the air passages and lungs and (b) on the skin where sweat glands are located. The area in the lungs is varied somewhat with the depth and frequency of respiration as well as by the character of the air breathed. The 24 hour water loss through the lungs (plus skin of face) in different activities is thus given by Rubner:— at rest 408 grams: reading aloud 672 grams; singing 816 grams. However, the respiratory regulation of heat loss is by means as important in man as in the dog; (e. g., panting).

The automatic regulation of sweat is, on the contrary, an important part of our thermostatic control.

Now since the body obeys the thermodynamic laws, it cannot lose heat by radiation or conduction unless the surrounding air is cooler than the body. On a hot summer day radiation and conduction must sink into relative insignificance as factors in temperature regulation, although no exact data are available. In such weather we depend nearly wholly on evaporation for heat loss.

Similarly, in accord with inexorable physical law, we cannot evaporate water into air already saturated and of the temperature of the body. On a hot, humid day both our chief methods of

losing heat may largely fail. The body lowers heat production as much as possible. Nevertheless fever may result, with its discomforts and intoxications. You are likely to call the result "sun stroke".

It is plain therefore and supported by abundant physiological evidence that high temperature and high humidity together are unhygienic, even destructive.

At the other extreme, in our climate, conditions are quite different. At 0° F. it is impossible to have more than 1/2 grain of water vapor per cubic foot of air. The range of vapor content at 0° F. is so small that I do not believe we could differentiate between cold effects and humidity effects.

At intermediate temperatures conditions are still different. With a temperature of 40° F., say, there is a marked difference between the effect of saturated air and dry air. This is because the saturated air has now a considerable quantity of water, (see table I), and this increases markedly the rate of loss of heat by conduction from the body surface. This is by reason of the high specific heat of water.

At any temperature we evaporate and so lose heat faster into dry than into moist air, but around 40° or 50° F. the loss by conduction into moist air more than makes up for the decreased evaporation into such air. We see why humid days around 40° or 50° F. seem cold and why humidity can be either a heat preserving or a heat losing factor, depending on the temperature.

At higher temperatures the high rate of loss through conductivity does not prevail. On a May or June day around 70° F. and 70% relative humidity we take off some of our clothing and feel fine and comfortable.

The humidity standards in the hygienic and engineering textbooks are mere guesses and seem to be founded on moderate summer weather. 60% to 70% relative humidity is a frequent standard. These books were written by people living in more moderate climates than Minnesota in winter.

My experiments show that in zero weather it is not practicable to keep a 60% humidity in a building without double windows. Literally streams of water will condense on the glass and run down to the floor. Even with double windows one may get condensation on outside



walls and ruined wall paper. I have therefore come to the conclusion that 40% to 50% is as high a humidity as can satisfactorily be maintained in homes in this state in cold weather. If we accept this tentative standard, what does it mean as a practical problem?

Let us take a small house of say 10,000 cu. ft. capacity. From Table I it appears that each cubic foot of zero degree air will need 7.5 grains of water added to it to saturate it when it has been heated to 70° F., or about 4 grains to half saturate it. Calculation shows that about one gallon of water will be needed for the house of 10,000 cubic feet capacity and 50% saturation. This fact is perhaps startling to anyone when he first approaches this subject mathematically. Practically the problem would be of small significance if you could evaporate your one gallon of water into the air of your house and keep it there. But you can't. There is constant leakage and this is surprisingly large.

Experiments which I made three winters ago indicated that the air of my well built and wholly double-windowed house was renewed at least ten times a day in quiet weather. In engineering books twenty-four changes a day are usually assumed. Wind greatly increases the rate of exchange between outside and inside air.

Suppose we say that the air in our 10,000 foot house is renewed ten to fifteen times a day. We arrive at the startling fact that ten to fifteen gallons of water must be evaporated every twenty-four hours if we care to maintain even the moderate humidity this paper advocates. Of course what most people are actually doing is **nothing at all**, with the result that our houses and offices in winter are often drier than any desert on the face of the earth.

No quantitative physiological evidence as to the effects of dry air is at hand. I should like to get the opinion of those present from a clinical standpoint. Can you say, definitely, from clinical experience that the prevalence of respiratory troubles in winter is related to lack of humidity? Or might it be the high temperature maintained in American houses, itself, perhaps, partly attributable to lack of humidity?

We certainly live under artificial conditions. I believe they are bad. I believe (without present scientific evidence) that artificial humidification of dwelling houses, offices and other places where relatively few people gather is de-

sirable from the standpoint of comfort and perhaps is considerably protective from infection and from vaso motor strain.

If you accede even partially to this view, you will not begrudge a few moments devoted to the practical side of this question.

Do the ordinary home appliances meet the need? If you recall that 15 gallons of water are needed per day, you at once see that the little dish on the radiator is a delusion. The tea kettle on the kitchen stove may do pretty well for that room but has little effect on the house as a whole.

There are a good many devices on the market. Are these effective? Let us take up in succession the different types of heating.

For hot water radiators (also for steam) I know of the following humidifiers, all of which I have tested:<sup>1</sup>

TABLE III.

EVAPORATION PER LINEAR FOOT OF RADIATOR OCCUPIED.

	Gms. per 24 hrs.
"Speco," av. of 3 tests, zero weather.....	294
"Savo," av. of 3 tests, zero weather,.....	230
"Buddington," av. 3 tests, zero weather, ..	1,116
"Flobun," av. 2 tests, zero weather,.....	1,248

TABLE IV.

WATER EVAPORATION FROM LUNGS AND SKIN.

	Gms. per 24 hrs.
Resting man av. 13 exps. (Atwater).....	939
Working man av. 6 exps. (Atwater).....	1,912
70 students in laboratory, av. (Lyon)....	1,200

Compare tables III and IV. Note that the best of the market humidifiers for use on radiators evaporates about as much water as one person from his lungs and skin.

Imagine father spending his good money for one of these devices and sitting, with his feet on the radiator, in deep content that he is now doing the right thing for his family, while at the same time he and each of his progeny are humidifying the air more effectively than the "humidifier" and without costing him a cent! The truth is all these devices were made to sell and not to humidify. It would take over thirty of the best type to evaporate ten gallons a day.

<sup>1</sup>See Science, N. S., Vol. XLVI, p. 262, Sept 14, 1917.

There wouldn't be room for them on the radiators of our 10,000 cu. ft. house. Moreover these devices must be filled by hand. That is a bad defect in apparatus of this kind.

None of the manufacturers of these articles seems to have recognized the essential physical principles which are (a) large surface of water exposed to air, (b) rapid renewal of air over the surface of the water. The temperature within the limits set by radiator heating is of less importance in securing evaporation than either of the factors mentioned above. Depth of water is of no importance, yet several manufacturers have made their receptacles as deep as possible, (e. g. "Speco," "Savo").

Attacking the problem with the above principles in mind I have devised several types which are ten or more times as effective as anything on the market.

One of these shown in Fig. 1, consists of several trays, one above another, and so arranged that warm air rising from behind the radiator constantly passes between the trays

and over the water surface therein. Twelve trays as indicated in figure give ten square feet of water surface per linear foot of radiator occupied.

One of these apparatuses thirty inches long evaporated 3.7 gallons daily in my house last January. Four or five such humidifiers would be sufficient, in our house of 10,000 cubic feet, to meet our tentative requirement of 40-50% humidity.

But the apparatus is subject to two criticisms. (a) It is bulky and the ladies don't think it is pretty. (b) It has to be filled by hand. I put 3½ barrels of water into that one in my house during January last. Most people would balk at that. Of course it would be possible to pipe water and waste to each radiator and make the apparatus automatic.

I worked for a long time with drip systems.<sup>2</sup> They can be made very efficient but require a large amount of supervision.

Last winter I experimented with wick systems. The troubles with those humidifiers on

<sup>2</sup>Lyon: Heating and Ventilating Mag., Aug., 1917.

### RADIATOR HUMIDIFIER MADE UP OF WATER TRAYS

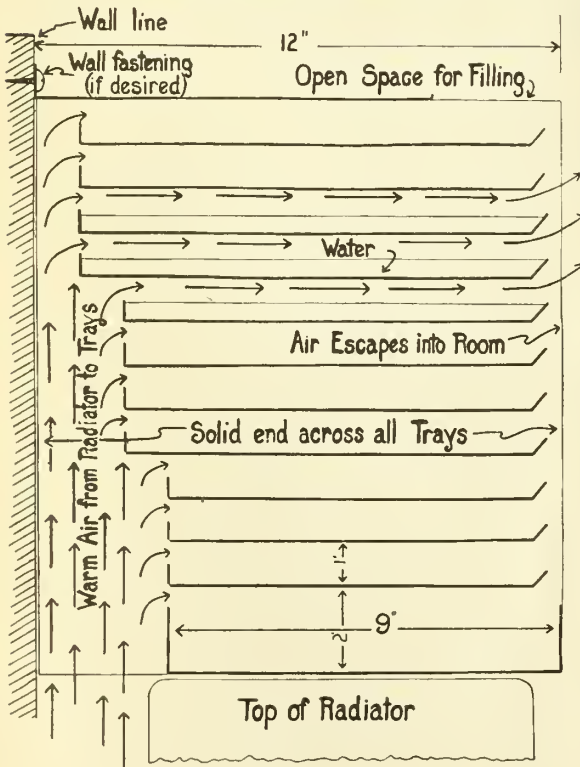


Fig. I

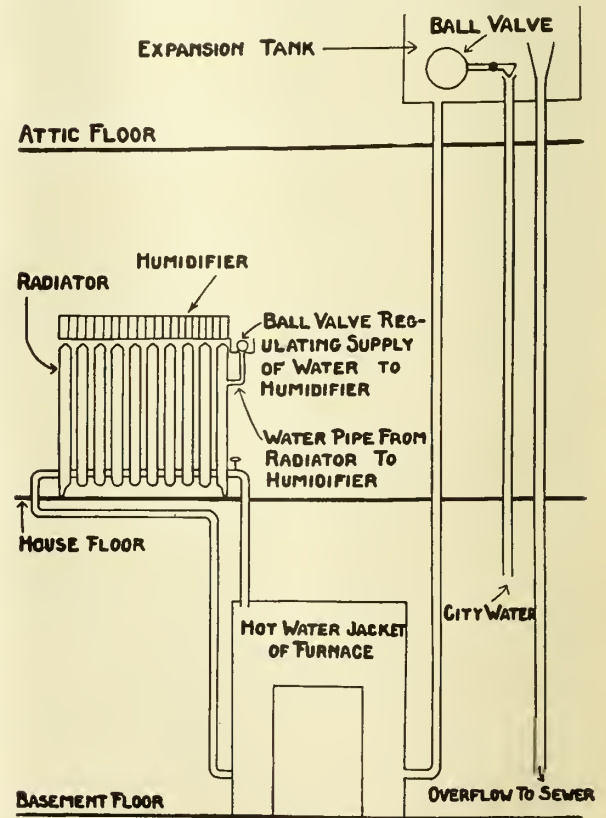


Fig. II

the market which use the wick system are (a) too little surface, (b) hand feeding, (c) clogging of wicks by deposits from water.

I have been able to greatly increase the surface by arranging close parallel troughs either across or lengthwise to the radiator. A sufficient evaporation is possible by this arrangement.

Automatic feeding I secured by the method shown in Fig. II. I had one such humidifier running for six weeks without touching it and estimate that it evaporated nearly a barrel of water a week.

So far as the third difficulty—namely, clogging of wicks—is concerned, I find it is less if the wicks are never permitted to get dry, as they are almost sure to do in any hand-fed system. I also find that cheap wick substance such as blotting paper and the heavy absorbent paper used by botanists as plant driers are just as good as the fancy wicks found in the apparatus sold in stores. These paper wicks can be used for a while and thrown away.

Unless a slightly, efficient, automatic humidifier for hot water systems can be worked out along the lines indicated, I believe that those who have hot water heating will have to fall back on accessory apparatus such as electric fans to aid evaporation, or special water boilers to put vapor into the air. Such apparatus has been patented but apparently has not proven a commercial success. It would surely be somewhat expensive. Remember you have to face all the time the necessity of evaporating one third to one half a barrel of water a day for an ordinary house.

So far as steam systems are concerned the problem seems easier. There are devices on the market for letting steam out noiselessly into the room. I have not tested any of these; but if large enough they ought to be efficient as moisteners. But engineers state that they are dangerous in that they lower the water level in the boiler and that no safe automatic boiler feed is known.

Another method used in steam systems is to provide steam coils to boil water in separate receptacles. This is free from the previous criticism and ought to be effective, provided said receptacles furnish sufficient free surface of water-air contact and also provided auto-

matic water supply to the humidifiers is arranged.

The older hot air furnaces often had a small water tank at the base of the air space. This was totally ineffective. I tested one that evaporated less than a quart a day.

Later types of furnaces have a tank above the fire box. These must be better, but the examples I have seen offer only a small water-air contact, and I should want an actual test before endorsing them.

Nevertheless if I were to put a heating system into a small house in Minnesota in the present state of development of hygiene and of heating engineering, I would choose a hot air furnace. I would have no outside air flue, but rather a cold return flue from every room to the base of the furnace. I would look to this system to secure circulation, which we now recognize as a very important hygienic factor. I would trust to leakage for renewal. I would have double windows, expecting even with these to have ample oxygen for an ordinary family. I would supply moisture by a sufficient number of broad shallow pans just above the fire pot, the water level in these being automatically maintained by connection with the city water system. I would have a good psychrometer and see to it that the relative humidity was kept above 40%. I would have a good thermometer and keep the temperature at 65° F. unless the women folks complained, and not above 68° F. even if they did complain. I should expect good health and comfort dividends on the outlay of money and trouble required to get these conditions.

It will be seen that I have confined my discussion to houses and other places where few people assemble. The humidity problem is entirely different for public halls. Remember that each person gives off in the neighborhood of one quart of water as vapor each twenty-four hours. One hundred people give off twenty-five gallons. Three thousand people give off twenty-five barrels. Excess humidity is ordinarily the cause of discomfort in theatres, picture shows, etc. Public halls in this climate ordinarily need artificial renewal of air and a lower temperature rather than artificial humidification.

## DISCUSSION.

DR. H. W. HILL: I wish to express my gratification at hearing the Dean of the University of Minnesota Medical School preach to this high-class medical audience the very facts that brought me nearly to crucifixion for stating them three or four years ago. Particularly that the circulation of air was quite sufficient for ventilation and there is no necessity for opening windows.

As to the ladies objecting to low temperatures, a county superintendent related to me a method which he had employed of overcoming that difficulty. He found that the teachers were complaining very much of a temperature of 65 degrees. The thermometers were at this height on the wall. (Indicating a height of about 4½ feet above the floor.) He put those thermometers up a foot or so higher, where they registered 68, and there was no further trouble. (Laughter and applause.)

DR. L. M. ROBERTS, Little Falls: I would like to commend this paper as dealing with my own experience regarding a hot-air furnace. Some twelve years ago I put in a hot-air furnace. I had a very large old-fashioned house with double windows, and when the plumber put in the water tank he put it in at the base of the furnace. I asked him why he put it in there. He said, "They all do it." I said, "What for?" And he said, "To evaporate the water." I said, "What do you put it in that part of the furnace for?" He said, "Oh, they all do it that way." I said, "Go ahead, you are the furnace man." So he went ahead.

At that time I had a man who had been a locomotive fireman in his day taking care of my furnace, and we found that with the temperature as high as 80 degrees we were not comfortably warm and we were very uncomfortable at 70, and the air was dry and smelly and altogether unsatisfactory. My wife had some heavy portieres between the living room and the parlor, and they shrunk up about 4 inches from the floor, and our furniture went to pieces, and my wife was almost distracted and wanted another type of furnace put in. I said, "No, that furnace is calling for water and it is going to get it;" and I studied it out and I got a tinner to come up to the house, and I had him cut a hole in the jacket at the top of the furnace and make a galvanized iron receptacle 5 feet long and 8 inches wide and about 8 inches deep, which held 7 gallons and a half by actual measurement, of water. It rested on the peak, the top of the furnace, and all inside jacket. The trouble stopped; the portieres came down, the furniture went back to normal and my wife was satisfied. Best of all, the temperature of 65 is all we have cared to maintain since. There has never been any humidity on the glass anywhere, the wallpaper has never been affected, and the atmosphere is exceedingly pleasant and very sweet. It is automatic. In extreme weather I calculate that I burn as high as 35 or 40 gallons of water a day in that receptacle. The hotter the fire the greater the

evaporation. You can sometimes hear the water boiling. It is right where the hot air rushes past it and is carried up into the house. It is a very distinct success.

I want to say another word about ventilation. All of you who have been accustomed to being out late at night, and leaving your home and going into some other people's homes, and then returning to your own, have doubtless often noticed the difference in the atmosphere. I do not care how hygienic people try to be or how carefully they ventilate during the day, when they are shut up at night and you go into an ordinary house at 2 o'clock in the morning, and you have a hot water or steam-heating plant, the house smells. It may smell of perfume, it may smell of more or less sweet odors, but the house smells. This is what I call the acid test of any ventilating system, and in winter heat and ventilation should be synonymous terms. You may go into a house that is heated as my house is heated after we have had a stag party there, and everybody has smoked until the air is absolutely blue, two hours afterwards that air is absolutely odorless. I certainly commend my method and advise my friends to adopt it, as a great saver of fuel and health. Previous, we noticed the irritation in our throats and larynxes very markedly with that dry air, but with this moistened air it is very much like a June day.

And it is certainly a great saver of coal. When we first started in with the other method we burned as high as 12 tons of coal, ineffectually trying to warm the house. Since this, I do not think any winter,—and that has been over a period of 10 or 11 years since, I do not think we have averaged over 9 or 10 tons with the same house.

