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THE JOURNAL- LANCET

Represents the Medical Profession of
Minnesota, North Dakota, South Dakota, and Montana
The Official Journal of the
North Dakota and South Dakota State Medical Associations

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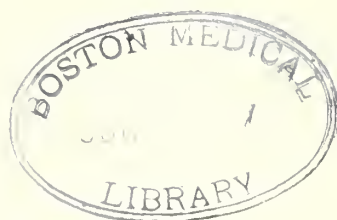
W. A. JONES, M. D., Editor

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CLINICAL DEMONSTRATION: FRACTURES OF THE LONG BONES— LESSONS LEARNED FROM HANDLING FIVE THOUSAND CASES*

By F. E. CLOUGH, M.D.
LEAD, SOUTH DAKOTA

I am not going to try this afternoon to cover the whole subject of fractures of the long bones, but I am going to endeavor to talk along a few definite lines, taking up the ordinary handling of fractures of the leg, of the elbow-joint, and Colles' fracture, and perhaps something on the humerus or femur. I think I have the distinction of being the only full-time industrial surgeon in the Dakotas. They call me the gold digger because we have down in the southwest corner of South Dakota the biggest gold mine in the world. That is not a gross exaggeration or misstatement. This gold mine was started in 1877 and has been in continuous operation from that day to this except twice when we were fighting fires. This mine employs practically 2,000 men, digs approximately six million dollars worth of gold every year, and up to date has produced \$200,000,000 worth of gold. I know that has never been equaled by any other gold mine in the history of the world. Naturally with a group of 1,800 or 2,000 men engaged in a hazardous occupation injuries will occur. Not only that, but we live in a mountainous country, where the people slip on icy walks and break bones, and youngsters will fall, so fractures have been extremely common. In my service in this industrial work for more than twenty years, coupled up with a rather extensive war service, I think I have seen more fracture cases than the average general practitioner.

I am going to try to tell you to-day some of the things that come up in our experience not for the benefit of those who are doing operative work on fractures, but for those who are situated away from hospital facilities, without the x-ray and without a group of trained attendants.

I am going to start in with some leg fractures, and I want to tell you some interesting things about them.

Primarily, the talk I am going to give you on leg fractures is based on a series of 155 consecutive fractures occurring in workmen. I am not paying attention to fractures from other causes. I want to give you a few statistics that you can all read.

Out of these 155 cases approximately 50 per cent were fractures of both bones of the leg, that is, fracture of the shaft of both bones, including also Pott's fracture. As you know Dr. Pott lived 150 years or more ago, at which time he described a definite fracture, which is a fracture of the lower two or three inches of the fibula with a tearing loose of the tibiofibular ligament.

We have changed that, and, in common parlance, we designate anything that affects the ankle-joint as a Pott's fracture. Of these 155 there were 16 fractures of the tibia, 36 of the fibula, 78 of both bones, 16 of the internal malleolus, 8 of the external malleolus, and 3 of both malleoli.

First of all, I am going to take up the diagnosis of fractures of the leg, which does not need

*Presented at the Thirty-seventh Annual Meeting of the North Dakota State Medical Association, at Bismarck, N. D., September 10 and 11, 1924.

anything said at all because the average case of fracture of the leg can be diagnosed by looking at it, that is, you know whether the patient has a fracture or not.

We have a group of *x*-ray men downstairs who sold us *x*-ray machines all over this state. Let me tell you what the average doctor does when he sees a hurt leg. He says, "You have a hurt leg, and have to *x*-ray it right away before it can be set." Still the Lord has given to this generation eyes to see with and hands to feel with, methods by which 99 per cent of all fractures can be diagnosed. You go into a house and see that a fellow has a fracture. That is all there is to the diagnosis of the fracture of the lower extremity except one in the vicinity of the ankle-joint. The more fractures a man sees the more he slips up on. I am perfectly willing to admit that the ones we most often miss are some fractures of the long bones. The metatarsus and the metacarpus are almost impossible to diagnose. The fibula is the easiest to slip up on. The next point after observation to consider is the point of local tenderness. If you run up and down the leg with a lead pencil and can find over the crest of the fibula one place where, if you press in each direction, there is a localized tenderness, you have a good gambler's chance that there is a fracture of the fibula. That is all you need in the diagnosis of a fracture of the fibula.

Now, so much for the diagnosis. What I want to explain particularly is the treatment of fractures of both bones of the leg. I am going to take up simple fractures first. Let me give you the first point in treating fractures of the leg. "*See that the clothes are taken off the good leg.*" Why do I stress that point especially? Because the Lord has not made every pair of legs straight. Some of them have a marked curve, and how would you feel if you had a real bow-legged man and you had not looked at the good leg, but in treating the fracture had set the leg straight only to find sometime later that the other leg was bowed? That is not a laughing matter, for I know a case that came almost to a malpractice suit because the doctor overlooked that point.

A man came in with a fracture of both bones of the leg. We set the fracture and got a fine line. It took a lot of persuasion of the doctor's friends to keep him from being sued for making a bow-leg straight; therefore the first thing is to examine both legs.

Every doctor has something to say about splints, and the thing I have to say about splints is this: There is not a traveling man who comes around

us but desires to sell us the proper splint. Not long ago a fellow came in with some splint, a brand new thing on the market. We went through our old archives and found the same type of splint purchased twenty-five years ago.