DR. J. C. BOEHM, St. Cloud: A winter or two ago I was calling on the Dean for a meeting. I did not get the proper notice, so I had to stay over at his house, and I saw him experimenting with the humidifier. We exchanged a few remarks. For that reason I came up here to listen to this paper.

At this time, when the price of coal is so high and the quantity of fuel is so scarce, we ought to put our heads together right now and hire men, if we cannot get them otherwise, to perfect something which would reduce the required temperature in our houses, in our schools, churches and other places which have to be heated.

Some years ago I came into my house which was at a temperature of 68 or 70. I took off my coat, and I was chilly. I was alone in the house. I covered all the rugs on the first floor with about 3 inches of snow and waited an hour and a half. The snow disappeared, of course. I looked on the floor; there was not a drop of water there. I sat down and was comfortable. I had lowered the temperature in that house from 2½ to 3 degrees. I was then convinced that although I have a hot-water system, that I would not have a hot-air system, for the simple reason that I have yet to find one (except Dr. Roberts'), that brings in a sufficient amount of moisture into the system to overcome the monoxide that is

being formed by the heated air that comes in contact with the hot iron. If that can be overcome the hot-air furnace may be all right.

Dr. Lyon has given us the mathematical explanation of our body evaporation, the amount needed, and has advised a very good humidifier. He did not show me that until today.

I myself have tried various schemes, and the best one, if you wish to supply the water, is to have a pipe leading along that radiator. Stretch a towel right across here (illustrating). A linen towel is better than any other kind. Your pipe should be slanting with holes in it, so that the water drops down, and a receptacle such as a five gallon pail beneath. It is not very pretty but it does the work. You will be surprised how easy it is to live in that room at a temperature of from 62 to 65 degrees.

I wish we had a mathematician here to figure out the amount of fuel we would save if we all did that, and especially at this crisis. I do not think that too much publicity can be given this topic, and this paper, and to bring it into every household.

Tell the salesman that this is no good (referring to a device which had been exhibited by Prof. Lyon during his address.) I have half a dozen of them. Mine have even a wick, and by capillarity it is supposed to evaporate some water. This has not got even that.

The other experiment I performed was in St. Paul, with my father-in-law, who is a contractor in the plumbing and heating business, and I have talked with him about this. He said, "We will fix up a little arrangement;" and he went to work and connected with the waterworks in the house, and I brought down a sprayer, and we took a half-inch pipe, and on top we had the nozzle strike a kind of umbrella-shaped affair, and that gave a nice spray, and behind that we had a little electric fan which did not use very much electricity. In thirty minutes the house was comfortable all over, by the use of the fan running thirty minutes. And whenever after that the house was cold, we did not go down and shake the furnace and build a bigger fire, but simply started the fan, and the vaporizer, as we called it, and the house got nice and comfortable.

That which I wish to direct to your attention is, what is it that makes us feel cold? Take a room at 65 degrees, and in the winter the ladies will claim that that is too cold. Why is it too cold? Because the evaporation away from the skin into the dry atmosphere makes it feel cold. If you take a bottle of alcohol and have it sitting in a room, it does not take long before the temperature of the alcohol in that bottle is the same as that surrounding it, 65 degrees. Take ether, which is a little bit better, and the same thing is true. Put the alcohol or ether on your hand, and see how cool you get it. Why? It is because the evaporation has gone away from your skin. All these things tend to seek their level approximately or absolutely. And if the atmosphere is saturated approximately to that same degree that our body is, there will be no evaporation away from

the skin, and we feel comfortable at 62 degrees. If on the other hand, the atmosphere is dry, there will be evaporation and you will feel cold at 70 or even 75.

The question the Dean asked was as to the therapeutic effect or the pathological effect, which was it, that this dry atmosphere has? My personal knowledge and experience have been in my practice. I have now before my mind five families, with from four to seven children in each family, that had sore throats from the time they started the furnace and the weather began to be near zero, until it got warm enough so they could open the windows and have the air come in. I kept drumming at them to throw out the hot-air furnace, which they finally did. They put in a humidifier. That evidently had a good effect, because they did not get sick any more and I lost their practice. A lady who previously complained of being cold at a temperature of 70 or 72 degrees, now sits there thoroughly satisfied in a temperature of 64 or 65.

DR. L. M. ROBERTS, Little Falls: I had my waterworks arranged so that there is a pipe right off of my tank with a short section of hose, and it is no labor at all to keep the tank full. Any time any one goes down to the furnace he looks at the tank and can easily keep it filled. All that is necessary is to push a small trapdoor open, put the hose in and turn a stopcock. There is no carrying of water. It is a great convenience to have the water system arranged in that way.

PROF. E. P. LYON (closing the discussion): The psychological factor is well illustrated by Dr. Hill. We have to be careful in drawing conclusions because people "feel" a good deal according to what they think. If they think the temperature is 70° when it is really 65°, they feel better than if they think it 65° when it is really 70°!

I have a little evidence, which though not strictly scientific tends to confirm the general impression of feeling more comfortable with higher humidity. In my own house last winter I set the regulator so that the temperature was at 68°, without the women folks knowing anything about it; and with the higher humidity which I now maintain, there was no complaint, although in previous years at 70° to 72° there had been complaints. The ladies dress more lightly than the gentlemen, which is one reason why they complain more than we do.

This psychological factor made me say nothing at all about possible coal saving. We often hear it said that there is a saving of fuel if proper humidity is maintained. But I know of no experimental data. If any of you have absolute records on your coal extending over a considerable period of time and under varying humidities I should like them very much. I should like the facts in tons and dollars rather than general statements founded on general impressions. I believe there is a saving but I don't know. You have to evaporate more water to get humidity, and that takes more heat; but nevertheless, the loss of heat from the house in radiation

from the walls and leakage through them must be less when the temperature is lower than when the temperature is higher. Of these factors I should suppose the latter would more than compensate the former. I should be particularly gratified to have any of you send me distinct observations which satisfy you in this matter, or distinct records of coal used which any of you may have.

DR. J. C. BOEHM, St. Cloud: May I add one word more? Dr. Lyon spoke of spoiling the wall-paper. That can be overcome very easily. But of course you have to build your house for it. You cannot go into an old house and do it unless you tear off the siding and rough boards outside. But when the house is built, if it is a frame house, between the studding you should put plenty of paper over this way (illustrating) and nail the lath over it, creating dead-air space. Have good building paper, of good quality. In front of this, lath another one, and so on, until you have practically several air-tight spaces, but not air-tight like Dr. Hill wants it, but that will allow the air to become warm inside and gradually cool on the outside, and it will prevent that precipitation that Dr. Lyon spoke of.

## PATHOLOGY AND TREATMENT OF OSTEOMYELITIS.

ALEX R. COLVIN, M. D.,  
*St. Paul, Minn.*

The one feature of osteomyelitis that cannot be too often dwelt upon is that it is most frequently an acute destructive inflammation of bone, and that the bone should be opened early and widely. One will not be lessening the emphasis on this feature by saying that it is at the present day difficult to imagine anyone failing to open a bone under such conditions after the diagnosis has been made, but one can readily understand a difficulty in diagnosis in the early stage of the trouble, and for some reason or other we hesitate to do exploratory operations on bone as readily as we explore the abdominal cavity. Under urgent circumstances, however, it is just as imperative to do so. Once the pathology of the disease is mas-

tered, the more extensive and difficult anatomical knowledge required need not deter us from exploration.

The classification given in the table shows the area of bone which may be involved, and enables us to carry clinical pictures, but we must realize that after all the disease is one affecting the whole structure of bone and that any localization of it is in a sense accidental.

The question of periostitis needs some consideration. Unless we think of periostitis as really part of an osteitis we are liable to err in treatment.

In acute hematogenous infections the incidence of periostitis means that the infection has travelled from the interior of the bone and that pus has accumulated beneath the periosteum. We have been deceived in the past because on opening such subperiosteal collections the condition was recovered from at once and hence we concluded that the interior of bone was not involved. We know now, however, that even with extensive involvement of the interior of the bone, nature may establish drainage and the condition be recovered from without surgical assistance of any kind. While this occurs often enough, nevertheless it is exceptional and must not influence us in our conduct of the treatment of acute infections except by proving that periostitis is not an independent condition and that opening the bone is essential.

The mere opening of the bone is neither difficult nor hazardous. The difficult part of the dissection is to reach the bone.

Joint complications, necrosis with its prolonged and complex pathology, will be less often encountered if the opening in the bone has been extensive enough to establish competent drainage.

Having recognized the osteal character of the infection, the localization of infections is the next most important item in pathology. This has become such common knowledge that one scarcely need refer to it except to empha-

TABLE.

OSTITIS ACUTE	{ Acute Ostitis of the Diaphysis Acute Ostitis of the Epiphysis	{ Acute Periostitis Acute Central Osteomyelitis Acute Osteomyelo-periostitis
OSTITIS CHRONIC		
	Chronic Periostitis Chronic Central Osteomyelitis Chronic Myelo-periostitis	

size by illustration the resulting lesions. It will be noticed in the illustrations how often the trouble is located in the shaft rather than in the epiphysis, indeed epiphysitis in pyogenic disease is quite rare. The anatomy of each individual bone must, of course, be kept clearly in mind to enable us to realize the possibility of shaft, epiphyseal and joint involvement. The frequency of purulent arthritis of the hip in infections of the upper end of the femur, for instance, is due to the fact that the diaphysis or shaft is included within the capsule of the joint. In most of the other joints only the epiphysis is thus included and consequently because of the infrequency of epiphyseal involvement purulent arthritis is uncommon, the attending joint swelling being as a rule serous in character. The infecting agent having arrived at a certain point in the vascular areas of the bone, the resulting conditions will depend upon the virulence of the invading micro-organism and the resistance of the organism involved.

The great variability in the clinical and pathological manifestations of infection can be beautifully shown in bone. An acute general septic invasion where the bone infected is but an incident in the process of annihilation of the individual, contrasts markedly with an infection of one or more bones so slow in its progress and indolent in its manifestations that sarcoma is mimicked. Drainage having been established, restoration to the normal may occur especially in the young. On the other hand, in spite of drainage, destruction may proceed slowly, necrosis may have been limited rather than presented, and the complex condition of sequestrum formation and bone regeneration in varying ratios, is encountered. It is in this stage that radiographs furnish us with valuable information. Taken from time to time they show quite clearly the separation of the sequestrum and the formation of the involucrum. Inasmuch as bone regeneration and production play so important a part in the complex pictures of destruction and repair, a clear conception of the share taken by the different parts of the bone in repair is essential.

Much speculation has been indulged in regarding this osteogenetic function of the various divisions of the bone tissue. It is now conceded that the osteoblast whose mesoblastic

origin and relation to connective tissue has always been acknowledged, is the dominating factor in bone regeneration; whether this tenacious cell is locked up in bone lacunae, lines the boundaries of the medullary cavity, clings to the trabeculae of the spongy tissues, or congregates on the confines of the compact tissue beneath a limiting or protective membrane, all are agreed that it is an integral part of bone, having the same vital connections with its surroundings that other cells have, and that regeneration of this most highly differentiated connective and supporting tissue is presided over by the familiar osteoblast.

Bone production goes hand in hand with bone destruction in the chronic stages of the disease and this may result in localized thickenings on the surface, or in a surrounding new shaft, or to a uniform thickening of the old shaft. This latter condition may result from a slowly progressive infection without any actual bone destruction.

The recognition of these facts is of the utmost importance in enabling us to interpret the complex pathological condition as seen in the radiograph. Our operative treatment is really an unravelling of pathology and can be much more intelligently done under radiographic guidance. It is sometimes said that if acute osteomyelitis were treated properly there would be no such thing as the chronic stage. This is only true in part, for many cases are so insidious in onset that marked bone changes have occurred before we see them at all, and before the patient has had any symptoms impelling them to seek assistance. It is in these chronic forms that the greatest difficulty in diagnosis occurs because of the tumor-like thickening of the bone with few symptoms; and tumor-like masses of indurated tissues surrounding the bone increase the difficulty.

After the removal of the sequestra, each case demands separate consideration as to the best means of dealing with the resulting cavity. In the young where osteogenesis is comparatively rapid, the bone wax is especially valuable if for no other reason than furnishing a kind of drain, but occasionally where drainage ceases it keeps the cavity filled until such time as osteogenesis has built sufficient new bone to obliterate the cavity from which the wax has been

gradually absorbed. In adult bones where osteogenesis is slower or where it may fail to accomplish the desired result, the plastic use of bone, muscle, fat or skin may be desirable.

During the course of the disease, joint contractures are prone to occur, and the protective and mechanical treatment to prevent these are of utmost importance. Where the sequestrum involves a large part of the shaft, fracture of the involucrum may also occur if protection is not sufficient.

#### DISCUSSION.

DR. SAMUEL J. MIXTER, Boston, Mass.: It seems to me, there is only one fault in this paper, and that is, the author did not have X-rays taken of the humerus at shorter intervals and show them as a movie, because this is certainly a most remarkable series of pictures that one can imagine from the beginning to the end of the process, and if he had had them taken a little oftener and put them in a machine, it would have shown the whole thing.

There is one type of case that is important, and that is, where we have in the adult a sudden, very acute infection. Perhaps it has been opened and insufficient drainage established; but the whole shaft is involved to the tibia. Nearly the whole shaft is involved. The man is very sick. You can cure that man if you amputate his leg. If you open up that bone, and do a real, thorough operation, a conservative operation, he is going to die. I have seen them die in from three to twenty-four hours after such an operation. On the other hand, amputation will save them, while a conservative operation will kill them. There are certain of these cases which we meet with very seldom, but when we do they must be recognized.

DR. JAMES E. MOORE, Minneapolis: It is with a great deal of pleasure that I respond to the request of the Chairman to discuss this paper, because after teaching surgery for thirty-five years I feel that if there is any field in which I have accomplished some good it has been in teaching osteomyelitis to students,—how to diagnose the condition and how to treat patients with this disease, which, in earlier days, was neglected.

I do not think it would be amiss to dwell briefly upon the diagnosis, because in the University Hospital where we have cases coming in from all over the state, and from other states, we find many that have been neglected. We have found many cases of osteomyelitis that have not been recognized, and have been usually sent in with a diagnosis of rheumatism. All sorts of diagnoses have been made in these cases.

I want to call your attention to one important point, one in which you might be misled by these skiagraphs which you have seen today, and that is, that the skiagraph will not show infection in the

medullary cavity of bone at a very early stage. You may have a pronounced abscess at the end of the diaphysis of the long bone, you may take a beautiful skiagraph which will show all the trabeculae of the bone, but it will give you no evidence whatever of an abscess. You may cut in and discover the abscess. That is something you must guard against. The history in these cases is so complete that, it seems to me, there is no longer any excuse for a mistake in diagnosis, or neglect to make the diagnosis. Last summer a little child was brought into the University Hospital with an infection of the neck of the femur. The child had a temperature of 104°, and yet these boys, interns of mine, made a diagnosis of osteomyelitis beginning in the neck of the femur in the growing bone.

A child is brought in after playing probably all day, particularly when that child has been going in swimming, or has been skating, complaining of the knee joint. Perhaps the knee hurts terribly. Pretty soon the mother finds the child's cheeks red, and shortly thereafter the child will have a severe chill. A doctor is sent for. Already flexion has begun to take place, and the old-fashioned doctor will say rheumatism and apply a poultice, and so on. No modern practitioner will make a mistake there. He will examine this child who says that his knee hurts, and he will find the seat of pain is not exactly in the joint. If he carefully manipulates the extremity he will find that the excruciating point of tenderness is always a little above the knee joint or a little below. In other words, you have an infection in the center of one of these bones in the medullary cavity and a sensitive point at the beginning of periostitis. Periostitis is not the original lesion, but secondary lesion. Periostitis, with the exception of a few cases in typhoid fever, is secondary to osteomyelitis, to the central infection.

Dr. Colvin called attention to one very important point in the treatment on which I want to lay stress. As soon as you make a diagnosis in one of these cases, put the limb in a position in which it will be the most useful should ankylosis occur. Too frequently we have children brought into the University Hospital with ruined knees because the doctor had neglected to put the limb in proper position. We try to do what we can for these children, but invariably we find the knee flexed at a right angle, making it useless. That is malpractice. Given this acute train of symptoms,—chill, high temperature, and a tender spot near a joint,—it cannot be anything else but acute osteomyelitis.

The diagnosis having been made, there is only one treatment, and that is, to cut down into the center of the bone. Do not be content to stop after you have cut down through the soft parts to empty the abscess; you have only reached the secondary complication, as it were; you have not reached the original seat of infection. You must chisel down into the medullary cavity and establish drainage. The most difficult part of treatment of osteomyelitis is in



the old cases that have chronic sinuses. Some of them have been operated on and the sequestra removed, but most of them come to us with sinuses and with evident sequestra that the skiagraph demonstrates. Then it is easy to operate and remove the sequestra and start the patient on the road to recovery, but without proper treatment the patient will continue on indefinitely. You have a bone cavity that is larger in its body than it is at the exit, which will never heal as long as the child lives; you must help nature.

The essayist has suggested the most modern way of treating these cases, and that is, to get these cavities cleaned out and fill them with the Moorhof bone wax. I have had gratifying results from such treatment based on surgical principles. Nature will displace that bone wax and replace it with bone, and you will get the cavity filled up; otherwise, you must resort to the old method of packing, which is a long, tedious process. The most difficult part, as I have said, in the treatment, is the curing of these old cases with sinuses. In those in which the sequestrum has been removed, with the proper application of the bone wax you can get highly satisfactory results.

DR. ALEXANDER R. COLVIN (closing the discussion): While agreeing with every word Dr. Moore has said, I am nevertheless much impressed with the difficulty of an accurate pathological diagnosis in acute infections of bones and joints, and I have a fellow-feeling for my medical brethren under certain trying conditions. However, there should be no hesitation as to what should be done as soon as the diagnosis is made.

I have under my care at the City Hospital at present, a child of six years who was admitted with a temperature of 104° and a decided hip limp with muscular spasm on attempted passive movement. The condition was suspicious of osteomyelitis of the upper end of the femur. If one's suspicions were correct, it was imperative to attack the bone, but because of doubt nothing was done and the condition gradually cleared up; this was certainly an acute infection of either the bone or joint.

There is no doubt that very stormy infections of joints clear up without suppurating, whether, especially in the young, an acute infection of bone may pursue the same course is questionable but I think it probably does. The very great variability of the clinical and pathological manifestations of acute infections by the same micro-organism, in the same organism, and at the same time, is a most interesting phenomenon. For instance, in a case under observation having an initial suppurating infection of a tendon sheath with metastatic suppurating foci in the calf muscles and at the same time a severe non-suppurating arthritis of a shoulder and hip joint.

The symptoms of an acute infection of the joint end of a bone are practically those of joint inflammation.

## THE SURGICAL TREATMENT OF PROGRESSIVE ULNAR PARALYSIS.\*

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Progressive ulnar paralysis is a clinical condition which has long been recognized but has rarely been treated surgically. It has been diagnosed as a progressive muscular atrophy and as a form of muscular dystrophy. A number of patients have been examined in the Mayo Clinic who have had a single progressive ulnar paralysis and no other form of paralysis or atrophy. The operative findings in these cases verified the clinical condition and presented a marked interstitial neuritis with a diffuse thickening of the nerve as well as nodular masses like neuromas.

**Symptomatology.**—The patients who have been under observation in the Mayo Clinic present similar symptomatology: First, the complaint of various forms of slow, progressive sensory changes, such as paresthesias and anesthetics, that is, tingling, hypersensitive areas of the skin, and numbness along the course of the ulnar nerve. Second, trophic disturbances, atrophy of the small muscles of the hands, of the flexor carpi ulnaris and of part of the flexor profundus digitorum which are supplied by the ulnar nerve; the atrophy of the hand is most

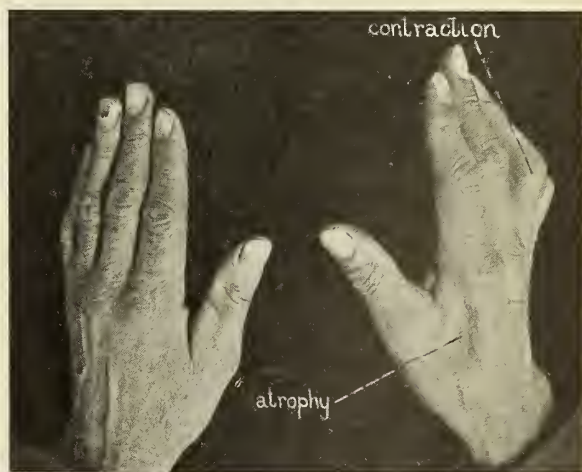


Fig. 1.

Photograph illustrating the atrophy and the contraction due to a paralysis of the right ulnar nerve.

\*Presented for publication April 10, 1918.

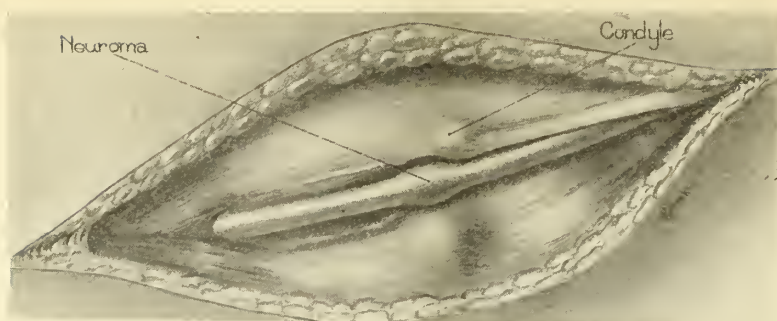


Fig. 2.

(Case 82214.) Exposure of the ulnar nerve with a neuroma due to trauma, without division of the nerve, associated with an old fracture of the elbow.

prominent in the hypothenar region, and there is marked depression between the base of the thumb and the second metacarpal bone. Third, a progressive motor paralysis, first noticed as a definite weakness, and then a gradual loss of motor control of the muscles involved. This phase also presents a peculiar contracted condition of the two outer fingers. (Fig. 1).

Recently we have operated on the ulnar nerve in three cases in which there were very definite pathologic findings. The nerve was found to be very much enlarged and to present one or more so-called "neuromas" (intra-neural fibrous tissue). The enlargement was of the fusiform type with definite thickening and hardening of the nerve itself and the neuromas were quite definitely circumscribed, though more or less diffuse throughout the nerve tissue. The ulnar groove between the internal condyle and olecranon was found to be very shallow, owing, in two cases which were end results of old fractures, to an overgrowth of bone from the olecranon. In one instance a very definite bony spur of the ulna was present, without a history of fracture. It appears that the diffuse thickening of the nerve is due to frequent or constant but very slight trauma, such as bruising, or to the stretching of the nerve over some of the bony prominences. Small hemorrhages in the perineurium and in the endoneurium result, causing inflammatory reactions and the deposit of scar tissue. As the scar tissue tends to contract, many of the fibers become strangulated and eventually are destroyed, resulting in a gradual and progressive atrophy of the ulnar nerve.

### Reports of Three Cases

Case 1 (82214).—R. L. K., a male, 31 years of age. The chief complaints were numbness, atrophy and weakness of the muscles supplied by the right ulnar nerve. The patient fractured his elbow in 1892, displacing the internal condyle downward and inward, and giving the elbow a broadened appearance. The displacement of the internal condyle carried the ulnar nerve with it, leaving it in a very much exposed position on the apex of the displaced fragments, thus causing its frequent injury. Two months previously the patient received a very hard blow on the elbow. Following this he noticed marked numbness, slight loss of tactile sensation, and beginning atrophy of the small muscles of the hand, associated with corresponding weakness. The weakness of the hand was progressive and surgical relief was advised and decided on (Fig. 2).

Operation, Jan. 17, 1918.—The ulnar nerve was exposed in its extremely shallow groove, and the nerve was brought up over a portion of the internal condyle. For a distance of about 3 cm. the nerve was considerably thickened and presented a neuroma of about one-eighth the size of the normal nerve, situated over the most prominent portion of the internal condyle. The nerve was freed from the surrounding structures and transferred to a position internal to the condyle.

Case 2 (220582).—J. A. L., a farmer, aged 42 years. There was no history of fracture or bony disturbance of the elbow. There was numbness, and a tingling sensation in the right hand, with atrophy and weakness of the mus-

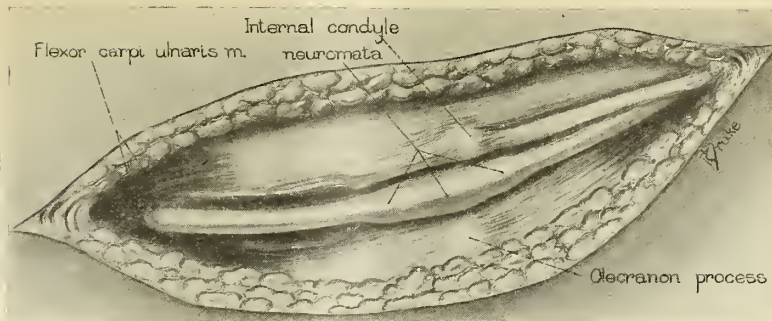


Fig. 3.

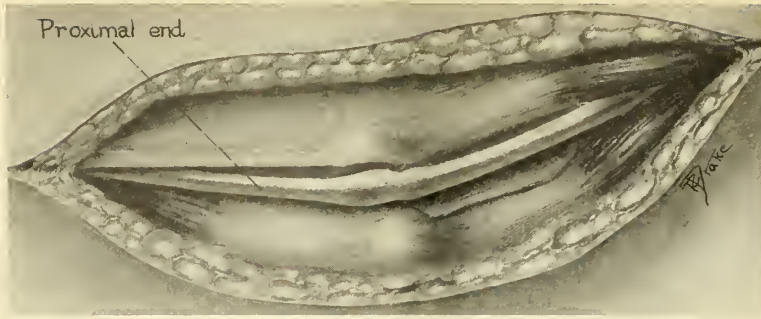
(Case 220582.) Exposure of the right ulnar nerve in position illustrating three small neuromas in the nerve, due to trauma without severance of the nerve or fracture of the elbow.

cles supplied by the right ulnar nerve. Four years previously the patient had first noticed numbness and tingling sensation in the right little finger and on the ulnar side of the ring finger. Afterwards he noticed that those two fingers became cold sooner than other parts of the hand; a little later he noticed that the hypothenar surface of the hand became very thin and flabby; then a marked depression appeared between the base of the thumb and the second metacarpal bone, together with atrophy of the muscles of the outer part of the right fore-arm. About six months previously the patient had noticed that when he flexed the fore-arm on the brachial region, the numbness and tingling sensations were increased, with associated pain above the right clavicle. At the time of examination he complained of more or less constant numbness and of a tingling sensation along the course of the ulnar nerve. There was marked atrophy of the small muscles of the hand; the flexor carpi ulnaris and part of the flexor profundus digitorum presented a decidedly thickened and nodular nerve in the ulnar groove (Fig. 3).

Operation, Feb. 9, 1918.—There was a fusiform thickening of the ulnar nerve for about 4 cm. over the prominent portion of the elbow. In addition there were many adhesions about the nerve, with three neuromas which were about one-fourth the size of the normal nerve, the latter situated so that each came in contact with the other in the thickened portion of the nerve. The ulnar groove between the

condyle and the olecranon process was normal in its depth when the arm was extended, but on flexion of the fore-arm a bony prominence, a spur from the ulna, presented itself, which exposed the ulnar nerve and produced a constant irritation.

Case 3 (222410).—Mrs. J. S. D., age 32 years. The patient complained of numbness and a tingling sensation on the outer surface of the hand and fore-arm. There were atrophy and weakness of the muscles. Twenty-three years previously the patient had had a fall which resulted in the epiphyseal separation of the humerus at its lower extremity. Two years after the first fracture she had had a similar experience, but at that time there was no ulnar disturbance. Five years previous to our examination the patient first noticed numbness, more or less constant, in the little finger of the left hand, and three years later she noticed a beginning contraction of the two outer fingers of the left hand, which was associated with a thinning of the hand and a gradual loss of strength. During the last ten months she had noticed that the numbness was gradually increasing, extending from the hand to the fore-arm, and that in the last three or four months there had been a constant dull ache in the region of the elbow and shoulder. On coming to the Clinic the patient presented a picture of paresthesia and anesthesia, of atrophy, and motor weakness, which followed the course of the ulnar nerve (Fig. 4).



**Fig. 4.**

Exposure of left ulnar nerve with two neuromas due to trauma, associated with an old fracture of the elbow.

Operation, Feb. 23, 1918.—The ulnar nerve was exposed and found to be very much thickened at the most prominent portion of the elbow. There were many adhesions and two definite neuromas, one about one-third the normal size of the nerve, and the other about one-fifth the normal size. These neuromas were located over the most prominent portion of the elbow. The ulnar groove was very shallow, owing to a lateral overgrowth of the olecranon process which subjected the nerve to constant trauma.

#### Technic of the Operation.

Because of a tendency to overgrowth of callus which results in a condition similar to that for which the patient seeks relief, we have chosen as a surgical procedure, the transference of the nerve to a position anterior to the internal condyle in preference to removing bony prominences or creating a new bony groove as has been done by several other surgeons.

The nerve is freed for a distance of about three inches above the internal condyle as well as for three inches below it, and is then raised from its old ulnar groove to a position internal to the condyle. The tendons and a few of the muscle-fibers of the inner head of the flexor carpi ulnaris as well as a few of the tendonous fibers of the common flexor tendon are divided in order to bury the nerve underneath the tendonous fibers, rather than to leave it exposed on the surface of the internal head of the flexor carpi ulnaris, which would tend to expose it to slight trauma. The nerve is held up in

place by a fascial tube, somewhat similar to that employed by Lewis\* in his nerve anastomoses, the fascia lata being taken from the thigh. This is sutured to the bicipital fascia and to the deep fascias covering the brachialis anticus and the common flexor tendon. The nerve is not attached to the fascia but is permitted to lie loosely within this hammock which prevents it from slipping down over the condyle as the arm is extended (Figs. 5, 6, 7, 8 and 9).



**Fig. 5.**

Incision for exposure of ulnar nerve.

\*Kirk, E. G. and Lewis, D.: Fascial tubulization in the repair of nerve defects. *Jour. Am. Med. Assn.*, 1915, lxx, 486-491.

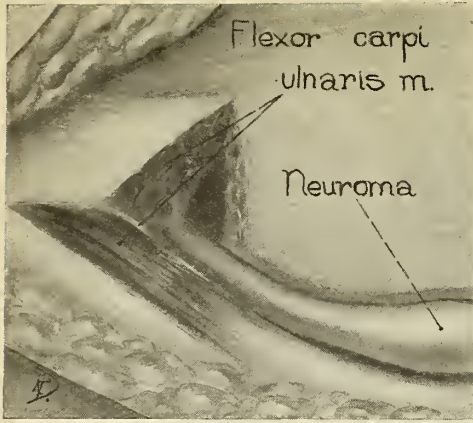


Fig. 6.

(Case 220582.) Division of the inner head of the flexor carpi ulnaris along with some tendinous fibers of the common flexor tendon, prior to the elevation of the nerve from its normal groove.

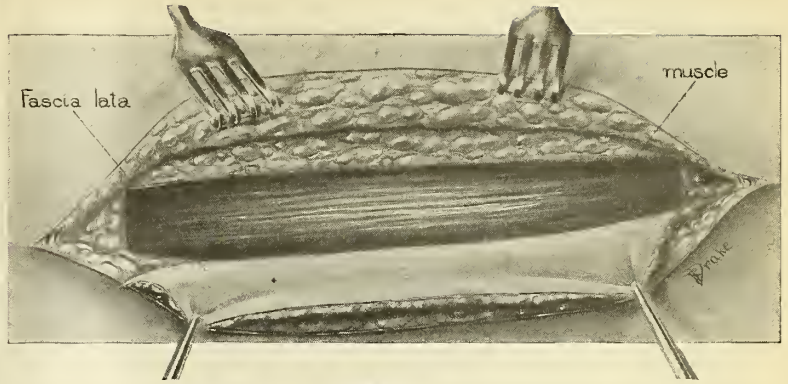


Fig. 7.

(Case 220582.) Removal of the fascia-lata which is to be used to make a covering for the ulnar nerve.

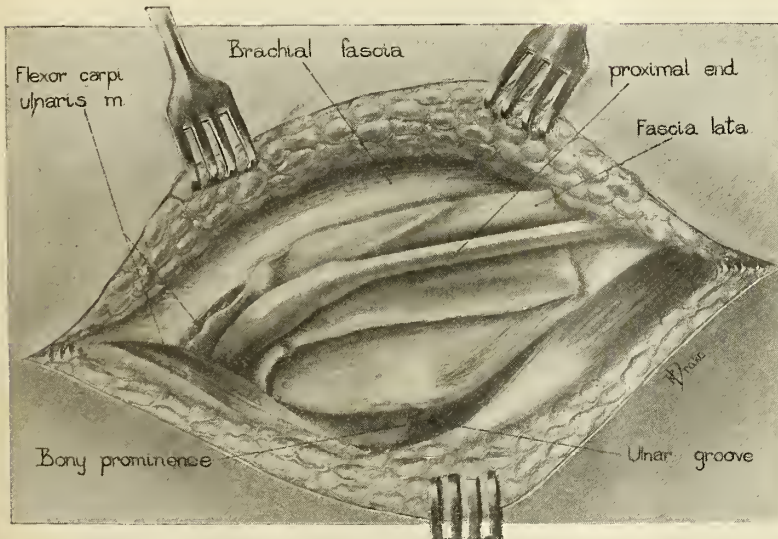
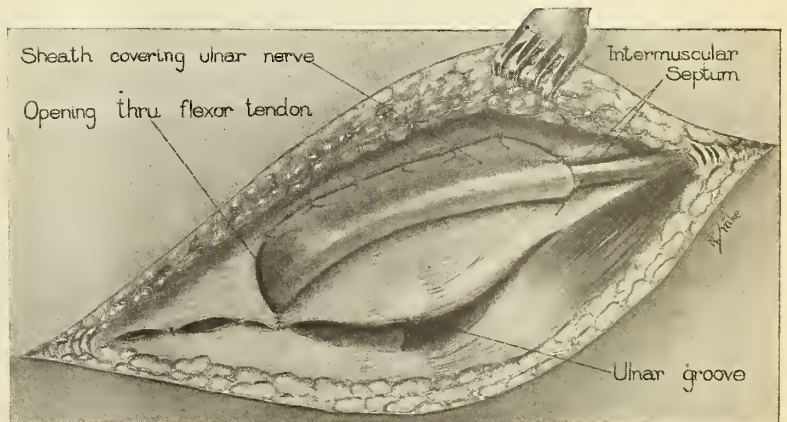


Fig. 8.

(Case 220582.) Elevation of right ulnar nerve to a position internal to the inner condyle lying on the sheath of fascia which is used in the fixation of the nerve, as well as illustrating the bony prominence in the groove due to overgrowth of the bone from the ulna.

Fig. 9.

(Case 220582.) Right ulnar nerve held in its new position by suturing the fascial sheath surrounding the nerve to the deep fascia covering the structures anterior to the elbow.