There have been handed down to us as splints some old-fashioned pasteboards. We go to the dry goods store and from the inside of bolts of goods can get pasteboards measuring about eight by thirty-six inches. That is the best splint material there is on the market. How do you work it? First of all, you have to have a sharp pocket-knife. We are going to make a pair of splints resembling the lateral view of the leg and foot. In treating fractures we believe the good old rule laid down by past generations of immobilizing the joints on both sides is correct. How do you prepare these splints? If you have hot water just run them through the water. If you do not have running water, run them through a pan of hot water, so you can bend them, being careful that they remain stiff enough to hold their shape. We use various things for padding. We use common ordinary sheet wadding, two or three thicknesses of it over the splint, then put the splint on the leg and apply the other one in the same way. Now we have no special methods for setting a leg. We set the leg in such a position that the patient's toes come up to right angles. Be sure the lower fragment is not rotated outward on the upper fragment, so that the toes do not point too far out. Remember that a string stretched from the inner side of the great toe should touch the inner border of the patella and the anterior-superior spine of the ilium. We have the assistant hold the leg so that we can wrap the bandage around it. You must be careful that your padding is good over the internal and external malleoli. You must be careful that the edges of these splints do not rest against the patella because pressure on the patella is the most painful thing one can get with a fractured leg. Theoretically, of course, the best way to set these fractures is by the fluoroscope, and that is the way we set all fractures if we can. If we do not have it, we go ahead and set the fracture by touch under ether. I think it should be brought to the attention of the profession that nine out of every ten fractures can be set in the primary stage of ether before the patient gets to the struggle stage. Get the patient to count and then when he can no longer count go after the fracture. There is a period of fifteen seconds during which you can do anything in the way of manipulation and putting on the splint. After *x*-ray pictures have been taken in both planes, the pa-

tient is put to bed with the leg elevated and a sandbag on each side. Never drop the bedclothes on the patient's toes. Get a barrel hoop, cut it in two pieces, and drive a nail through the middle and let the clothes rest over it.

Suppose you want to dress this leg, how do you do it? Have some one hold the top and bottom and then have the patient very slowly turn over on the side, resting the leg on a pillow. Take the top splint off, look at the leg, and put the splint on again; turn the patient over on the other side, raise the splint, and look at that side of the leg. What should be watched for? From the time you put up a fracture keep looking at the patient's toes. You want to see that they do not get a bluish-red color, that they do not get cold, and that the back of the heel does not become sore from pressure. If the patient complains that the splint is too tight, there is something wrong with the splint. We never let a patient complain that a splint is too tight; we unwrap it. There is another thing that should always be taken into account in every fracture of the leg. Always feel in behind the internal malleolus to see that the posterior tibial artery is working and that the anterior tibial is pulsating in front. If these two are working you do not need to fear gangrene. We believe that a man with a broken leg is suffering a lot of pain. We give him enough morphine to keep him comfortable. I have yet to see the first morphine victim come out of our hospital for any cause whatever. We let these fractures go three days, and at the end of the third day we always look at them because it is difficult at the start to tell how much bruising of the soft tissues and how much blistering of the skin you have. If there are blisters, break them, let the water run out, and put a little dusting powder on. Leave this type of dressing on until the swelling has practically disappeared from the site of fracture or around the joint, and then put on a cast. In putting on a cast there are two or three things concerning which we have ideas. The first one is that the most unsatisfactory piece of surgical apparatus on the market is the plaster bandage bought from the manufacturers in this country. They are all made of fine gauze, and too much plaster is used. In addition the plaster sets so rapidly no moulding can be done after the cast is on. There is one type of plaster on the market which I think beats anything, and that is the Cloverleaf XX. It is not a fast-setting plaster; it is not as slow as ordinary orthopedic plaster. We use starched crinoline, B. 120, purchased from Marshall Field and Company, Chicago. That is the best crino-

line we know of on the market. It is easy to make the plaster bandage. Take a newspaper, put it on a table, put on it a pile of plaster, run the bandage through the plaster, rub in all the meshes will hold, roll it up, wrap it in a paper napkin, put it in a container, and it will keep indefinitely.

We put on a plaster cast extending from the toes to a point high enough above the knee to immobilize the knee-joint. If you wait for the full time for the swelling to go down you do not have to split plaster casts. There is another trick in putting on a plaster bandage. Never put on a plaster bandage like you would an ordinary one and throw a reverse in it because that leaves a crease in the plaster bandage, which hurts the patient. If you take the slack edge of the plaster bandage as you go around the leg, pull that edge back so the bandage is always straight with the up and down of the leg, then you can keep going up the leg. In that way, you have no creases at all. Another thing in putting on a plaster bandage, rub it. A plaster cast should look like the leg when one gets through, but I must confess to having seen a lot of them that looked like no human leg that was ever made. We always cut out a window over the patella because the patient can manipulate the patella all the time and thus prevent much stiffness of the knee-joint.

How long should one leave the plaster on? Judging from statistics men are usually in too much of a hurry to take off the plaster. We leave it on until the callus is fairly solid. Then we cut down the plaster cast on both sides from the top to the toes, so that a posterior gutter can be used if union is not complete. We keep fractured legs in plaster all told for about six weeks, going ahead with active and passive motion, during the latter half of this period.

COMPOUND FRACTURES

We do not have in our service the severe crushing injuries to the soft parts that the men in railroad practice have, hence amputation is not so common with us.