The treatment of the thickening or of the neuroma depends largely on the amount of paralysis present. If, judging from the neurologic findings, the patient has complete or three-fourths paralysis of the ulnar nerve, complete resection of the diseased portion of the nerve with anastomosis of the severed ends, are advised; but if the paralysis is less than half, instead of resection we advise the longitudinal splitting of the epineurium and perineurium in several places about the nerve in order to liberate the columns of nerve fibers from the contracting scars. If it becomes necessary to resect and anastomose the nerve, it is comparatively easy to bring about a direct apposition of the severed ends, and then to anastomose by the use of interrupted silk sutures in its sheaths. After the nerve has been transferred to its new position, the flexor tendon as well as tendinous fibres from the common flexor tendon are sutured back to their normal position, thus making a new groove for the entrance of the ulnar nerve, which passes underneath the inner head of the flexor carpi ulnaris to its normal position between the two heads and under the flexor carpi ulnaris. The wound is closed without drainage.

It is advisable to use massage postoperatively. Electricity has probably little value. The nerve in its new position causes very little trouble and the results are most gratifying in that the progressive paralysis ceases, or improves to an appreciable degree, particularly if the nerve has not been injured too severely.

### Conclusions.

1. Progressive ulnar paralysis is a definite clinical entity, the result of a slight trauma, or a bruising or stretching of the ulnar nerve over small bony prominences in the region of the nerve.

2. The condition is characterized by: (a) sensory changes,—paresthesias and anesthesias; and (b) atrophy of the muscles involved, with gradual increase of motor paralysis.

3. The surgical treatment consists of transference and fixation of the nerve to a position internal to the inner condyle, with longitudinal splitting of the epineurium and perineurium, or the resection of neuromas followed by anastomosis.

## THE CLINICAL ASPECT OF PROSTATIC HYPERTROPHY.\*

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The work of the individual is gradually being merged into the broader field of co-operation, and it is through the collaboration of many men that the vast number of surgical problems are brought to the highest development of specialization. Thus, for years, the methods of operative approach in prostatic hypertrophy have been studied by such men as Fuller Freyer, Proust, Young, and their followers, until we have now arrived at a reasonably definite conclusion regarding it. The suprapubic prostatectomy is the operation almost universally adopted.

The question of the two-stage operation is having its inning, and, ultimately, through the interchange of experiences and the stimulation of the interests of different men, will be satisfactorily solved.

The indication for operative interference is still a very important phase of the subject for general discussion, as too many prostatiques become grave surgical risks before they present themselves for operation.

If the general practitioner can be stimulated into taking a greater interest in the cases of men past middle life, who come to him professionally, in order to determine any enlargement of the prostate; if he will take time to ascertain whether his patient has residual urine, by passing a small, soft catheter after the bladder has been emptied naturally, he may save him many resultant complications.

With the use of the cystoscope, an examination will readily disclose the condition of the gland, and is a valuable aid in diagnosis.

### Clinical Indications.

The clinical indications for the removal of the prostate, are based on the pathological conditions present in the gland, as manifested by symptoms relative to obstruction. It is, therefore, necessary to bear in mind this fact—that

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we are dealing with symptoms of prostatic obstruction, rather than with the hypertrophied gland.

The early clinical symptoms may manifest an intermittent, or a continuous course. They are produced by the mechanical interference of the hypertrophied gland. The function of the bladder is interfered with, and it begins to empty itself more frequently, both day and night. The act of urination becomes more difficult and prolonged. The stream starts slowly, flows less forcibly, and sometimes intermits.

The symptoms are more pronounced when the bladder has not emptied itself for some hours, so that the individual is unpleasantly reminded of it when he first rises in the morning. These early symptoms are present in nearly every case of prostatic obstruction. Examination at this time will show residual urine.

This is the stage when it is most desirable to operate—for the following reasons:

1. The symptoms will not manifest any spontaneous improvement.
2. The bladder is still free from bacterial invasion.
3. The kidneys are not suffering from any back pressure.
4. The general health of the patient is not undermined.
5. If the hypertrophy be malignant, it is the early operation that gives the patient the best chance of recovery.

### Secondary Symptoms.

At the present time, too many cases are coming to operation with secondary symptoms. These symptoms must be classed as the complications of the prostatique. They are brought about by the intoxication from the presence of residual urine, or by damming back in the ureters and pressure in the kidneys, with the resultant renal insufficiency. When complete retention occurs, it may be acute or chronic in its course.

The acute cases invariably are those whose symptoms have come about so insidiously that little attention has been given them until, through exposure or over-indulgence, there is an attack of retention of urine. Relief is obtained through catheterization, but almost ever after, the catheter will show residual

urine after micturition. It is our duty here to impress the patient with the danger of the permanent use of the catheter, and to advise operation.

The habitual use of the catheter must be denounced under any circumstances, as cystitis is sure to develop, in spite of all precautions. Statistics show that the average life of the patient using a catheter is about five years, while a properly performed prostatectomy will give permanent comfort and relief.

In the chronic form of retention, with the clinical symptoms present, the residual urine gradually increases until eventually the bladder becomes more or less extreme, depending on the length of time of the retention, or the duration of cystitis present.

The cases of chronic cystitis and the cases of extreme atony are very difficult to treat, and are the cases that most frequently complain after the prostate has been removed.

There is another type of case one should mention. That is the type having a hypertrophy of the anterior portion of the lateral lobes. The prostatic enlargement is in front, and protrudes into the bladder, anterior to the vesical orifice. This class might easily be mistaken for stone in the bladder. In these cases, the sphincter closes with difficulty, allowing a constant dribbling of urine, but there is no residual urine, and the hypertrophy of the prostate is uncertain. The cystoscope is the only definite means of diagnosis.

The symptoms of retention, and not the size of the gland, call for operation, as some very large glands do not prevent a complete emptying of the bladder.

The internal compression of the kidneys, pyonephrosis, the cardiovascular changes, toxæmia, high blood pressure, and defective renal functions, are responsible for the mortality of the prostatiques. These statistics will be lowered when such cases come to operation before they are undermined with these complications.

Should the thoughts set forth in this article stimulate a great enough interest to lead to an early recognition of the disease, and with this to an early operation, a marked advance in prostatectomy will have been made, and, in a measure, my purpose will have been accomplished.

## DISCUSSION.

DR. HARRY A. BAKER, Minneapolis: In the absence of those members whose names are down to open the discussion on this paper, I would like to say that the subject is a very important one, and it is very pleasant for me to be able to agree with the author in all of his findings.

The treatment of hypertrophy of the prostate to my mind is now standardized, and with the use of the catheter in competent hands the danger of infection is not so great. The patient can be made comfortable and maintain his physical status quo, or he may seek recourse to operation for relief and cure. I have observed that prostatics otherwise are in good health and of robust constitution, and I have concluded that if the condition of hypertrophy of the prostate is recognized soon enough and a regimen instituted sufficiently early, and not a long time allowed to intervene before the undermining and breaking down of the constitution, much can be done for this class of patients. So I believe the two important factors in prostatic hypertrophy are, first, its early recognition, and then after its early recognition, the institution of proper catheter life.

The early operation that the essayist spoke of is very essential, but with the institution of proper regimen early operation may be delayed for years.

There is another form of prostatic hypertrophy concerning which no mention was made by the author of the paper, and that is the hypertrophy that follows and accompanies Neisserian infection. I believe that to be a very important form of hypertrophy, and while the treatment is very important, such treatment has not as yet been standardized. While after a time the hypertrophy subsides, at the same time there are many cases with symptoms and all the pathology which follows. While they should be clinically symptomless, this form produces symptoms sometimes as extensive as those of pregnancy. I think that the prostate takes on a larger aspect than that of an organ acting as a carrier for fluid. It is more important as an organ of internal secretion, but probably not as important as the pancreas or other organs. As a matter of fact, the prostate is part and parcel of the gonads, and it is not an easy matter to separate the gonadal adnexa in man like it is in woman. So my thought is that besides instituting treatment in these cases, it is equally important to know when and how in some way to stop treatment, because the patient requires not so much the assistance of a surgeon as he does the services of a psychiatrist to bring about a cure. A great urological joy with me is to discharge a man as cured who has gone through clinic after clinic to get rid of urethral shreds or an imaginary hypertrophy, and surely of the very few joys that come to us, perhaps that one joy of service to one's fellowman is the greatest.

DR. V. J. HAWKINS, St. Paul: From my limited experience it would seem that the operation of prostatectomy is not standardized yet, and until we can keep the bladder without infection we have not

standardized the operation. We all know very well that we cannot use a catheter for irrigation purposes for any length of time in the bladder without getting infection, no matter what the reason is for instituting this procedure in the beginning.

When it comes to the operation it seems to me it never will be standardized until we reach that point where we do not injure the urethra, and where we are not going to have infection follow. Those are fundamental principles underlying all surgical procedures; they have been worked out and developed and perfected in the last twenty-five years. Until you can do that with the prostate you are not going to have the operation become popular with even old men who know that they are going to die very soon.

I have seen a great deal of this work not only in my own practice but in that of other men, and my experience has been that these patients practically all get more or less infection. Not infrequently these patients are treated until they are either worn out and die, or they die shortly thereafter because they have so little resistance. The sooner we can institute operative procedures in these cases the better and greater the resistance they have, so that it is very essential to get these cases early and adopt a plan of removing the obstruction that will be permanent and without infection, leaving a good urethra that will be under the man's control. We should not destroy even the seminal vesicles in these men, even though they may not need them any more. We do not want to destroy anything of that kind. We should strive to do an operation that will relieve the obstruction without leaving infection.

DR. WANOUS (closing): I have nothing special to add except to say that my reason for advocating early operation in these cases is that the removal of the prostate is not difficult. As a matter of fact, it is a very simple operation. It becomes difficult when one encounters complications by waiting too long. If we can teach these old men they are not going to suffer from the removal of the gland, if we can teach them that the danger of this operation comes from waiting too long, and that every year adds to the danger, we will have accomplished a great deal. Delay in operating adds the danger of cystitis and infection, and in the presence of these conditions the operation becomes serious. As we encounter these cases today, practically all of them are infected. That is why I say it is necessary to get them earlier.

As far as the technic of the operation is concerned, I believe nearly everybody is doing the suprapubic operation. Many of these patients when they come under our observation have infection and damaged kidneys. If the bladder is distended, and we cannot pass a catheter through the urethra, we resort to punctures of the bladder, empty it, and that leads to a crisis. The patient may die and we call it renal insufficiency. The next old man will be fearful of such an operation. If you do not operate and the man dies, there is a complication, and you call it uremia. I think there are as many patients who die of uremia as there are those who die of renal insufficiency.



## THE WAR AND AFTERWARDS.\*

PIERCE BUTLER,  
*St. Paul, Minnesota.*

Mr. President, Members of the Southern Minnesota Medical Association: It is a source of great pleasure to me, and I regard it as a great privilege, to be here this afternoon to take part in the patriotic session of this Association. Since accepting the invitation of the Chairman of your Committee on Program, I have been at a loss to know what to say on this occasion. The place, the meeting, the time, the circumstances in which we live all contribute to making the occasion memorable.

Winona is the "first daughter" of the great north star state, its fairest and most beautiful city. From the days of her commencement to her present hour, in all that makes for the welfare of man and nations, the Southern Minnesota Medical Association has stood foremost, and to ask an outsider to speak of patriotic things here is like carrying coals to Newcastle. Of all the citizenship of the country, none excel in this time in patriotism the medical profession of this great nation. Admired always, the work of your profession has ever been one of service and sacrifice, and the medical profession of Southern Minnesota, whether tested by professional attainments or professional character, or the supreme test of patriotism, stands second to no medical organization in the United States. (Applause.) It has sometimes been said that the lawyers, accustomed probably to talk, and often to talk without thinking, have a kind of usefulness in the war after they have passed the fighting age (Laughter.) They have been referred to sometimes as the stokers of patriotism, but here in this organization no stokers are necessary to keep burning at white heat the sentiments of patriotism. (Applause.)

The causes of the war and the issues involved are well known. There is no room for difference of opinion as to the righteousness of our cause. Our country had no alternative. The choice lay between unthinkable humiliation and war. Our choice has been made, rightly made.

The fundamental truths upon which our government rests are irreconcilable with the con-

ceptions upon which the imperial German government has been erected. With us, the people are the source of power. All power is theirs. What has not been expressly granted to official authority to be exercised in their interests is withheld, and that which has been so delegated may be recalled at will.

That governments derive their just power from the consent of the governed is the proposition upon which our government rests. It was formed "to establish justice, insure domestic tranquility, provide for the common defense, promote the general welfare" and to "secure the blessings of liberty" for all the people in all time. Unexampled progress in all things that make material and moral welfare has attended the one hundred and forty-two years of our independence as a nation. Our history is the best testimonial of the soundness of the fundamental truths upon which rests the Republic.

In Germany the conception is that the people derive their rights by concession or grant of the state. The doctrine of the divine right of kings has been applied. The strength of the state is the highest consideration. The safety of the people is deemed subordinate. The result is Prussianism, the demon enemy of the rights of men, the wicked offspring of false teaching. Moral precepts have been set at naught, and, in order that force may rule the affairs of nations and of men, relentless war is made on all civilization. It is a war of madness, and, notwithstanding skilled and scientific preparations for half a century, this madness is working—has all but consummated—the ruin of the German Empire and its people.

Were the rulers of Germany not mad, they would have known that their wicked incitement of Austria to attack and invade Serbia for the purpose of extension of power and territory, would bring on a European war. It was certain that Russia would stand with Serbia, and France was treaty-bound to Russia. The blow at France through neutral Luxemburg and Belgium, in violation of international law, and the solemn treaty obligation of Germany itself, was certain to bring the power of the British Empire to the performance of its treaty obligations. In short, if reason had not been overthrown by wicked teaching that as between na-

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tions there is no law, moral or otherwise, and that "scientific barbarism" can be so applied as to paralyze the world with fear, the rulers of Germany would have known that no civilized nation, no just man, would dare to attempt a justification or to be known as friend or apologist of the German imperial government.

By causeless murder of innocent civilians, by robbery of the defenseless, by arson, by vandalism, by piracy, by the pollution of wells, by the scattering of germs of deadly diseases, by falsehood, by spying upon and ruthless disregard of the rights of neutral and friendly nations, the Prussian state has for all time recorded itself as the barbarous enemy of mankind.

In 1914, Prussianism believed that its will could be by force imposed upon all the world. It was expected that France would speedily be overthrown; that England would not intervene; that the Balkan States and Russia, held back by the Austro-Hungarian Army, while the German Army worked its will in the west, could be conquered and exploited in detail without serious interference on the part of other European powers.

America was three thousand miles away, at peace with Germany, unprepared for war, long committed to the policy of avoiding European entanglements, and by German statesmen it was believed that she would not—that she dare not—come to the defense of humanity in Europe or defend the rights of her own people to travel upon the high seas. While our country preserved neutrality and was at peace with the world, German spies filled our public places; in impudent resentment of our exercise of our lawful right to trade with belligerents, Germany incited the destruction of our property, threatened our domestic affairs, and her minister at the nation's capital was the head of a highly organized conspiracy, liberally financed, to threaten and coerce our people and by political intrigue and false propaganda to torpedo our national power. American citizens were murdered upon the sea; our flag insulted; our ships on lawful business were sunk without warning; when reparation and cessation were demanded, we were met with hypocritical lies put forth by the highest German officials, while those who perpetrated outrages unspeakable were dignified and decorated by the imperial government.

This war is a defensive war, and this country was never engaged in an unjust war, and today behind its flag, behind its army, and behind its navy is a united sentiment, a sentiment more united than ever supported this country in any of its wars. (Applause.) It is now well known that false assurances were given by the imperial German government with the deliberate purpose of gaining time for the construction of more submarines in preparation for systematic, unlimited and ruthless destruction of American and other neutral shipping. In the meantime, her statesmen and ministers were insidiously and corruptly intriguing to bring our country into war with Japan and Mexico. Finally, about the first of January, 1917, this country was impudently notified that her ships would travel the seas at peril of being sunk without notice. By corruption hitherto unheard of, our people were assailed by false propaganda in the interests of Germany. America loved peace and was patient, was long-suffering and unprepared. Guileless in her intercourse with other nations, she was slow to believe evil of others. Protected by the expanse of ocean, she had long been accustomed to think herself secure. The Monroe Doctrine, boldly proclaimed in the early days of the Republic, had protected the continent from political exploitation and spoliation for more than a century. Conscious of our strength, we believed that such an invasion of our rights would not come. But the declaration by Germany of ruthless warfare upon our rights aroused America. America was in law and in fact invaded. Long after the war was forced upon her, she recognized its existence, and is now engaged in a war of defense, and I say to you with unqualified assurance that those of us who cannot go forward to fight do not propose to see our soldiers stabbed from behind. (Applause.) There can be no lukewarmness here. Real patriotism requires not only that America shall win, but that Prussianism, the Prussian state, the conceptions of false teaching, the immortality upon which it rests, must be torn up root and branch everywhere and forever. (Applause.) Such monstrous things should not be permitted to endure upon this earth.

Since 1914 the armies and navies of France and England have borne the brunt of battle. Theirs has been the privilege and the burden

of defending the democracy, the civilization, of the world against ruthless autoocracy. If they had failed, the attack speedily would have fallen upon the United States. In this age there is not room enough on the earth for the application of America's governmental conceptions and those of imperial Germany. (Applause.) One or the other must prevail. Germany was the first to recognize this. She has long looked with envy upon this country. If Germany had been prepared for war when Dewey entered Manila Bay, when our country was at war with Spain, she would have interfered against us. Then, Germany only waited the day. If Germany had been ready when President Roosevelt warned her battleships from Venezuela, war would have ensued to overthrow the Monroe Doctrine, in order that she might impose her will on South America and later upon all America. It is obvious now that since the early days of the present war, America has been the special object of the hatred of imperial Germany. The egotism of the Kaiser—which amounts to mania—led him to believe that through insidious propaganda and a highly organized spy system, he could debauch our people, control our internal politics and incite revolution here. But the spirit of America, the spirit of democracy, has made loyal Americans of by far the greater number of former subjects of the Kaiser. (Applause.) Men of German ancestry, native here, were, with few exceptions, found to be loyal when the real issue was made obvious to them. (Applause.)

Occasionally yet there are manifestations of German intrigue and attempts, by misrepresentation, to becloud the issue. But let the warning be sounded that loyalty in full measure will be exacted from all. (Applause.) Traitors and the lukewarm will be found out, and woe to them when discovered. Let it be understood that the detractors of country and bearers of hypocritical German representations are traitors, and that they will be dealt with as such. (Applause.) All must follow the leader. The leader is the Commander-in-Chief of the Army and Navy of the United States. (Applause.)

We have been at war but little more than a year, yet all have become accustomed to changed conditions. The occupation and pastimes of peace have given place to preparation

for war—actual war. Every one is and must be engaged in an effort to bring success to our arms that we may have permanent peace. In every walk of life is preparation and support for the effort that is to destroy the power of imperial Germany. From every walk of life come men to serve, to fight. We have seen them leave their homes; we have seen the laden troop trains move them to training camps; from the training camps we have seen them move to concentration camps, then down to the sea, and with anxiety we have awaited news of their safe arrival abroad. America has sent and is sending her best men, and enough will go to do the job. (Applause.) In the history of transportation of troops by sea, the performance of America has never been equaled. The pressure of our splendid Navy made itself felt by the enemy the moment we entered the war, and the pressure of our soldiers over there is now being felt. The time will soon come when enemy advance will cease forever, when the enemy will yield, give ground and finally retreat. (Applause.)

This war will not end until it ends right. It will not end until the German autoocracy is destroyed. (Applause.) He is not a good American who only insists that America shall win, while secretly hoping that Germany may be saved. America must win, and imperial Germany must be destroyed. Justice requires that the Prussian state and the conceptions upon which it rests—the divine right of kings, the right of the state is limited only by its power to impose its will upon others, the strength of the state is more important than the rights of people,—must now be destroyed, root and branch. The world must be cleansed of such monstrous things.

After the war is ended, when the job is done, the men—whether it be one or two or three or ten millions—who went forward on sea and land to make, if need be, the full sacrifice for righteousness in the world, will return. America will welcome them home. This is their country. Taught by experience, serious and most trying, dignified and ennobled by splendid performance in the cause of human liberty, they will be entitled to receive, and they shall have, freely of the homage of their countrymen. (Applause.)

The political and economic problems which may arise in this country and all parts of the world as consequences of the war are likely to be difficult and supremely important. Certain it is that all the nations engaged will be greatly burdened by debt. The payment of interest regularly and of the principal in due time will burden industry. All will be relatively poor, but the need of saving will stimulate industry, and it is not unlikely that production of wealth will be greater than ever before. Injustice in the distribution of the products of toil and human effort will not be tolerated. The men who shall have borne the burdens of war will stand firmly for justice to all. (Applause.) Neither the excesses of socialism nor the privilege of wealth will be permitted to rule. It will be out of harmony with the spirit of the times to be idle, whether poor or rich.

A better understanding of the rights and duties of citizenship will everywhere prevail. There will be no classes; all will be free Americans. Returned soldiers will be entitled to be heard. They will be heard from the places of influence and power for decades to come. They will be heeded in all matters that concern the welfare of the country. As in the hour of national crisis and supreme peril we now turn to them, so then shall we give them our confidence. Through them will be erected a better, a broader, a nobler devotion to country than hitherto has been known. The spirit of a world ruling democracy, sane and just, will inspire all to discharge the onerous responsibilities of the future. (Applause.)

When the war is ended, America—having from the day of her birth been the refuge, the hope and the inspiration of free men everywhere—will occupy a high place in the family of nations. (Applause.) America is now showing, and until this war is ended will show, that she is true to the ideals of liberty which gave her birth. While this nation does not, and will not ask praises, indemnity or reward, humanity will ever turn to her as the world's best and greatest benefactor. (Applause.)

We propose to see this war through. No pledge to strengthen is needed. The nation's purpose is permanent. America's power cannot be overcome; it will prevail. (Loud applause.)

REPORT OF THE MEETING OF THE FOREIGN MEDICAL MISSION AT THE UNIVERSITY OF MINNESOTA,  
OCTOBER 29, 1918.

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ROBERT EMMETT FARR, M. D.,  
*Minneapolis, Minn.*

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On Tuesday, October 29th, a medical mission, composed of eminent surgeons representing our European Allies, was received in joint meeting of the Hennepin and Ramsey County Medical Societies at the University of Minnesota. In the absence, on account of sickness, of Dr. Robert Earl, President of the Ramsey County Medical Society, of St. Paul, Dr. E. K. Green, President of the Hennepin County Medical Society, of Minneapolis, welcomed the surgeons in the name of both societies.

Dean Lyon of the Medical School had charge of the program and addresses were given by Col. Geo. E. Gask, St. Bartholomew's Hospital, London; Major Pierre Duval, Paris; Col. Raffaele Bastianelli, Rome; Sir Thomas Myles, Dublin; Maj. G. Grey Turner, Newcastle-on-Tyne, England; and Maj. Geo. Emerson Brewer, New York.

It was a memorable occasion and a rare privilege to have this first-hand account of the activities in the medical field at the Front, and, while much of the discussion related especially to the carrying on of the war from a medical standpoint, the greatest interest was aroused by the reports of the world renowned surgeons, Professors Duval and Bastianelli, on the manner of treating lung injuries. Professor Bastianelli acted as interpreter for Professor Duval, who spoke in French. Col. Geo. E. Gask related the manner of handling the injured. Sir Thomas Myles dwelt especially upon the problems of reconstruction, and Maj. G. Grey Turner upon the manner of handling the Mesopotamia campaign—showing the almost insurmountable obstacles that had to be overcome—while Maj. Geo. Emerson Brewer electrified the audience with an account of the activities of our own forces “over there,” dwelling especially upon the work of our medical officers and recounting many of the atrocities of the Hun.

*Remarks of Col. Geo. E. Gask.*

Col. Gask made a diagram showing arrangement of forces, Regimental Aid Posts, Advance Dressing Stations, Casualty Clearing Stations and Base Hospitals. He said success in handling the work at the Front depends largely upon expedition, and the whole subject is largely one of transportation. The wounded are brought first to the Regimental Aid Posts in charge of Regimental Aid Surgeons. These are as close as possible to the Front and are placed wherever temporary shelter may be had. From these points the wounded are carried back to Advance Dressing Stations. From these posts ambulance service collects the wounded and carries them back to the main Dressing Station, and from there, to what is known as the Casualty Clearing Station, which corresponds to our Evacuation Hospital. The distance of the Advance Dressing Station from the Front varies from a thousand to four thousand or five thousand yards, according to condition of the roads. Going was so difficult last year that the patients were carried by two bearers, shoulder high, instead of four. They are of course subject to fire. The losses in this service are second only to those of the infantry, and the difficulty of maintaining the service may readily be guessed. Ambulance trains carry the wounded back to the Base Hospitals, which are situated more or less on the sea coast, and the men are taken from there across the Channel to England. This gives an outline of the transportation required.

The idea in the beginning was that most of the surgery would be done at the Base Hospitals, but it was soon noted that every wound suppurated, gas gangrene set in and hundreds were lost. Gradually all urgent surgery was undertaken at the Casualty Clearing Station, and finally abdominal and head operations were done. The earlier the wound is cleansed by operation the quicker and better the recovery, so, gradually the bulk of the surgery was taken from the Base Hospital, and the Casualty Clearing Station has become the most important of the lot. It is here that the casualty lists are compiled. As many as from five hundred to three thousand men may pass through in a day.

In the operating rooms several teams work at the same time, everything being arranged

for the most rapid work, so that as little time is consumed as possible. From the first the work in our service has been too great for the number of surgeons. Cure, subsequent treatment and convalescence are governed by the care received.

Along with earlier surgical attention every known antiseptic was used to combat suppuration, which is horrible in such cases. Better cleansing, aseptic conditions and development of the Carrel-Dakin method improved conditions. Lung wounds had to be excised and dead tissue cut away. The practice now is early medical cleansing and surgical operation as soon as possible. After that the wound can be closed by (1) primary suture, (2) delayed primary suture, or by (3) secondary suture. Delayed primary suture enables one to move the wounded back at once. If first cleansing is unsuccessful, or in cases of fracture, they can be cleansed by chemical methods—the Carrel-Dakin, mostly. Delayed primary suture can be accomplished in two or three days at the Base Hospital, or closure made later by secondary suture.

*Remarks of Maj. Pierre Duval.*

(Interpreted by Col. Bastianelli.)

Maj. Pierre Duval (University of Paris) stated that "lung and chest wounds," at the first part of the war considered the most innocent, are now regarded much more seriously, the total death rate from the first dressing stations being 45 per cent in the French army, the same in the English, while the Italian army shows 60 per cent. (Col. Bastianelli—aside—"I do not believe this.") (Applause and laughter). Being confronted by such a high death rate, surgeons undertook the early treatment of lung wounds by operation in the same way wounds were handled in other parts of the body—by removal of foreign bodies, bits of clothing, excision of devitalized tissue, suture of lung wounds and complete closure of the chest. We deal with these wounds in a very simple way. Complicated apparatus is not necessary. We open largely the thorax, pull out the lung and cleanse it as if it were any other part of the body. It is necessary to pull out one lobe after the other, examine both surfaces, the wound has to be laid open, and the

margin excised. If hemorrhage occurs it is as easy to put a clamp on as in any other part of the body. The wound can be sutured and the lung replaced. Our experience shows that to open largely the thorax and use pneumo-thorax is not in any way dangerous, nor is it especially difficult. That this procedure is indicated is shown by comparison between lung wounds treated surgically and those treated medically. In 1916 at the Battle of Somme, three hundred such cases treated without operation showed a mortality of 30 per cent. In 1917 non-operative treatment showed a mortality of 14 per cent, while treatment with operation showed a mortality of only 9 per cent. Hemorrhage is inimical to operation but forty-nine cases with hemorrhage shows 66 per cent cured. Operations for other conditions than hemorrhage shows no deaths. Moreover, the quality of cure obtained by operation is infinitely superior to the cures without operation."

Lantern slides were shown to illustrate the method of procedure in such cases, also serial studies of cases with and without post-operative complications.

*Remarks of Col. Raffaele Bastianelli.*

"To the surgically trained, Maj. Pierre Duval's procedure of opening largely the thorax, exploring the lung, excising tissue and removing foreign bodies must appeal very much. It opens a broad field, but the question at once arises, is it for any case of wounds of the lung or not? This question has not been debated and, before forming an opinion, let me present another procedure. I am a surgeon. This procedure is not surgical, still it is good. The operation described by Maj. Duval is 'some' operation and requires 'some' surgeon. (Laughter). Instead, we put a needle inside the pleural cavity, a procedure that is an everyday business for every medical man. I am sure we have been enabled to register many lung wounds cured by this natural method of pneumo-thorax as practiced by your own eminent J. B. Murphy, and many others in this country and extensively used by men attached to my unit.

Two conditions present in these cases, one in which the thorax is closed and the other in which it is open. In one the lung is expand-

ing and contracting about as usual. In the open chest the lung is forced out in expansion, which gives a very difficult problem. In the closed chest the hemorrhage is usually very severe at once and very profuse at the beginning. It is a physiological question. Every movement of the chest wall produces suction. Negative pressure of the pleura keeps the lung wound open. Because of constant suction it cannot close easily and the lung is aspirated. In many cases even at the end of three or four days there is a large amount of blood in the pleural cavity.

In addition to this condition of the lung, contusions are frequent. Beside the hemorrhage (demonstrable in about 90 per cent of cases) air is present in the pleural cavity. Thus it happens that with each inspiration the lung comes out and forms a natural pneumo-thorax. Usually in the presence of air and blood in the pleural cavity, air is noted first. Blood may present at different times, sometimes early and sometimes quite delayed.

Lung wounds are cured by nature because the wounds close. The edges of the lung wound are approximated by pressure inside the cavity, either by blood or air, or by the blood and air together. (Slide shown of case with large collection of blood which does not stop hemorrhage from lung wound). The quantity of blood may be from 15 to 500 C. C. Such an accumulation of blood produces inflammatory complications, so it is aspirated and the lung walled in so that partial expansion continues, but the pleura cannot follow every expansion of the chest wall. It results that it is the lung which has to follow the chest wall in the movements of respiration, so the lung wound will not close, even if there is a great quantity of blood, because it could not follow the expansion of the chest. Now, if adhesions take place, the healing goes on without interruption. The lung having got adhesions at this point will try to fill up the cavity by expansion, but it never comes back to where it was before. In such cases life is saved but one is unable to obtain a good quality of cure.

When the cavity is filled with air the lung is surrounded by totally collapsed tissues and every movement of the chest wall is acted upon by air which is elastic. The lung does not take

part at all, but remains collapsed. Varying amounts of air are employed, the edges of the wound come together and are closed mechanically by air. The lung remains fixed. By removing the blood, which is dangerous, and putting in the air, which is advantageous in every way, we close it air tight, producing pneumothorax. Now, we do not patch with pieces of rubber but put in one of these bags of air. By partial pneumo-thorax we can put the lung into immobility for ten to fifteen days. Naturally we have some complications but time is too short to deal with these. Our apparatus is very simple and it is not necessary to have the differential pressure of Saeurbruch and W. Meyer. With the use of air bags the danger of air embolism is avoided. The results shown are good for this class of wounds. Some are cured, as shown by X-rays. Figures are based on all such cases brought in. No selections were made.

Cases reported .....	370
Non-penetrative without lung adhesion....	43
Non-penetrative with lung adhesion.....	37
Penetrating chest with closed chest and lung wound .....	206
In all of these 7 deaths. (Applause).	
Treated with pneumo-thorax.....	88
Treated with pneumo-thorax and surgery..	188
In all of these 7 deaths.	
Lived without complications.....	177
Lived with complications.....	22

The bad results are in cases of open chests because infected. Of these we had eighty-four cases with nineteen deaths (22.6 per cent), which includes men who died on the way or were so bad they could not be treated at all. Seventy-six cases inappropriate for pneumo-thorax showed a mortality of 14.4 per cent. In the last thirty-five treated we had only two deaths. In two hundred eighty-two cases, eighteen deaths (6.2 per cent), so that the percentage in the Italian army is not worse than the others."

*Remarks of Sir Thomas Myles.*

Sir Thos. Myles talked on the magnitude of the problem of getting men back into service when the British have lost altogether 2,000,000 lives, and the medical corps has had to deal with something like 5,000,000 casualties, 732,-

000 since the beginning of the recent offensive. He stated that England lost more men than all the Allies combined.

"In the early days of the war it was deemed sufficient, when a man was discharged from the hospital, to send him back to depots where he was supposed to do light work. Now, command depots accommodating four to five thousand men are placed side by side with the general hospitals, where, by means of gymnastic apparatus, field sports, mechanical equipment, etc., the men are made fit, and get back to France as soon as possible. Rigid selection is made, excluding all cases demanding secondary operation for severed nerves, divided tendons, etc. The surgeons in charge are young men from twenty-eight to thirty-five years of age and their function is an extensive one as they must determine need for further operation. Those considered unfit are left for care by the civil population later, as his reclamation work belongs to the Ministry of Pensions and not to the medical corps of the army. The commandant is always a professional man who has left the army. This is essentially a therapeutic service, but we have from the first been hampered by a shortage of medical men."

*Remarks of Maj. G. Grey Turner.*

The talk of Maj. G. Grey Turner was accompanied by a series of slides illustrating the interesting campaign in Mesopotamia. Here, too, the difficulties of the campaign hinge largely upon transportation, everything having to be carried via South Africa, and the treatment of the wounded during the siege of Kut taxed their facilities to the utmost.

The bad condition of the roads demanded first attention. The canals were bridged, sanitary measures instituted, and drainage made possible by raising whole sites of hospital supply depots, etc., several feet. The work was done mostly by Indian engineers who could stand the intense heat. The feeding problem was great, as men could not go into open air at the accustomed hours for food. Malaria was prevalent and hard to combat. The equipment of the operating theatre was all of the best type and all helpers in the hospital, men and women alike, did the most heroic work under the most trying conditions.

*Remarks of Maj. Geo. Emerson Brewer.*

Maj. Brewer gave a resumé of seventeen months' experience in France, about seven months with the British army and the rest with the American Expeditionary Forces. He spoke principally of the conditions under which the men have to work, that of the regimental surgeons being the worst, but for the most part conditions were good, the men doing superb work in all posts. He gave details of team work at the main hospitals which enabled the surgeon and his staff to handle in a few hours from three hundred fifty to six hundred cases, the chief responsibility being selection of cases and decision of what was most urgent. The evacuation hospitals take as good care of their work as any civil hospital in Chicago, Minneapolis or New York.

"At all times they have three or four good surgical teams and at rush times men are brought in from other points and sometimes from sixteen to twenty teams are kept busy. The evacuation hospital must be situated at rail heads as they send out from two to four hundred cases twice a day. At Chateau Thierry the evacuation hospital was about forty kilometers from the Front.

Cases so bad they can't be transported to the evacuation hospitals are handled by mobile hospitals manned by surgical teams and equipped with complete X-ray and sterilization outfits. The field hospital is set up as near the Front as possible under tents or any improvised shelter, and it is necessary to use ambulances to the fullest extent to clear the Front. It may be from five to fifteen miles in front of the hospital where the bulk of the surgery is done. The field hospital is capable of taking care of from three to four thousand men, still, with

eight hospitals, even with sixteen or eighteen teams working, the men had to be transported by train to the Base Hospital, because if they had to await their turn it would be from thirty-eight to seventy-two hours before they could be given attention. In every case handled judgment had to be exercised as to what was most urgent in cases of multiple injury, all varieties of work often being demanded in a single case. The work at all times requires the best surgical judgment. I was consulting surgeon during the battle of Chateau Thierry and it is one of the most gratifying experiences of my life to note the superb results obtained in such a large number of cases. About thirty-five or forty per cent were closed by delayed primary suture. About eighty-five per cent of all wounds were able to be closed, and the percentage of gas gangrene so small that there were only thirty-two in all, and of these only eleven died. I would have anticipated that it would go into the hundreds. I am happy to say the men in all fields are getting a square deal—the very best we can give them. No organization can be perfect under these conditions, but, if we have another great battle in the near future, we should have even better results, and I am sure everything possible is being done at Washington to complete the organization and have an oversupply of men when the need comes."