We have some very set ideas on the handling of compound fractures. I cannot emphasize too strongly that the most pernicious teaching that has gone out in civil life surgery is the débridement idea that was promulgated during war time. I do not think it should ever be allowed; I do not think it is ever necessary. I am going to show you some fracture cases in which there are dozens of fragments lying inside. If we had gone in and removed all these fragments and cut out a big mass of skin, muscle, and tissue I should

have had a lot worse group of cripples than we now have. The débridement may have been necessary in war-time surgery; it is not necessary in civil life. We make it a universal rule in handling these compound fractures first to wash the dirt off these extremities. The old teaching was that one should not put any soap and water on these. Take a piece of gauze, lay it over the wound, and scrub all around it. Then scrub up as close to the edge of the wound as possible. Still believing there is virtue in iodine, we pour it into the wound until it runs out. That is all we do. If there is a fragment of bone sticking out in such a way as to interfere with the bandage as it is put around or if there is a piece of clothing or other foreign body sticking up in the wound, take that out, but never put fingers or instruments inside the wound.

We rely entirely on outside manipulation. Put on a sterile dressing and hold the fracture just as is done in a simple fracture. I am not very much of an advocate of Dakin's solution. We used it a great deal and found it the messiest thing one can use. I do not know whether it is the Dakin's solution or the flooding that is of value. You always get some oozing, but seldom enough from a fracture to threaten the life of the individual. You frequently will get the blood vessels crushed together and get no bleeding from them. I remember many years ago seeing a very bad compound fracture in which the femoral artery was completely severed, with a clot one and one-half inches long at the end of that vessel. That patient did not bleed to death because he had a rapid clotting.

One other point: approximation. How accurately must the fragments be aligned? That depends upon whether it is looked at it from the standpoint of the patient or the standpoint of the courts. If you look at it from the standpoint of the courts, accurate approximation is necessary or one is up against it. If you look at it from the standpoint of the patient, half overlapping will give absolutely good functional results. Suppose you have an oblique fracture and it slips down one-half to three-fourths of an inch, other things being equal, does that justify your going in and operating on the fracture? What is a half-inch of shortening to a man? Eight months after he has had a fracture of the leg with one-half to three-fourths of an inch shortening he can walk off as well as anybody because the pelvis will accommodate one-half to three-fourths of an inch and sometimes even one inch shortening. Of course, if you are a trained bone surgeon working in a hospital equipped for

such work, it is better to operate on such a case and thus secure more accurate approximation, other circumstances being equal.

How do we stand on the subject of active and passive motion, heat, massage, diathermy, and all those things? I happened to have a trained diathermy expert in my service in the war. I did not see that from diathermy we attained the results attributed to it. I still may be a Bolshevik, but it seems to me we went through this same thing with the high-frequency current twenty-two years ago, but now they tell us that diathermy is entirely different from what it was twenty-two years ago.

In analyzing this series of 155 cases one sees in the last 55 cases the average period of disability was shortened 14 days. That means a great deal. We now feel that as soon as the fracture begins to get solid, say in three weeks, active motion should be begun. We do not believe in pump-handle force, but do believe if the patient will move the leg as much as he can without hurting him and then apply some kind of heat, hot water or electric heat or what not, and then give easy massage that does not hurt the patient, that it is possible to get him to work sooner than heretofore. That is the reason we have been able to cut down our time 14 days in the average fracture of the leg. You notice on these little charts (showing charts) that the average of all these cases of 155 fractures was 89 days; in other words, a man is going to be laid up three months in spite of the fact that there is not a text-book on the market that has not carried down the rule that all fractures are solid in six weeks. You know that is bunk. We know in a compound fracture five and one-half months is the average time a man is off from work. We think we are getting good results in spite of the fact that once in a while we cannot line up these compound fractures the way the Lord lined them up at the start.

The treatment of the classical Pott's fracture is by inversion. I think eversion is all wrong. You should never turn a foot out. Primarily we always dress the foot right straight up and down with the leg, endeavoring always to bring the toes up to a right angle with the leg. Theoretically that is the proper thing, but practically it cannot always be done. Sometimes one finds that immediately after he gets the toes up to a right angle the fracture slips, but a mild toe-drop can be corrected later.

We had only three amputations in this series of 155 cases. One was a pyemia case, while in

the other two the tissues were so badly crushed that they were not viable.

That brings up another point in fractures of the leg. What do you do about non-union? I do not know. Our experience with non-union has not been very great in spite of the fact that we used Lane plates and other mechanical apparatus to hold them up. I would like to tell you something about the new idea in the non-union of fractures that has been worked up experimentally in animals by Dr. Zierold in his work for a Ph.D. degree at the University of Minnesota. Zierold studied the influence of metals on the reproduction of bone tissue. He tried out iron, steel, manganese, etc. He found out that very often a steel plate inhibited bone growth. He found out that an iron plate less frequently inhibited bone growth. He found out that stellite was absolutely neutral. Those things did not interest me as much as the fact that he found out that copper was a direct bone proliferator. His experience was interesting because I had on hand at that time (1923) two ununited fractures, one a comminuted fracture of the humerus and the other a fracture of both bones of the forearm. I told Zierold I was going to try out copper. I went home and went to our machine shop and cut out a metal plate like a Lane plate from a sheet of copper. Then I had them turn me out some nice copper screws. I opened the fracture, freshened up the ulna and radius, and put in the copper plate and the copper screws. The copper plate is still in, union having occurred at six weeks. In the humerus I could not put on a plate, so I took some ordinary copper wire and put two ferrules around the humerus four inches apart. The same thing happened there. At the end of seven weeks this humerus, in which there had been a delayed union for nine months, was just as solid as a rock. I am going to use copper wires and copper plates in some of these fractures that are slow in healing rather than take a piece from the tibia and trust to God to get union from an autogenous graft, a result which one does not always get. I think the time is ripe for some one to say something against the promiscuous use of the autogenous graft for holding fresh fractures. I think one does not need to do it because the chance of non-union is so small that it is not necessary to make a big operation out of a small one. We have used a good many Lane plates. I saw Mr. Lane do that many years ago in London, but I have never been able to develop the beautiful technic he has. We have used ordinary surgical technic many times, and I have

thanked God that I had a plate in which I could put six or eight screws and retain the fragments properly. Some of those plates have stayed in for ten years. Recently I removed a plate that had been in six years.

There is also on the market a Parham band. I am not fond of that. I bought from Montgomery Ward's automobile section a little instrument used to fasten wire loops around the radiator hose. For an oblique fracture I take common ordinary copper wire and that forty-six cent instrument and wire the fracture. This instrument is the most valuable tool I have in my armamentarium.

We do not operate on many of these long bones. Over a period of twenty years we have operated on only 4 per cent of long bones. I think our results are fairly good.

Let me give you another point. You know how a man on crutches tries to walk. He puts his bad foot out, then brings the good foot up to it and thus hobbles along, with the fractured foot turned out with the strain on the internal ligaments of the ankle. That is the way you get flat-foot. There is only one way to teach a fellow to walk and that is to have him stand up straight with the toes pointing straight ahead, have him take a three-inch step, then bring the other foot three inches in front of that, then another three-inch step with the toes straight, and finally he gets so he can step four inches, then six inches, and then take a good long step. Why is that essential? Because every time he does that, he is walking with the ankle-joint. If you have two or three fracture cases going along at the same time you can start a competitive drill with good results.

Regarding traction: We have used some traction on these oblique fractures. For a while we put a pin through the os calcis. We have given it up, and the reason we have given it up is because every once in a while we have a bad case of low-grade, long-standing infection following, so we are not very keen for skeletal traction. If we have a fracture that we cannot pull down we use the Lemmon traction outfit. It has all the advantages of the Hawley table and costs only one-fourth as much and can be put up on the fluoroscopic table, and in that way one can accomplish all he needs in fractures below the knee.

Colles' Fractures.—Because all you who were in the army learned to do things by count, we can treat a Colles' fracture that way. It should be set in two counts. Do you want to give an anesthetic for a Colles' fracture? It takes only a moment to

set it. There is a trick in doing a Colles' reduction. You know in Colles' fracture just above the wrist joint the lower fragment is always displaced backward, giving a typical, old-fashioned silver fork deformity, described by Dr. Colles many years ago. Many of these cases are impacted, and you have to break up the impaction. It is not much of a trick to do a Colles' reduction on the right hand if you are right-handed. If you are left-handed it is a little bit more of a job. A little stunt that we worked out is this: The patient comes into the office and sits down in a chair. You put the fractured hand on your knee; you take hold of the hand with a good grip as though you were going to shake hands; and, while you are doing that, your other hand is grasping the lower end of this upper fragment to steady it. You just feel it and catch the patient off his guard. All of a sudden you force the hand backward to the limit, then flex to the extreme degree, and the fracture is set. In other words, first unlock the fragment by pulling it down and then pulling it back, completing the reduction by the wrist flexion.

How do we handle these Colles' fractures? I am still very fond of these old-fashioned wooden splints. There is a chance for a malpractice suit from a Colles' fracture due to the development of stiff fingers as a result of too long a splint over the fingers. Both splints should end at the metacarpal-phalangeal joint. The palmar splint should be cut out so that the thenar eminence does not get any pressure. I always tell a patient with a Colles' fracture that he has to move the fingers 732 times every day. Once in a while you get some one who takes you literally and actually does it. We have two pieces of apparatus that we use for limbering up the fingers. One is an electric light socket to be turned on and off frequently; the other thing is a soft rubber ball with a hole in it, carried in the pocket and repeatedly squeezed together. Then when the fingers are straightened out, we have a set of blocks of different sizes to be builded up. The old-fashioned board and peg puzzle is equally efficacious. We keep Colles' fractures up for three weeks. A surgeon in England recently advocated the no-splint treatment of fractures. He tells the patient, "You have a fracture, go ahead and move it." If this principle is adopted I am going to be out of a job in a short time because I still believe in immobilization.

There is one other type of fracture that goes right along with the Colles'. Suppose a person is walking along the street and slips, and falls

on the outstretched hand, what is he going to get? Everybody says a Colles' fracture. That is true if he is an adult. If he is a child he will never get a Colles' fracture but one around the elbow-joint. We have an amazing number of fractures of the elbow-joint. We have gone through all stages of the treatment of fractured elbows in the last twenty-two years. We formerly put them up at right angles. There is something to the handling of fractures of the elbow, and that is in the diagnosis. With a fracture of the elbow-joint the articular surface of the condyle is not in direct line with the shaft. There is an angle of approximately 130° between the shaft of the humerus and the condyles. That has a very important bearing in your study of fractures. We set most of these under a general anesthetic because you cannot control a youngster with a fracture of the elbow. It takes two to reduce most of these. It takes one man to steady the shoulder and upper arm. Then we get a tight grip on the forearm, approximately the same grip that you had on a Colles' fracture except the upper hand is close to the line of fracture. Remember there is a backward displacement, and the arm has to come forward. We get this type of grip and pull down as hard as we can. While pulling down with one hand and pressing down in the bend of the elbow with the other, bring the arm up to an acute angle and ninety times out of a hundred you get a reduction the very first time by that method. Once you get it up there it will stay, because the tendon of the triceps muscle, as it comes from its attachment to the olecranon, will act as a bow-string and keep it from slipping backward. That is all you have to do.