Maj. Brewer gave an account of the bombing of the field hospitals by German airmen. Plainly marked hospitals, over which the Boche had been flying for six to fifteen months, were bombed extensively. In one area nine out of twelve of these hospitals, which had not been molested and whose location was well known to the enemy for many months, were bombed in a period of a few days.





# Minnesota Medicine

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## EDITORIAL

### SURGICAL ADVANCES IN THE WAR.

We are fortunate in being able to give our readers elsewhere in this issue a composite account of certain phases of war surgery presented at the University of Minnesota on October 29th by the visiting Allied Surgical Mission. The delegation was composed of eminent members of the medical profession from Great Britain, France and Italy. Great Britain was represented by Sir Thomas Myles of Dublin, Colonel George E. Gask of London, and Major G. Grey Turner of Newcastle-on-Tyne; Professors Pierre Duval and Henri Beclere, both of Paris, represented France; and Professor Raphael Bastianelli of Rome was the representative from Italy.

The occasion was one of great interest and importance, and to those who had the pleasure of hearing our distinguished visitors, the consoling fact must have been borne home that in

spite of all the frightful horrors which have marked it, the war has at least contributed a most brilliant chapter to the pages of surgery.

Vividly brought out by Professors Duval and Bastianelli, probably the most far-reaching advance in war surgery has been made in the method of treating injuries to the thoracic cavity. The ease with which, as has been demonstrated, the lung can be extruded from the thorax, the penetrating fragment of shrapnel removed, and the lung then replaced, opens up possibilities hitherto undreamed in the treatment of a great many pulmonary conditions.

The grounds upon which the advance in thoracic surgery has been evolved has recently been recalled by Sir George Makins writing in the British Journal of Surgery. First, upon observation of the favorable course taken in a certain proportion of the gross injuries in which the cavity of the thorax had been laid open, and the conviction gained that the more frequent fatal issues depended upon consequent infection of the cavity rather than upon the primary gravity of the traumatism. Secondly, upon confirmation of the views, so ably put forth by Macewen, that artificial arrangements for the maintenance of respiration are unnecessary in dealing with the opened thoracic cavity. Although the rules guiding intervention in cases of injury to the chest may still require some regularization, Makins points out that the experience gained of the value of operative measures in properly selected cases, and the safety with which they may be carried out, prove that a large field has been opened up to the civil surgeon in the future.

The zone of advance so well exemplified in the treatment of thoracic injuries has also extended in greater or less degree to every other branch of war surgery. In the case of compound fractures, for example, the treatment of the primary wound, the method of immobilization, the method of transport, and the common sense after-treatment, have all been placed upon an established, rational footing.

Extraordinary progress is also to be seen, as a result of the necessity forced upon us by war, in the great field of oral surgery. In cases of extensive destruction of the mandible and mouth, remarkable restitutions have been accomplished through the employment of most

painstaking plastic operation. It is a matter of some pride that to a large extent advances in this branch of surgery have been through the efforts of an American dentist, Major H. Kazanjian of the Harvard Surgical Unit. One has but to consult the recent reports of Kazanjian, Cole and others to be convinced of the fact that progress in this particular field reflects the highest credit on the art of restorative surgery.

Tuffier's adaptation of Carrel's method of temporarily maintaining the circulation in a divided artery by the introduction of a junction tube between the separated ends, in order to gain time for a gradual increase of the collateral circulation, has materially lessened the great danger of thrombosis during attempts to repair wounds of the large blood vessels.

In the progress made in surgically dealing with injuries to the central nervous system a large share of credit must be given the skilful work of the neurologist in localizing the site of injury and in determining the most favorable time for surgical intervention.

In all of these, as well as in other fields of surgical endeavor, such as in the surgery of the abdomen, the tremendous advances made will some day fill volumes. The details and the successive steps which have marked their progress must be left to the surgical texts of the future, but let us at this time not fail to realize the debt and pay the tribute due those members of our profession whose work, self-sacrifice and genius have thus gloriously contributed to the relief of suffering mankind.

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### RED CROSS HOSPITAL WORK IN FRANCE.

Both money and personal service have been lavishly spent by the American people in Red Cross hospital work in France. There are two kinds of these hospitals, those that are a part of the United States army evacuating system, and those that are not.

The first class numbers now about ten. These are designated as American Red Cross Military Hospital, No. 1, 2, 3, etc. These are in charge of a U. S. A. commanding officer but are administered by the Red Cross. The superintendent is a Red Cross representative; the supplies, food and construction work are all furnished by the Red Cross, but the personnel is furnished by the army.

It has been a part of the function of the American Red Cross to serve as the army's emergency depot. Anything the army wants from splints to hospitals, from diet delicacies to recreation huts, is supplied by them. So close, in fact, has been this co-operation between the Medical Corps of the Army and Navy and the American Red Cross that there has been much confusion in the public mind as to what was really army and what was Red Cross.

To the second class belongs the American Red Cross Hospitals, properly so-called. These now number fourteen. They may be navy hospitals, or hospitals for French and American soldiers connected with the French army evacuating system, or hospitals operated independently by the Red Cross for the wounded of the Allies. The army may take over any one of these at any time and convert it into an American Red Cross Military Hospital, if for any reason such a change has become advisable.

The American Red Cross has children's hospitals and hospitals for the tuberculous. Besides this, the Red Cross has some six hundred beds in its eight convalescent homes. Here every effort has been made to give officers and men something of that atmosphere of comfort and cheer that would be theirs if they were able to be furloughed home for their convalescence. All reference to their hospital sojourn is avoided. The men are given music, tea on the terrace, outdoor recreation, and in every possible way are made to forget war.

Hospital hut service in France includes two distinct branches of service. Hot drinks are dispensed; cigarettes, tobacco and chocolate are sold; music and entertainment are arranged; and a Red Cross library loans books and magazines. But in addition to this, the American women operating these huts are made hospital searchers whose task it has been to find out in more detail something of the wounded and killed and send this information to the families at home. These huts are a godsend in fighting the foe of homesickness, and in keeping up the spirits of those weakened by wounds.

Another interesting phase of hospital service in modern warfare has been the hospital on wheels, or the "autochir," as it has been nicknamed by Americans in France. There are also portable diet kitchens, disinfectant plants, dental ambulances, etc., all of which have moved

with the advancing army, ready to give aid at the earliest possible moment.

At first our own wounded men were billeted in the French hospitals in the sector in which they were fighting. More recently, however, they have been evacuated to our own hospitals where they have had the care and attention of American doctors and nurses.

The chief work of the American Red Cross recently has been in caring for our own wounded soldiers who have fought so valiantly in helping to bring the war to its successful issue. In close co-operation with the army, the Red Cross has worked to supply a sufficient nursing service. There are now in France about nine thousand graduate nurses in this service.

With the war's ending the task ahead still remains very great, and the American Red Cross will continue its work of mercy and relief. It needs the entire nation behind it. The Red Cross Christmas Roll Call is a summons to this national support.

Every member of the medical and nursing profession who wears a Red Cross button and displays a Red Cross Service Flag during Christmas Roll Call week has not only renewed his membership in the American Red Cross but he has reminded the American people of his renewed personal service.

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### PROPHYLACTIC VACCINATION AGAINST PNEUMONIA.

Since advocating in last month's issue of *Minnesota Medicine* an unprejudiced trial of a correctly prepared vaccine as a prophylactic measure in the present epidemic of respiratory infections, we are pleased to note that the Acting Surgeon General of the United States Army has issued a bulletin to the surgeons of the American Expeditionary Forces and of the hospital encampments of this country to the effect that "the value of vaccination against certain of the more important organisms giving rise to pneumonia may be considered as established by the experimnts of Lister in South Africa, and by the more recent results of prophylactic vaccination in our own army."

Lister's results in South Africa have been striking. During the last four years he has

given prophylactic vaccination against the three most important types of pneumococcus there prevalent. In this period not a single case of pneumonia due to a pneumococcus of the types used in the vaccine has occurred among the vaccinated individuals, each of whom has, as a rule, been under observation for about nine months following the vaccination.

The Surgeon General's bulletin further gives the following facts: "In our own army vaccination was given last winter as a prophylactic measure to half of one division, using a vaccine containing pneumococcus types I, II and III. During the ten weeks from the period of vaccination until the troops went overseas, pneumonia due to these types of pneumococcus did not occur at all among the vaccinated troops; whereas, among the unvaccinated it occurred a trifle more frequently than in the period before vaccination.

"The army has now available for all officers, enlisted men, and civilian employees of the army, a like vaccine containing pneumococcus types I, II and III. The dose of this for prophylactic use is 1 cc. given subcutaneously and a single injection suffices. The reaction, local and general, is about comparable with that following typhoid vaccination; as a rule, rather less severe.

"In view of the possible etiologic importance of the bacillus influenza in the present epidemic, a saline vaccine has been prepared by the army and is available for all officers, enlisted men, and civilian employees of the army. The effectiveness of bacillus influenzae vaccine as a prophylactic measure in controlling the epidemic must be considered as still in the experimental stage. Being a saline vaccine it is probable that more than one injection will be required to obtain maximal protection. It may be given at the same time as the pneumococcus vaccine in the opposite arm. The reaction local and general of this vaccine is extremely slight.

"These vaccines may be obtained from the Army Medical School, Washington, D. C., on requisition made directly to the commandant, by letter or telegram.

"As these vaccines are now available for prophylactic use and are prepared by standardized methods, and as in the case of the pneu-

mococcus vaccine, the proper dosage and the protective efficiency have been established by the investigation conducted by the army, the vaccines obtained from the Army Medical School will be employed in the future in the army when pneumococcus of influenzae vaccines are desired, to the exclusion of any other vaccines prepared from these organisms.

“It must be understood that vaccination against influenza and pneumonia is not compulsory, and should be given only with the knowledge and consent of the individual.”

**APPOINTMENTS MADE BY DR. GEORGE DOUGLAS HEAD OF MINNEAPOLIS, PRESIDENT OF THE MINNESOTA STATE MEDICAL ASSOCIATION FOR THE YEAR 1919.**

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Delegate to Assist in the Collection and Publication of the Papers of Dr. H. A.

Tomlinson:

Dr. Fred P. Strathern - - - - - St. Peter

The Hospital Committee to Act in an Advisory Capacity to the Council on Medical Education of the American Medical Association:

Dr. A. W. Abbott - - Minneapolis, Chairman  
 Dr. E. T. F. Richards - - - - - St. Paul  
 Dr. L. A. Nippert - - - - - Minneapolis

**PHYSICIANS LICENSED TO PRACTICE IN MINNESOTA AT THE OCTOBER, 1918, EXAMINATION.**

Upon Examination.

Bacon, Donald Kay - - U. of Mich., 1918  
 Bowing, Harry Herman - - U. of Pa., 1917  
 Fritsche, Albert—  
 Chicago Coll. Med. & Surg., 1918  
 Gleason, Archie Leland - - - Rush, 1918  
 Hawkins, Arthur David—  
 U. of Minn., M. D., 1919; M. B., 1918  
 Rippert, James Albert—  
 Coll. P. & S., Baltimore, 1910  
 Sawatzky, William August—  
 U. of Minn., M. D., 1919; M. B., 1918

By Reciprocity.

Barlow, Roy Alexander - U. of Mich., 1914  
 Benedict, William Lemuel - U. of Mich., 1912  
 Birkland, Olav Nelson - Northwestern, 1917  
 Gammons, Herbert Francis - Boston U., 1909  
 Lisor, Graham MacAllister - - Barnes, 1911  
 Lyons, Horace Raymond - Northwestern, 1916  
 Quigley, Timothy Charles - U. of Ill., 1908  
 Simpson, Ellery De Witt - Johns Hopkins, 1912  
 Ward, Archie Walter - U. of Nebraska, 1911

**OBITUARY**

**DR. JAMES E. MOORE.**

It is our sad duty to record the death of Dr. J. E. Moore of Minneapolis, which occurred on November 2, 1918, from pernicious anemia after an illness of six months.

Dr. James E. Moore was born in Clarksville, Pa., March 2, 1852. He was the son of Reverend George W., and Margaret Ziegler Moore. Dr. Moore attended the public schools of Pennsylvania, the Poland Union Seminary of Poland, Ohio, the University of Michigan, and Bellevue Hospital Medical College, receiving

his degree in medicine from the latter college in 1873. He spent the next two years in the hospitals of New York City, after which he located in Emlenton, Pa., spending six years there in the arduous practice of a country physician. In August, 1882, he removed to Minneapolis. In 1885 he went abroad for study in Berlin and London, and on his return in 1887 decided to devote his entire time to surgery. This he did exclusively since 1888, being the first specialist in surgery west of New York.

Dr. Moore had been connected with the Medical School of the University of Minnesota since its establishment in 1888, and was appointed chief of the Department of Surgery in 1908. After his retirement from private practice in 1915 he devoted himself to teaching and the work of the surgical clinic in the University Hospital.

He was a member of the American Surgical Association, being vice president in 1905; of the Western Surgical Association, of which he was president in 1902; a chairman of the Surgical Section of the A. M. A. in 1903; a member of the Southern Surgical Association; a member of the Judicial Council of the American Medical Association; a Fellow of the American College of Surgeons and a member of the Board of Governors; a member of the Societe Internationale de Chirurgia; of Sigma Xi; of the Minnesota Academy of Medicine, of which he was president one year; and of the local societies of the state and county. He belonged to the Minneapolis, the Minikahda and the Automobile Clubs.

#### MEMORIAL TO DR. JAMES E. MOORE

by the

ADMINISTRATIVE BOARD OF THE MEDICAL SCHOOL, UNIVERSITY OF MINN.

Another pioneer in medical education in the State of Minnesota and almost the last of the members of the original faculty of the Medical School of the University of Minnesota, Dr. James E. Moore, has passed on.

His death is deeply lamented by his fellows. They desire to record their keen sense of the loss of their old and tried friend and associate of so many years. They testify to his comradeship and constant co-operation; to his unflinching interest in the students he helped to train;

to the inspiration he has been and the guiding hand that he has given to young men in the profession; to the integrity of the surgical ideals for which he stood; to the rare success he realized as a teacher of surgery; to the large part that he has played in the making of medicine in the state and in the making of history in this school; to the long and faithful service he has rendered to the University of Minnesota.

In his life he lived the gospel of good work. At its close, with rare philosophy, he looked back, content to have lived so long and so happily, to have had so large a share in the world's work; and "sustained and soothed," and beseeching his friends not to think of him sorrowfully, he "approached his end, as one who draws the draperies of his couch about him and lies down to pleasant dreams."

His old associates salute the brave spirit that has departed and offer their sympathy to his family in their bereavement.

E. P. Lyon, Dean.

Richard Olding Beard, Secretary.

#### DR. FRANKLIN ELMORE BISSELL.

Dr. Franklin Elmore Bissell, who was an active member of the state society for many years, died at St. Barnabas Hospital on November 7th.

Dr. Bissell graduated in 1869 from the Charity Hospital Medical College of Cleveland, which later became the medical department of Western Reserve University. He came to Minnesota in 1871, settling in Litchfield, where he practiced medicine almost continuously, until he accepted an appointment as surgeon to the Minnesota Soldiers' Home in 1901. Two years later he retired, to live in Minneapolis. When but seventeen years old, he enlisted as Surgeon Steward in the U. S. Navy, and served on the river gunboat Lexington during the last half of the Civil War. He was the first president of the Crow River Valley Medical Society and was continuously re-elected to that office until he left Litchfield. Dr. Bissell was an early member of the State Legislature, and was always prominent in the civic activities of Meeker county. Dr. Frank S. Bissell, now practicing in Minneapolis, is a son.

## OF GENERAL INTEREST

The Board of Examiners for the Medical Corps of the Army has been transferred from Minneapolis to St. Paul, and is now quartered in the Army Building at Robert and Second streets, room 305.

Capt. Ralph St. J. Perry, M. C., is still president of the Board, though recently assigned to duty as Medical Officer of the Personnel Board, Chief of Staff Corps, for the Northwest District. Capt. Perry suggests that all newly commissioned officers of the Medical Sanitary and Dental Corps and Reconstruction Aides, call upon him by mail, telephone or in person, for assistance in matters of equipment, transportation, etc., as many are purchasing unnecessary equipment, getting wrong transportation, etc. The captain says that part of his work is to help clear up misunderstandings regarding orders for reporting, extensions of time and such matters, and is always ready to do what he can for those entering the service.

Dr. Earl Pfaff, formerly of Minneapolis, has located at Watkins, Minn.

Dr. E. T. Sanderson of Minneota, expects to locate in Granite Falls, Minn.

Dr. E. J. Batchelder of New Richmond, has sold his practice to Dr. F. D. Brandenburgh, and has moved to Minneapolis where he expects to take up special work.

Dr. Anton J. Moe announces his permanent removal from Heron Lake, Minn., to Sioux Falls, S. D.

Dr. W. J. Moore and family left Wood Lake a few weeks ago for Adams, Minn., where he has bought and equipped a hospital and where he expects to continue the practice of his profession.

At a recent meeting of the county commissioners of Fergus Falls, Minn., Dr. G. T. Hagan of Battle Lake was elected a member of the County Tuberculosis Sanatorium to succeed Dr. Cole of Fergus Falls, resigned.