We have gone through seventeen different varieties of splinting in that position. I want to show you the one we have finally adopted as the proper splint. A two-inch strip of adhesive plaster is placed around the arm close to the axilla, then carried around the forearm above the wrist and then over the top of the shoulder to act as a sling. Care is taken to see that the edges do not cut the skin, and powder is freely used in the bend of the elbow to prevent skin maceration. This dressing, you see, keeps the elbow acutely flexed. In children we let them go for about four or five days and then bring them in and give them a little gentle active motion. We let them bring the arm down as far as they can. We have them come every other day, and in two and a half or three weeks we turn them entirely loose. Sometimes they have hard work in bringing the hand down, but we

have never seen a boy or a girl who could not ultimately straighten out the arm. Every type of exercise a child normally uses brings the arm down a little farther, and at the end of six months they are all right. Do not be dissatisfied if at the end of three or four weeks or the second month these children do not have good motion. In grown-up people it is an entirely different matter. I do not know yet whether to place a fractured elbow in the adult at acute flexion or not. Some we do, and some we do not. I really think I am becoming more and more convinced that the so-called Jones' method of flexion is the right kind of treatment for elbow-joint fracture.

Let me go back to the forearm on one thing. One of the most difficult types of fracture to handle is one of both bones of the forearm at the same level. Why? Because the fragments are always jammed in, and there is a tendency to get a permanent bridge built over from the ulna to the radius. That leads me right up to the one subject that I think we need a little enlightenment on, and that is the handling of green-stick fractures of both bones of the forearm in children. You know the old text-book teaching from generation to generation on the handling of green-stick fractures has always been to complete the fracture and put on a splint because it was considered impossible to get good union unless this was done. There have been a number of men in this country who have had the moral courage in the last few years to abandon that teaching. I do think in the majority of green-stick fractures in children that you can put the fingers on the proximal side and push it in and put on a splint and get by with it. If you do that you do not run any risk with your complete fracture of the ends getting out of place and giving a chance for a bridge to form. I think that is the method we ought to come to in the handling of fractures of both bones of the forearm in children.

I just want to say one point about fractures of the humerus. We all came home from the service filled up with the idea that all fractures of the humerus had to be treated in marked abduction. I think of all the uncomfortable methods of splinting a patient's arm, the worst is the so-called *aéroplane* splint. Of course if the upper fragment extends out, then you have to dress it in forced abduction. In the majority of cases we build up a good pad in the axilla and then dress the arm against the body. We put on a splint either of pasteboard or wood and then bind the chest and arm together and apply an ordinary bandage sling to the wrist. I do not think it is ever necessary to put weight extension on a fractured humerus.

I think that is all I am going to tell you except to go over some of these pictures. What I want to bring out here is what can be accomplished with a badly comminuted compound fracture if you stick to it. What do we do with a fractured fibula in connection with the tibia? We pay no attention to it. The callus will form around it somewhere, and it will get union. I would not think of going in on a fractured fibula no matter how displaced it was. It will get well and give a good solid union. In fractures of the olecranon the same thing has to be taken into consideration as in a fractured patella. Sometimes the capsule around the olecranon will not tear and will hold the fragments in position. Sometimes it is torn widely. If we cannot hold them together any other way, I prefer going in and sewing them together. We use kangaroo tendon in that type of injury, and we hold them usually three and a half to four weeks.

These methods have been used over a period of years under the most trying circumstances. That radical open treatment is seldom necessary in handling long-bone fractures is the lesson I wish to leave and that just as great surgical skill is required properly to align fractured bones by the closed method as by open treatment.

CHRONIC APPENDICITIS*

By F. GREGORY CONNELL, M.D., F.A.C.S.

OSHKOSH, WISCONSIN

It seems that one of the outstanding needs of the present time is the establishment of a better understanding between the medical profession

and the laity. Two lines of activity will materially aid in this matter:

1. The first is collective and concerns the problem of how best to carry on a campaign of publicity relative to the *facts* of health and dis-

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ease in opposition to the array of misinformation relative to these matters which is being broadcast by commercial interests. This work is being started by the organized medical profession, as is exemplified in the publication *Hygeia*, and is so large a question that in the time available to me it can only be mentioned.

2. The second is more individualistic and concerns as elementary a matter as the doctor securing better results or realizing his limitations, which calls for careful and complete study and accurate diagnosis in suitable cases, before the institution of treatment.

The practice of snapshot diagnoses and gunshot therapy, whether the latter be by medicines, vaccines, electricity, or operations, has proved detrimental to all concerned, and the consideration of a notorious example will, I trust, prove beneficial.

In 1911 I drew attention to the rather large percentage of unsatisfactory results following appendectomy for so-called "chronic appendicitis." At that time I was advised that such statistics might be used against the medical profession.

The profession is, or should be, interested only in facts, and both the patient and the physician are entitled to know what might reasonably be expected to follow a given method of treatment. Consequently, in season and out, I have repeatedly called attention* to the unsatisfactory results following operative treatment of so-called "chronic appendicitis," and the resultant bad effect upon both laity and profession until it becomes more or less of a nuisance, and the rejoinder that "Regardless of the result, the appendix is better out," was supposed to settle the question.

Cabot has said: "These are days of pitiless publicity, and the medical profession is perhaps more than at any previous time on trial; unsuccessful surgery makes a deep impression upon the community and one not to the advantage of the conscientious practitioner." And unsuccessful surgery is not confined to cases that terminate fatally.

*F. Gregory Connell: Ileocecal Adhesions (Lane's Kink and Jackson's Membrane) S. G. & O., November, 1911, pp. 485-491.

F. Gregory Connell: Etiology of Lane's Kink, Jackson's Membrane, and Cecum Mobile. S. G. & O., April, 1913, pp. 353-359.

F. Gregory Connell: The Chronic Abdomen; A Review of Nineteen Cases of Pericolitis and Ileal Kink in Which the Appendix Had Been Previously Removed. S. G. & O., December, 1914, pp. 742-746.

F. Gregory Connell: Pseudo-Appendicitis, J. A. M. A., July 29, 1916, vol. lxvii, pp. 355-357.

F. Gregory Connell: The Acute Abdomen, S. G. & O., June, 1919, pp. 583-597.

F. Gregory Connell: Chronic Appendicitis So-called, Medical Record, February 5, 1921.

Recent literature shows that there is a growing interest in and dissatisfaction with this question.

Dr. R. C. Cabot, of Boston (1919, "Physical Diagnosis"), in the preface expresses his growing skepticism as to the diagnosis of "chronic appendicitis."

Hugh Cabot, of Ann Arbor, has frequently spoken upon the subject.

J. B. Deaver and I. S. Rodin (Arch. Surg. 6, 31-40, January, 1923), C. L. Gibson (Am. J. Med. Sci., 159, 654-663, 1920), J. A. Lichty (J. A. M. A., Sept. 9, 1922), H. L. Prince (N. Y. St. J. of Med., February, 1923), and C. J. Rowan (Iowa St. Med. Jour., August, 1922), report series of remote results.

At the last meeting of the American Medical Association, A. B. Cooke (J. A. M. A., vol. 81, No. 8, p. 627), W. E. Lower and T. E. Jones (J. A. M. A., vol. 81, No. 8, p. 629), R. C. Coffey (J. A. M. A., vol. 81, No. 11, p. 900), Harry Blackford (J. A. M. A., July 14, 1923, p. 124), took part in a discussion which included chronic appendicitis.

In recent British literature one finds the following: "The Chronic Abdomen," Robert Hutchinson (B. M. J., 1923, vol. 1, p. 677), "Excessive Operation for Appendicitis," James Berry (J. A. M. A., vol. 79, No. 25, p. 2097); and C. H. Whiteford (Practitioner London, August, 1922, 109, No. 2), contributes an article entitled "Chronic Appendicitis." W. Doolin (Irish Jour. Med. Sci., January, 1923), discusses the end-results of the same condition.

This evidence of widespread interest in chronic abdominal complaints indicates the importance of the subject.

Had the fact that our results in such cases were often unsatisfactory been emphasized for the last ten years there would be at the present time, undoubtedly, much less dissatisfaction with and distrust of the profession, and more benefit to the people at large. And we would not be meeting conditions today in which one is often on the defensive when suggesting operative procedure in cases of acute appendicitis, the layman, of course, being unable to differentiate between a present acute case and a past so-called "chronic" case in which the result has been unsatisfactory.

One of the most frequent mistaken surgical diagnoses is that of "chronic appendicitis," and something should be done to decrease the frequency of this error. Before the subject can be intelligently discussed it is imperative that chronic appendicitis be defined and its symptoms be described, which, up to the present time, has not

been done in an entirely satisfactory manner. Volumes have been written upon "acute" appendicitis, while until very recently practically nothing has been written on "chronic" appendicitis, in spite of the fact that there are many operations for the latter to one of the former. The glib manner in which the diagnosis of chronic appendicitis is made and operation carried out recalls to mind the terse statement that "Pain in the right side, and consent of the patient, are insufficient indication for removal of the appendix."

The lack of definite knowledge concerning this elusive condition is well shown by the fact that one is often unable to diagnose chronic appendicitis with any degree of certainty—

After (1) a study of the symptomatology;

After (2) a physical examination including x-ray-barium meal and enema;

After (3) the direct inspection of the appendix at laparotomy, or even—

After (4) the study of microscopic sections of the appendix after its removal.

A practical method of attempting to clear up this lack of knowledge would be by a review of remote results in cases in which appendectomy has been performed after the diagnosis of "chronic appendicitis." The criterion for judging the correctness of the diagnosis being—relief of symptoms.

A comparison of the pre-operative and the post-operative histories shows, among other things, the following marked and therefore important distinction between the satisfactory and the unsatisfactory cases: In the satisfactory case the previous attacks were unquestionably acute appendicitis, and there was a lack of pain and tenderness in the right iliac fossa between attacks. On the other hand, in the unsatisfactory cases the history of the previous attacks was such as to make the diagnosis questionable, and there were practically continuous pain, tenderness, or discomfort in the right abdomen between attacks.

Therefore it seems that there is sufficient evidence to justify the conclusion that constant and practically continuous pain, tenderness, or discomfort in the right iliac fossa make the diagnosis of chronic appendicitis questionable and call for careful study.

Chronic appendicitis with its unsatisfactory results is becoming a reproach to the profession. What are we to do about it? The answer is simple. Diagnose it. The diagnosis is automatically followed by proper treatment, the removal of the appendix.

What, then, is the cause or causes of these

symptoms that are not removed or relieved by appendectomy? As showing the difficulty to be encountered in attempting to answer this question, I shall refer to Garrod, Regius Professor of Medicine at Oxford, who, in an admirable address on "Higher Medicine," enumerates the causes of disease as follows:

1. Inheritance.
2. Body architecture.
3. Environment,—surroundings, atmospheric conditions, personal hygiene.
4. Bacterial or protozoan,—invasion with introduction of chemical poisons by way of the alimentary or respiratory tract.
5. External influences,—trauma, single or repeated; light or other radiant energy; heat or cold.