Dr. and Mrs. N. O. Sandven of Willmar, have moved to Paynesville where they expect to make their home for the winter. Dr. Sandven

is now in charge of the Pilon Hospital during the absence of Dr. Pilon who is on professional duties in France.

Dr. Henry Wireman Cook, Minneapolis, has been called to Washington to serve for six months as associate director of the Medical Service Bureau of the American Red Cross. At the end of this time Dr. Cook expects to return to Minneapolis.

Dr. M. H. Scheldrup, Minneapolis, received a commission as captain in the medical reserve corps a few days ago, and has been assigned to the base hospital at Camp Grant, Rockford, Ill.

Dr. O. H. Urstad, Kiester, left a few weeks ago for Camp Oglethorpe, Ga., where he has been assigned for duty as a captain in the medical reserve corps.

Dr. H. G. Blanchard, a member of the draft board from Waseca county, has been commissioned a lieutenant in the medical reserve corps.

Dr. H. N. Schmidt, a well known Westbrook physician, died at his home on Thursday, October 24th, of influenza.

Dr. W. F. Holden, for many years a practicing physician in Minnesota, died at his home in Winona on October 27th at the age of sixty-seven.

Dr. George Ulrich Panzer of Truman, died on October 22d from pneumonia following an attack of influenza. He is survived by his widow and two children.

Dr. D. J. McMahan of Raymond, has moved to Breckenridge where he has taken charge of the practice of Dr. E. W. Rimer who is now in France.

Dr. E. M. Howg, who has been associated for a number of years with the Mayo Clinic at Rochester, has taken charge of the Murray County Hospital during the absence of Dr. Richardson and Dr. Benoit, now in the United States army service.

Announcement was recently made by the Northern Division of the Red Cross of the appointment of Dr. H. W. Hill, secretary of the St. Paul Public Health Association to take charge of all relief work among fire and in-

fluenza sufferers in Northern Minnesota. Physicians were chosen from the Adjutant General's office and nurses from the Red Cross. Plans for establishing hospitals at various points in Northern Minnesota are being made.

Dr. F. C. Rodda, assistant professor of pediatrics at the University of Minnesota, left Minneapolis a few weeks ago for New York expecting to leave for France soon where he will take up Red Cross work underway in children's hospitals behind the battle lines.

The marriage of Dr. William Benton Wright, Jr., St. Paul, and Miss Mabel Cooper, also of St. Paul, was solemnized on Saturday, November 2d, at noon at the Cathedral residence, Rev. Lawrence F. Ryan officiating. Dr. Wright is staff physician at the City and County Hospital and Miss Cooper is a graduate of Wellesley College and has been active in social and philanthropic activities in St. Paul since the completion of her college course.

Dr. and Mrs. A. E. Kessler, Battle Lake, superintendent of the Otter Tail Sanatorium, left for New York a few weeks ago expecting to embark for Italy within a short time. Dr. Kessler will be engaged in tuberculosis work for the Italian government.

Dr. Henry Binet and Miss Mae Benton, both of Grand Rapids, were married on October 23d, at St. Joseph's Catholic Church.

Dr. D. J. Paradine of Cloquet, who was in charge of the medical relief work at Cloquet and Carlton during fire week, recently opened a base hospital at Floodwood for the care of the fire sufferers and influenza cases. Dr. Paradine intends to make a health survey of the locality and conduct an educational campaign on the influenza in addition to the medical relief to be immediately afforded under the direction of Col. H. V. Eva of the commission and Commissioner Cook. Dr. Paradine's medical library and all his instruments were lost in the Cloquet fire. He has disregarded his own losses and has spent his time since the fire in continuous service to the sufferers.

Dr. J. A. Evert of the Northern Pacific Railroad Hospital, Brainerd, has been called to service and will be in the medical corps where his long experience in hospital work will be of essential benefit to the government.

Dr. W. P. Lee, Northfield, who was recently commissioned a lieutenant in the medical reserve corps, has been promoted to captain with orders to report at Ft. Riley, Kan.

Dr. John D. Utley, St. Paul, was recently appointed a captain in the medical reserve corps and has left for Camp Custer, Battle Creek, Mich.

Under date of October 23d, we have received from Dr. R. O. Beard, Assistant Dean of the University of Minnesota Medical School, notice to the effect that the senior medical students who accompanied the University Base Hospital to France were not given their degrees on board ship as previously erroneously stated. They very recently have been recommended for the degree of Bachelor of Medicine, which degree, the Board of Regents, at its October meeting, voted for them.

Owing to the epidemic of influenza and to the great number of physicians in service, the executive committee of the Southern Minnesota Medical Association decided not to hold their annual session as planned, on November 25th and 26th. The date on which the meeting will be held has not yet been announced, but all members will be notified as soon as the date has been definitely decided upon.

Dr. Oliver S. Olson, West Duluth, recently received a commission as lieutenant in the medical reserve corps and was ordered to report for duty at Ft. Riley, Kan.

Dr. Frederick N. Solsem, who has been practicing for some time at Brooten, has decided to locate at Sacred Heart and will occupy the offices formerly occupied by the late Dr. Hammerstrand.

Dr. J. V. Johnson, formerly of Duluth, is now with the Third Battalion, Thirty-third regiment, Fifteenth division, at Camp Logan, Tex., as battalion surgeon.

Dr. Frank S. Bissell of Minneapolis, was elected vice president of the American Roentgen Ray Society, at a recent meeting at Camp Greenleaf.

Dr. Harold J. Rothschild, St. Paul, left a short time ago for Ft. Riley, Kan., where he has been assigned to duty after receiving a commission as lieutenant in the medical reserve corps.

At the regular meeting of the city commissioners of St. Cloud, held recently, Dr. C. S. Sutton was appointed a member of the Board of Health to succeed Dr. Beaty, who was appointed city physician and chairman of the board to succeed Dr. J. P. McDowell, who resigned to enter military service. The addition of Dr. Sutton to the board completes the health organization, with Dr. J. H. Beaty as chairman, and Dr. J. C. Boehm and Dr. Sutton as associates.

Dr. W. S. Muirhead, Floodwood physician, lost his life in the recent fires which swept the northern part of the state. After a search lasting twelve days his body was found and identified by his brother-in-law who was a member of the searching party.

Dr. C. C. Blakely and Dr. H. W. Covey of the State Hospital staff, St. Peter, have been given commissions as captain and lieutenant, respectively, in the medical reserve corps. They were ordered to report for duty to Camp Cody, Deming, N. M.

Maj. Clyde E. Prudden, one of Duluth's best known physicians and a member of the old Third Minnesota Infantry, died of pneumonia, in the early part of October, according to word received by his parents. A letter dated October 11th, written by Chaplain C. W. Ramshaw, stated that Maj. Prudden was taken ill on September 26th, three days after their departure from New York and died as their ship came into port.

Dr. F. L. Hammerstrand of Sacred Heart, died on October 20th of pneumonia following influenza. Dr. Hammerstrand had been called to New York to see a brother also ill and while on the way contracted the disease which resulted in his death.

Dr. Hammerstrand was born in East Linn, Ill., on October 11, 1881. He attended the Augustana College at Rock Island, Ill., and in 1905 entered the College of Physicians and Surgeons, Medical department of the University of Illinois, from where he graduated in 1909. He then served as interne at the Michael Reese Hospital, Chicago, for two years. In the fall of 1911 he located at Sacred Heart where he practiced up to the time of his death.

His funeral was held on October 23d, at Paxton, Ill., the home of his parents.

Dr. N. H. Beal, Rochester, died on October 27th, at Rochester, of influenza.

Dr. Beal's home was at London, Ontario, where he had been assistant professor of surgery at the Western University of London. Six weeks previous to his death he became associated with the Mayo clinic at Rochester.

Dr. Beal was thirty-six years of age and is survived by his widow and two daughters.

Dr. J. Edwin Olander, well known St. Paul physician, died on October 25th of pneumonia following an attack of influenza.

Dr. Olander was born in Marinette, Wis., May 9, 1877. He attended Augustana College at Rock Island, Ill., and graduated from there in 1896. He later entered the University of Minnesota Medical School and graduated from there in 1904. He was a member of the Sigma Psi fraternity, the American Medical Association, and the Minnesota State Medical Association.

Private funeral services were held on Saturday afternoon, October 26th, and interment took place at Lakewood cemetery, Minneapolis.

Dr. S. A. Berg of Granite Falls, passed away at his home on Friday, October 11, 1918. His death was due to influenza complicated by pneumonia.

Dr. Berg was born on May 25, 1880. He attended St. Olaf College, the University of Minnesota, and in the fall of 1901 entered Rush Medical College, Chicago, from where he graduated in 1905. He then located in Maville, N. D., coming to Granite Falls in 1914, where he practiced up to the time of his death.

Dr. Albert G. Alley died at Minneapolis on October 23d, of influenza.

Dr. Alley was born on October 21, 1880, at Grove City, going to Buffalo in 1887 where he attended the public schools and graduating from the high school in the spring of 1899. He entered the State University in the fall of the same year. He later entered the medical department of the University from where he graduated in 1905. The following year he spent as an interne in St. Joseph's Hospital, St. Paul. He then practiced at Kilkenney, Minn., for about three years and at Granger,



Wash., for about seven years. He then returned to Minneapolis where he entered upon a three years' course at the University for the purpose of fitting himself as a specialist in children's diseases. This course was not quite completed at the time of his death.

Dr. Alley recently received an appointment as lieutenant in the medical reserve corps, but had not as yet been ordered into active service. Pending such orders he had been doing government work assisting in the physical examination of members of the Students' Army Training Corps at the University of Minnesota.

His remains were taken to Buffalo for interment.

Dr. T. W. Hovorka of St. Cloud, was claimed by death on the evening of October 16th. Dr. Hovorka had been ill with influenza for about a week when pneumonia developed resulting in his death.

Dr. Hovorka was born at New Prague in 1874 and during his early years attended the local schools. At the age of sixteen he entered St. John's University at Collegeville and later graduated from the Pharmacy Department of the University of Minnesota. The following two years he engaged in the drug business in St. Paul. In 1899 he entered the Hamline University, to take up a course in medicine and graduated from there in 1902. In 1908 he took a post-graduate course in surgery at Harvard University. On his returned he located in Glencoe where he practiced until 1916. Two years ago he moved to St. Cloud where, in a very short time he built up a lucrative practice and ranked as a leading physician and citizen of that city.

Kiester, Minn., is now without a physician. A good opening exists there for the right man who wishes to build up a general practice.

Dr. Charles Swenson, Braham, Minn., whose work among the fire sufferers at Moose Lake exposed him to the prevailing epidemic, was forced to take to his bed for a few days with influenza. We are glad to hear, however, that he is fortunately now quite well again.

Dr. E. M. Jones, St. Paul, now stationed at the Walter Reed Hospital, Washington, D. C., has recently been promoted to the rank of major.

Dr. Robert W. Archibald, formerly of Lake City and Winona, and later of the Division of Sanitation, Minnesota State Board of Health, has been commissioned a lieutenant in the Sanitary Corps, U. S. A., and is stationed at New Haven, Conn., where he is taking a course in special training at Yale University.

We deeply regret to record the recent death in France from pneumonia of Lieut. Oscar M. Klingen. Dr. Klingen was a member of the University of Minnesota Base Hospital No. 26, France, and previous to his entering active service held the rank of assistant in surgery at the University of Minnesota.

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## NEW AND NON-OFFICIAL REMEDIES

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During October the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-Official Remedies:

**Hynson, Westcott and Dunning:**

**Lutein Tablets, H. W. and D., 2 grains.**

**Eli Lilly and Company:**

**Pneumococcus Antigen (Rosenow), Lilly.**

**NEW AND NON-OFFICIAL REMEDIES.**

**Solargentum-Squibb.**—A compound of silver and gelatin containing from 19 to 23 per cent. of silver in colloidal form. It is used in solutions containing from 1 to 25 per cent. or more. It is also used in the form of bougies or suppositories. No precipitate is produced when sodium chlorid or albumin solutions are added to solutions of solargentum-Squibb. E. R. Squibb and Sons, New York. (Jour. A. M. A., Oct. 12, 1918, p. 1219).

**Benzyl Alcohol—Phenmethylo.**—An aromatic alcohol occurring as an ester in tolu and other balsams, and produced synthetically. It is being used as a local anesthetic by injection and by application to mucous membrane. It is said to be practically nonirritant and nontoxic in the ordinary concentration and dosage. From 1 to 4 per cent. solutions in physiological sodium chloride solution are commonly used for injection anesthesia.

**Phenmethylo.**—A nonproprietary brand of benzyl alcohol complying with the tests and standards for benzyl alcohol. Hynson, Westcott and Dunning, Baltimore, Md.

**Phenmethylo Ampules, 1 per cent. H. W. and D.**—Each ampule contains 5 Cc. of a sterile solution of phenmethylo H. W. and D. 1 Gm. in physiological sodium chloride solution 99 Gm. Hynson, Westcott and Dunning, Baltimore, Md.

**Phenmethylol Ampules, 2 per cent. H. W. and D.**—Each ampule contains 5 Cc. of a 2 per cent. solution of phenmethylol H. W. and D. in physiological sodium chloride solution. Hynson, Westcott and Dunning, Baltimore, Md.

**Phenmethylol Ampules, 4 per cent. H. W. and D.**—Each ampule contains 5 Cc. of a 4 per cent. solution of phenmethylol H. W. and D. in physiological sodium chloride solution. Hynson, Westcott and Dunning, Baltimore, Md. (Jour. A. M. A., Oct. 19, 1918, p. 1313).

**Pneumococcus Antigen (Rosenow), Lilly.**—A pneumococcus vaccine prepared by digesting a suspension of pneumococci until the bacteria are partially autolyzed. E. C. Rosenow believes that the protective power of this vaccine is greater than that of one prepared in the usual way. It is marketed in 5 Cc. vials, each Cc. containing 20 million partially autolyzed pneumococci. Eli Lilly and Co., Indianapolis. (Jour. A. M. A., Oct. 26, 1918, p. 1407).

### PROPAGANDA FOR REFORM.

**Vaccines in Influenza.**—After study of the evidence as to the value of vaccines against influenza, the Massachusetts committee recommended that the state encourage the distribution of the influenza vaccine intended for prophylactic use but in such manner as will secure scientific evidence of the possible value of the agent. It reported that the use of the vaccine should be considered experimental, and recommended that the state shall neither furnish nor endorse any vaccine used for the treatment of influenza. (Jour. A. M. A., Oct. 19, 1918, p. 1317).

**Phillips' Phospho-Muriate of Quinine Comp.**—The Council on Pharmacy and Chemistry reports on the extravagance and the absurdity of the claims made for Phillips' Phospho-Muriate of Quinine Comp. by the Charles H. Phillips Chemical Co. It concludes that the preparation is a complex and irrational mixture exploited by means of unwarranted claims, and a survival of the days when fantastic formulas were gravely published, when eminent practitioners gave glowing testimonials for lithia waters that contained none, when no therapeutic claims were too preposterous and no theory too nonsensical to justify the use of all manner of clap-trap mixtures. It is explained that Phillips' Wheat Phosphates was introduced when numerous ailments were supposed to be due to a deficiency of phosphorus in our food, and that it was converted into "Phospho-Muriate of Quinine Comp." by the addition of iron, quinin and strychnin. (Jour. A. M. A., Oct. 19, 1918, p. 1335).

**Ill Advised Public Health Articles.**—A "syndicated" newspaper article which discusses Spanish influenza advises that "aspirin may be administered to relieve headaches and body pains." No doubt it would be to the interest of public health and the public pocketbook were medicines taken only on the advice of physicians. The objections to the lay use of aspirin was thus stated by the Council on Pharmacy and Chemistry: The public does not know, as phy-

sicians do, that headaches are merely symptoms of other, sometimes very serious conditions, and that they are often the signal for the need of a thorough physical examination and diagnosis. It is true that they are often also the symptoms of very minor derangements, which will right themselves spontaneously; and that, in such cases, drugs like aspirin may give relief and may do no harm. The patient, however, is not educated to distinguish one class from the other, and therefore anything that tends to promote the indiscriminate use of such remedies as aspirin itself is not always harmless. Alarming idiosyncrasies are sufficiently common that the use of the first doses, at least, should require medical supervision. (Jour. A. M. A., Oct. 19, 1918, p. 1337).

**Serums and Vaccines in Influenza.**—Unfortunately, we as yet have no specific serum for the cure of influenza and no specific vaccine or vaccines for its prevention. The various treatments now being tried are experimental and their value will not be known until all the results are collected, which probably will not be until the epidemic is over. As to serum treatment, the only noteworthy new method so far is the injection in severe cases of influenzal pneumonia of the serum of patients who have recovered from such pneumonia. (Jour. A. M. A., Oct. 26, 1918, p. 1408).

**Sulpherb.**—"Sulpherb" or "Sulpherb Tablets" is one of the nostrums sold by the Blackburn Products Company of Dayton, Ohio. It is advertised by the "fake prescription" method. It is claimed that the tablets contain the extracts or concentrations of cascara, aloes, may apple, nux-vomica, black cherry, capsicum, ginger, sarsaparilla, and also calcium sulphide, sulphur and cream of tartar. An examination made in the A. M. A. Chemical Laboratory indicated that "Sulpherb Tablets" are probably compounded from calcium sulphid, sulphur, cream of tartar, and vegetable extractives. Of the vegetable extractives claimed to be present, aloes was indicated and a trace of some alkaloid, the amount of which was too small to permit its identification. (Jour. A. M. A., Oct. 26, 1918, p. 1431).

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## NOTICE.

### NO MORE PHYSICIANS TO BE COMMISSIONED IN THE MEDICAL CORPS.

At ten o'clock on the morning of Nov. 11th, the War Department discontinued the commissioning of physicians in the Medical Corps.