6. Negative factors,—deprivation of essential foodstuffs, vitamins; insufficient oxygen.

7. Diathesis,—chemical individuality.

Experience extending over a number of years with observation of many cases before, during, and after single and often repeated laparotomies, has failed to answer this question, but has not been entirely negative, for it has eliminated the following factors as possible causes:

1. The appendix, because of persistence or return of symptoms after appendectomy.

2. Other definite intra- or extra-abdominal pathologic entities have been excluded by repeated exploratory laparotomies or after careful clinical study and consultation.

3. "Adhesions," without name or with special names, by their presence without symptoms; by the presence of the classic symptoms without "adhesions," and by persistence of the symptoms after the removal or correction of these "adhesions."

4. Ptosis, atony, dilatation, or displacement of viscera, malfusion of visceral and parietal peritoneum, decrease of intra-abdominal pressure, etc., because of operations and treatments aiming at the correction of these various conditions, have but rarely been followed by permanent relief of symptoms.

After exclusion of the above possible factors it would seem that the real cause must be searched for more centrally; for example,

1. In the intestinal wall itself.
2. Within the lumen.
3. In the retroperitoneal space.
4. The sympathetic or cerebrospinal nerves or ganglia.
5. Or in abnormal function of the endocrine glands.

The intestinal wall itself brings up the ques-

tion of the various types of constipation and of colitis, which opens the great subject of gastro-intestinal tonus, peristalsis, and sphincter control of, none of which is completely understood.

The serosa may be inspected and palpated at laparotomy, at which time it frequently shows a subserous blistering, thickening, and congestion, which has failed to aid in clearing up the question.

The Muscularis.—The myenteric plexus of Auerbach and the neuromuscular tissue of Keith have been given a great deal of attention, thanks to the recent work of Keith, who has demonstrated nodes, similar to the pace-maker in the heart, at the cardia, the pylorus, the ileocecal valve, the transverse colon, and the descending colon. Abnormal function of these nodes causes disturbances of the mechanical function of the gastro-intestinal tract, with the resultant atony or spasticity of the wall, which may be visualized by the barium meal and x-ray.

The question of the competency or incompetency of the ileocecal valve, which may be demonstrated by the x-ray or at operation, has been found to be of but little practical value.

In 1921 Keith and Spencer (Brit. Jour. of Surg., April, 1921, p. 245) described peculiar pigmented pathologic cells in the musculature of the excised colon. This finding has not been corroborated by others.

The striking similarity between the embryologic origin, development, function, and method of control of the cardiovascular and the gastro-intestinal tube, calls for close comparison.

The cardiac arrhythmias have been classified as follows: heart block, auricular fibrillation; paroxysmal tachycardia; premature contraction and alteration which might be comparable to ileus, adynamia, meteorism, diarrhea, spastic or atonic constipation, alternating diarrhea and constipation.

Walter C. Alvarez (J. A. M. A., April 15, 1923), in an article entitled "The Electro-Gastrogram and What It Shows," has attempted to utilize the electrocardiogram in a study of intestinal function.

The Mucosa.—Inspection of the mouth may give one a clue as to the intestinal mucosa, as may likewise the gastric and stool analysis. Rectal and proctoscopic examination is essential in the study of these cases, mucosal abnormality is common, but ulceration infrequent.

Within the Lumen.—Food, bacteria, and protozoa call for attention.

The Food.—Except as a supposed cause of an "acute indigestion," the food element has been

largely disregarded, but Robert McCarrison, in his studies in "Deficiency Disease" (Oxford Med. Pub., 1921), brings most conclusive arguments showing the influence of improper, deficient, or ill-balanced diet in chronic gastro-intestinal invalidism. His unique experience in the state of Hunza (the extreme northernmost point of India) demonstrates that appendicitis and chronic gastro-intestinal symptoms are absent in a race that exists upon unsophisticated food,—grain, fruit, vegetables, milk, butter, and goat milk only on festive days,—with an active outdoor life and an abstinence from alcohol. Speaking of his experimental and clinical observations, McCarrison states: "These effects provide the pathological basis for attaching to food deficiencies a prominent etiological significance in regard to that great mass of ill-defined gastro-intestinal disorders and vague ill-health which throngs clinics at the present day, and concerning which we have hitherto known little or nothing."

The influence of such conditions as "celiac disease" or "mucous disease" in infancy should be given due consideration. The possibility of food allergy or hypersensitiveness to certain types of disease is now well recognized.

Amebæ were encountered so often that it seemed that we had proven a relationship; but control series in symptomless individuals showed nearly as high a percentage of positive findings. We were able to differentiate *A. histolytica* and *A. coli*, but the clinical findings in the case rarely fitted the amebæ. Flagellates (*giardia*, *lamblia*, *trichomonas*, *chilomastix*) were frequently found in conjunction with chronic gastro-intestinal symptoms. Improvement often followed treatment attempting to rid the host of these parasites, but recurrence was the rule.

The subject of the relationship between protozoan parasites and chronic gastro-intestinal symptoms is being given serious consideration. The Mayo Clinic, Smithies (of Chicago), and others have called attention to the frequency of this type of infection in the northern states. Kofoid and his co-workers, Kornhauser and Swezy (Archiv. Int. Med., vol. 24, 1919, p. 35), are inclined to consider the amebæ as productive of much disease in the temperate zone.

Among the flagellates the *giardia* (*lamblia*) is by many considered to be pathogenic.

In very recent literature one finds in Dobell's "Amebæ Living in Man," Wm. Wood & Co., 1919, a very complete review of the subject; and Hegner and Cort, of Johns Hopkins, have published (1921) a very helpful book, "Diagnosis of Protozoa and Worms Parasitic in Man." Ely

and Wyckoff, of San Francisco (J. A. M. A., November 24, 1923, p. 1762), draw attention to arthritis and protozoan intestinal parasites. Lloyd Mills, of Los Angeles (J. A. M. A., November 24, 1923, p. 1775), considers endameba as a cause of certain types of iritis, and mentions similar conclusion by Baraquer of Barcelona.