This condition, in all probability, is permanent and no further consideration will be given applicants for a commission in the Medical Corps until further notice.

## PROGRESS IN MEDICINE AND SURGERY

**PERICHOLECYSTIC ADHESIONS DYSPEPSIA, AND ITS DIAGNOSIS:** G. A. Friedman (N. Y. Med. Jour., Feb. 23, 1918) states that his object is to deal with a group of patients commonly called dyspeptics who have been treated for indigestion for long periods until an exploratory laparotomy reveals the presence of pericholecystic adhesions with or without an accompanying cholecystitis. He divides the patients into several classes according to the predominant symptoms:

1. Typical history of gallstone colic without jaundice, but at operation only pericholecystic adhesions are found and gallbladder is pronounced normal by the pathologist.

2. A typical history with vague and indefinite symptoms; slight attacks of epigastric pain, either associated with meals or independent of meals, may be diagnosed gastric ulcer; at operation only pericholecystic adhesions.

3. Ulcer group. Here a history typical of gastric or duodenal ulcer is elicited. The stools may give positive guaiac test, or occasionally there may be vomiting of blood. Ulcer treatment is of no avail. Operation reveals pericholecystic adhesions and not ulcer, though occasionally ulcer is present, too.

4. Appendicular group. This comprises patients who have been operated because of symptoms typical of appendicitis; appendix is found normal; months later the same symptoms recur; a second operation reveals adhesions, not around the caecum, but pericholecystic adhesions.

5. Unusual conditions found in patients with pericholecystic adhesions, such as hour-glass stomach, obstruction of intestines, adhesions of gallbladder to serous coat of appendix, or pyloric obstruction.

In the previous groups pain is the predominating characteristic, but in this last group dyspepsia is the chief symptom and pain is absent.

A very important diagnosis aid in the dyspeptic class is the presence of tender spots, on deep pressure, to the right of the spinal column posteriorly, between the 7th and 11th ribs.

On deep (not superficial), pressure the patient reacts with pain at some spot within this region, but the whole area is not sensitive.

The corresponding area on the left side is always tested for comparison. If, on repeated examinations, the findings are constant, it is pathognomonic of pericholecystic adhesions, with or without cholecystitis. Furthermore, these deep pressure points cannot be elicited from dyspeptics free from pericholecystic adhesions.

The author makes no claim to having discovered anything new but merely wants to emphasize an important sign never before utilized in obscure cases of pericholecystitis.

As a further diagnostic aid the X-ray is of value and this will demonstrate a high-lying stomach with the pylorus drawn to the right, and a 6-8 hour residue.

The author, however, puts more reliance on the tender pressure spots than on the X-ray findings as he has had experience with the X-ray (common to us all) in which positive signs were negated at operation.

CHARLES N. HENSEL.

**IS PURGATION OF PATIENTS BEFORE OPERATION JUSTIFIABLE?** Walter C. Alvarez (Surg., Gyn. and Obs., June, 1918) attacks this pre-operative routine as an irrational relic of primitive medicine, and shows how it has persisted without scientific foundation.

He points out that the small intestine is usually empty in from seven to nine hours after a meal and rarely contains food after fifteen hours, consequently, since most operations are performed in the morning, twelve to eighteen hours after the dinner of the previous evening, the small intestine is empty and the only place for feces to stagnate is in the colon.

In most cases the colon would empty itself spontaneously on the morning of the operation; failing that, an enema would suffice.

By radiographing patients after they have taken an enema to clear out barium containing feces, it is seen that the colon can be thoroughly cleared in this way.

Some surgeons still cling to pre-operative purgation because of fear of the absorption of toxins from fecal matter in the bowels. As a matter of fact, we know that there is much more likelihood of absorption from churned-up liquid contents than from dry feces lying quietly in the bowel, for as Karl Meyer shows, solid feces tend to restrain the growth, in the intestine, of pathogenic bacteria.

How many people feel miserable and poisoned for a few days after purgation!

Some men purge to avoid post-operative gas pains, fearing that fermenting intestinal contents is the cause of these pains.

Alvarez quotes Kaders' work which demonstrated comparatively little difference in gas accumulation in isolated loops of dog intestine, when one segment of gut was washed free with saline, and the other segment still contained fecal matter. Very little gas was found in either case unless the circulation was interfered with.

If the mesenteric arteries, or more particularly, if the veins were tied, the loop of gut soon became enormously distended. Therefore, the thing to be desired is not a clean bowel but a normal mesenteric circulation.

In many sensitive people purgation will be followed by alarming flatulence and distension. If this happens when the abdomen has not been opened, how much more likely is it to endanger life when

the bowel has suffered the added insults of handling, exposure and sewing?

Alvarez then reviews the literature and finds the basis for purgation back in the writings of the ancients. They believed that a physic "purged one of foul humours" and they (the ancients) prepared any one for an ordeal by a preliminary purge. In the early days a surgical operation was an ordeal and consequently the patient must be purged before it.

But, adds Alvarez in commenting on this, if purgation "energizes the vital powers" why is it not employed by athletes? Why does not the college trainer give the track or football team a dose of salts the night before a contest?

Alvarez then reviews the results of his examination of the intestines of purged animals. Rabbits were used, mildly purged, some with castor oil, some with magnesium sulphate, some with cascara, some with calomel, and some with compound jalap. The animals were killed in twenty-one hours and segments of the bowel tested in warm oxygenated Ringers' solution. Some of the animals were apathetic and looked sick. Their bowels were injected, full of fluid and gas, sometimes atonic and flabby, sometimes irritable with a tendency here and there to contract into a hard white cord.

The excised segments when put into Ringers' solution showed weak irregular contractions and soon became fatigued. Furthermore, they were less sensitive to drugs applied locally; the dose of these drugs in some cases had to be increased 100 times to produce any effect.

This latter finding confirms the common experience of the difficulty in making the bowels respond to drugs after purgation. Magnesium sulphate seemed to be the worst, while calomel and cascara did not seem to fatigue or poison the bowel as much as any of the other purges.

The injection of the intestinal wall and the engorgement of the mesenteric vessels deserve mention, especially in the light of Kaders' work, previously referred to, in which interference with the mesenteric circulation caused enormous bowel distension.

The same injection and mesenteric engorgement has been observed in man. Experimental work has shown that the blood is capable of absorbing gases from the intestine, and excreting them through the lung. Venous stasis prevents this exchange.

The author concludes this excellent article with an outline for pre and post-operative care.

CHARLES N. HENSEL.

#### A VACCINE FOR THE TREATMENT OF BRONCHIAL ASTHMA: REPORT OF TWENTY CASES:

J. Morrison Hutchenson and S. W. Budd, (The Amer. Jour. of Med. Sciences, Vol. CLV., No. 6, June, 1918) point out that the work of Auer and Lewis, Meltzer, Vaughan, Babcock and others leaves little doubt that the disease so long known as bronchial or idiopathic asthma has been permanently

removed etiologically from the neuroses, and is now fully explained as a manifestation of protein sensitization. The paroxysmal outbursts represent anaphylactic shock and the various causes formerly thought to act reflexly, and whose removal often resulted in cure, are now believed to be foci from which the foreign material necessary to induce an attack is elaborated.

Judging from the widely diversified nature of the exciting causes of asthmatic seizures it would seem probable that the specific poison either occurs in a number of forms or is common to a great variety of plants and animals as well as bacteria. Moreover, from our understanding of the conditions underlying sensitization it is evident that an immunity could be produced provided the specific protein was capable of being isolated in an available form and injected into the sensitized individual in suitable amounts and at proper intervals. This procedure, however, assuming that it was possible in more than a limited number of cases, would involve an amount of time and work far exceeding the means of the average sufferer from asthma.

Certain observations of the writers, derived from the study of a considerable number of cases of asthma, have strongly suggested the possibility of the presence of the specific protein in the bronchial secretions of the patient himself, and also that this protein may be recovered in suitable form for use in bringing about immunity.

The writers have used a vaccine in their series of cases prepared in the following manner: 1 c. c. of washed sputum is incubated in 10 c. c. of broth and 1 or 2 drops of guinea pig serum for a period of forty-eight hours. At the expiration of that time the culture is standardized and killed by heat of 60° C. for a period of two hours. Further decomposition is prevented by adding carbolic acid until a 1 per cent solution results. This is cultured out to ensure sterility of the suspension. The vaccine is then diluted with normal saline until each cubic centimeter of the suspension contains 500,000,000 to 1,000,000,000 organisms. The initial dose is 5 minims and each subsequent dose is increased by 1 minim. They do not increase beyond 15 minims, although they may continue the treatment several weeks after this amount has been reached.

The writers have been able so far to observe the effect of this plan of treatment in 20 cases of typical bronchial asthma.

In 12 of these cases complete relief from attacks was experienced after from one to five injections of the vaccine and this relief has persisted up to the present time. The longest period of freedom from symptoms is sixteen months, the shortest six weeks.

In 5 cases distinct improvement has been noted either in the frequency of the seizures, their severity, or their duration. In 3 of these cases improvement occurred only after a second vaccine had been made and administered at shorter intervals than the first.

In 2 cases no effect at all was produced. One of

these patients was an elderly man with emphysematous lungs and a history of asthma extending over twenty years. Asthma in the other case had followed injury to the chest and roentgen-ray examination revealed ununited fractures of several ribs.

In 1 case administration of the vaccine seemed to increase the intensity of the paroxysms, a result which appeared to be explained by the fact that too long a time was allowed to elapse between injections.

Injections have in most cases been made twice a week. The writers are of the opinion, however, that a shorter interval will prove more desirable. They have also attempted, in each case, to remove an obvious focus of infection, but have refrained from any other treatment while the vaccine was being used.

The writers have been greatly impressed by the above results and hope to determine in the near future (1) whether or not the elements constituting the mixture are effective if injected separately; (2) also which element is potent; (3) and whether the protein injected is specific or not.

E. T. F. RICHARDS.

## BOOK REVIEWS

*RECLAIMING THE MAIMED.* A Handbook of Physical Therapy. (By R. TAIT MCKENZIE, M. D., Major R. A. M. C., Professor of Physical Therapy, University of Pennsylvania. Illustrated. Published by The MacMillan Company, New York, 1918.)

This volume states briefly some of the conditions brought about by the present war, and further, outlines a few of the most important physical treatments employed in alleviating, relieving, or curing these conditions.

Among the most numerous and trying conditions studied may be mentioned:

1. Injury to peripheral nerves all the way from bruising of a nerve trunk to its destruction and restoration by surgical means.
2. Old septic wounds, long since healed, which frequently remain persistently painful, and which on careful examination show a focus of infection.
3. Post operative results and conditions completely cured only by physical means and methods.
4. Scar tissue appearing either in preparation for, or after the operation.
5. Functional neuroses, which take the form of palsies, contractures, loss of sight, speech or hearing; areas of anesthesia, hyperesthesia, etc., etc.
6. The conditions variously grouped under the name "Shell shock" which may vary all the way from minute hemorrhages into the brain substance, caused by concussion, to fear and intolerable weariness.
7. Soldier's heart, which is but a manifestation of overstrain thrown on this particular organ.
8. Debilitated states and conditions following the infectious diseases such as typhoid, dysentery, etc.

9. Sprains, fractures, flat feet, and other postural defects.

The means and methods employed in the physical treatment of the above mentioned conditions with varying degrees of success may be tabulated as follows:

1. Electricity.
  - a. Galvanic cell for wounds and scars.
  - b. Faradic coil, for muscle testing and exercise.
2. Radiant light and heat.
  - a. Heliotherapy, for local and general conditions.
  - b. Electric arc lamp.
  - c. Local electric light bath.
  - d. Full electric light bath.
  - e. Steam compresses (electrothermophore, hot water bags, hot salt or sand bags).
3. Hydrotherapy.
  - a. The douche.
  - b. Immersion bath.
  - c. Local bath.
  - d. Electric bath.
  - e. Medicated bath.
  - f. Contrast bath.
4. Massage and passive movements.
5. Active movements and re-education of stumps, artificial limbs, or mechanical devices.
6. Gymnastics and games including in minute detail the introductory, general, and final exercises.
7. Treatment by occupation.

These measures of treatment, it is true, in the past have been used almost exclusively only by a few enthusiasts in the profession or by those who entered it chiefly without civil sanction or professional recognition. Peaceful life created but a few wounds as compared with the great number that are being produced daily by the present war methods, and, therefore, the condition demanding the foregoing treatment was an exception. This exception, as all exceptions in any place, did not receive the proper mental concentration and medical application from the profession as a whole, but was treated, however, very intelligently by the few who were either by choice or necessity interested in industrial wounds and injuries. The abuses, then again, have been so numerous when applied indiscriminately to any condition that it soon fell into the deep channels of disrepute. We see, therefore, that the scarcity of the conditions and the abuses of the treatment for these conditions were the most potent factors in underestimating and delaying investigation of these healing procedures. Now that the war has produced hundreds of wounds, states, and conditions, demanding such treatment, it has been quickly recognized as most valuable and is being properly administered in most of the war hospitals. After the war is over thousands of these patients shall be discharged from the military bases and will then depend solely upon the quiet practitioner for further treatment. The sooner we realize that these ailments will remain with us for at least

a whole generation, and, the sooner we thoroughly investigate the means and methods of combating them, the better will we be able to fulfill the additional duties arising from the world-wide conflict.

This little book is, then, nothing more or less than a pleasant precursor of the great evolution in our generation in the treatment of the greatly varying conditions growing out of the present conflict, and should, therefore, receive a warm welcome in the library of every practitioner.

J. A. LEPAK.

*ROENTGEN DIAGNOSIS OF DISEASES OF THE HEAD.* (By DR. ARTHUR SCHULLER, Head of the Clinic for Nervous Diseases at the Franz Joseph Ambulatorium, Vienna. Authorized Translation by FRED F. STOCKING, M. D., M. R. C.; With a Foreword by ERNEST SACHS, M. D., Associate Professor of Surgery in Washington University. Published by C. V. Mosby Company, St. Louis, 1918. Price \$4.00.)

This is a belated and much to be desired English translation of the only truly comprehensive work upon this subject which has yet been offered to the profession. From the standpoint of print-craft it is a great improvement upon the German edition and the translation leaves nothing to be desired in clearness of diction or accuracy of interpretation.

The author has long been recognized among roentgenologists as the authority par excellence upon this subject, the breadth of his experience probably being unequaled by that of any other man in the world.

The chapter devoted to the recognition of intracranial diseases by a study of the changes produced in the skull is of special interest. The subject is discussed under the following headings:

Local Destruction of the Skull.

Group 1. Tumors of the Hypophysis.

- (a) In Acromegaly.
- (b) In Dystrophia Adiposo-genitalis.
- (c) Without Symptoms of Trophic Disturbance.

Group 2. Acusticus Tumors.

- (a) With Pathognomonic Change of the Dorsum.
- (b) With Erosion of the Sella.
- (c) With General Pressure Atrophy of the Inner Surface of the Skull.

Group 3. Tumors of the Base of the Brain.

Group 4. Tumors of the Convexity of the Brain.

Skull Changes in Consequence of Chronic Excessive Intracranial Pressure.

- (a) General Erosion.
- (b) Suture Changes.
- (c) Widening of Venous Canals.
- (d) Skull Thickening.

Roentgen findings in Epilepsy, Cerebral Infantile Paralysis, Idiocy, Psychosis and Migraine.

Under Diseases of the Skull, there is a chapter of 120 full pages which makes fascinating reading and offers little to criticise. There is another chapter which considers the normal skull in all the variations in which it appears in the roentgenogram. The numerous roentgenograms illustrating the book seem

to lack the technical excellence of those of our better American roentgenologists, but their marvelous variety more than compensates for this minor deficiency.

The book should be in the library of every internist and neurologist and even the general practitioner would find it of much value and interest.

FRANK S. BISSELL.

*GENITO-URINARY DISEASES AND SYPHILIS.*

(By HENRY H. MORTON, M. D., F. A. C. S., Clinical Professor of Genito-Urinary Diseases in the Long Island College Hospital; Genito-Urinary Surgeon to the Long Island and Kings County Hospitals, Etc. Fourth Edition Revised and Enlarged with 330 Illustrations and 36 Full-page Colored Plates. Published by C. V. Mosby Co., St. Louis, 1918.)

The fourth edition of Morton's Genito-Urinary Diseases and Syphilis has been brought up to date and is now an exhaustive work on diseases of the male genito-urinary system.

There are no particular features that stand out in this work. The text is clear and concise, but a bit impersonal. The illustrations are good, excepting the colored ones found in the section on syphilis which do not portray the essential features of the syphilides, which they illustrate, nearly as well as the half tones shown.

On the whole, the book can be considered a first-class text and its general make-up a big advance over previous editions.

HENRY E. MICHELSON.

*INTERNATIONAL CLINICS.* (By leading members of the medical profession throughout the world. Vol. II, 28th Series, 1918. Published by J. B. Lippencott Company, Philadelphia and London.)

This volume is of special merit in that it contains several articles of interest. The article, "A General Consideration of Pancreatitis", by Dr. E. W. Archibald, is especially worth reading by everyone interested in abdominal diagnosis.

Neurological surgery is explained by Dr. Dean Lewis, and comprehensive and instructive cases are cited.

There are several other articles also worthy of mention, which go to make up a volume well worth reviewing.

W. C. CARROLL.

*THE SURGICAL CLINICS OF CHICAGO.* (By various authors. Vol. 2; No. 3. With 63 Illustrations. June, 1918. Published Bi-Monthly by W. B. Saunders Company, Philadelphia and London.)

The June number of "The Surgical Clinics of Chicago", is well up to the standard of these valuable publications. A well balanced series of clinics is included with ample discussion of cases and detail of technique which makes this number especially valuable to the surgeon.

L. C. BACON.









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