Barlow has found amebæ in the stool in cases of Hodgkin's disease and suggests a possible etiologic relationship.

Giardia (lamblia) are generally considered pathogenic; the other flagellates are of more doubtful seriousness. J. L. Kantor (Archiv. of Int. Med., November 15, 1923, p. 693) finds lamblia in the duodenal contents, as have Smithies, Lyon, Simon, the writer, and others, and reports very gratifying results following treatment by arspenamin. E. Hollander (Archiv. Int. Med., October 15, 1923, p. 522) found the same infestation in duodenal contents 9 in 170 cases, but with no symptoms attributable to the lamblia. Arspenamin was not effectual in ridding the host of these parasites.

All of which shows the subject in a very unsettled period of development with the majority of observers considering these protozoan parasites as merely commensal.

In the Retroperitoneal Space.—The lower extremity of the root of the mesentery being situated in the right iliac fossa, at once suggests a possible relationship to this pain in the right side and a reason for its infrequency in the left iliac fossa.

Lymph Glands (tuberculosis and Hodgkin's disease extended).—Enlarged lymph glands are frequently met with in the mesentery of the ileocecum of the chronic gastro-intestinal invalids, but repeated histologic study and examinations by various pathologists failed to reveal other than simple round-cell infiltration. An attempt to demonstrate chromaffin in these glands was unsuccessful.

Semilunar, superior, and inferior mesenteric and other ganglia of the sympathetic nervous system are present in this location, abnormalities of which might account for the tenderness and pain on pressure in the various regions, but has not been demonstrated.

Nerves.—It has been said that this right-sided pain is a "perityphlitic neuralgia" that occurs in neurotic subjects, but this still calls for satisfactory explanation as do so-called "hysterogenic spots" in other anatomic locations.

The Vagus, which stimulates, and the *sympathetic*, which inhibits, gastro-intestinal function are probably balanced in health. But to say that

imbalance between these antagonistic nerves is the cause of chronic abdominal symptoms calls in turn for a satisfactory explanation of the cause of this imbalance.

The theory of Eppinger and Hess, in which individuals were divided into vagotonic and sympathicotonic, promised to simplify the problem, but these nerves are so intimately associated with the neuromuscular tissues of Auerbach's plexus that their actions at times vary, often overlap, and are therefore very difficult to analyze. Personal attempts years ago to carry out this subdivision led to disappointment, which disappointment has very recently been voiced by many other observers.

Finally, as is the case in all obscure conditions, since the recent studies of the thyroid and adrenal function, a pseudo-explanation is attempted by attributing the symptoms to malfunction or dysfunction of the endocrine glands, but the cause of the abnormal function of the glands still remains obscure.

Each of the above-enumerated possibilities has been given serious study, but the exact cause or definite combination of causative factors has not as yet been definitely determined.

The object of this review of the subject is to emphasize the fact that "chronic appendicitis" and pain in the right abdomen, with or without gastro-intestinal symptoms, are not synonymous; and that, instead of being the *simplest* abdominal surgical condition, it is one of the most *complex* and is therefore worthy of study, serious study, *before*, and *not after*, the removal of the so-called "chronic appendix."

DISCUSSION

DR. JOHN M. DODD (Ashland, Wis.): We all realize that too many patients are operated on for appendicitis and the expected relief does not follow. Almost daily there come to us cases that perplex us and leave us in doubt as to what is best to do. The cases that are most perplexing are probably those with pain in the right side of the abdomen. Before arriving at a conclusion as to the cause of that pain we have to take into consideration the topography of that part of the anatomy, the contents of the abdominal cavity, and the possibilities in the way of causation of pain. To begin with, we know that the relaxations which occur in the abdominal wall that come with age and child-bearing in women, bring about lack of support to the organs contained therein, and the visceroptosis developing from this and other factors causes pain, more or less indefinite in character. Sometimes the pain is definite, at other times it is so indefinite as to leave us in doubt as to its origin, and it is often due to causes that are remote from the particular region in which the nervous system locates it. Various troubles arising from displacement of the intra-abdominal organs

result in pain. The genito-urinary system must be considered, and especially the possibility of calculus in the ureter or kidney trouble of some kind. Also we must not lose sight of the possibility that sometimes surprises us when we find a case which in the evening we thought was probably an acute appendicitis, turns out to be a case of pneumonia the next morning.

We must take into consideration the possibility of intra-abdominal injuries and also injuries to the back, especially in the vicinity of the tenth and eleventh dorsal vertebræ, where the spinal nerves emerge. Pain of such origin is reflected to the region of McBurney's point. We know that gallstones and various troubles originating in the vicinity of the stomach, pancreas, and gall-bladder, may give rise to pain that is reflected out to other locations. The retroperitoneal lymphatic glands are often affected by infections that arise from gastro-intestinal conditions, and this may be a factor in the production of pain which is felt in the right side at McBurney's point and which may produce a point of tenderness in that region.

We know that the appendix is subject to direct trauma, and that intestinal parasites are often the cause of trouble in the region of the appendix. In the neurotic conditions that sometimes affect women and girls, we frequently are perplexed by the pain that is felt in the right side, and oftentimes when the appendix is removed for the relief of that pain we find the pain is not relieved. Even though we sometimes open in the median line and give attention to the ovaries and perhaps puncture or remove cysts or resect portions of an ovary, still the pain is not

relieved. Sometimes these cases are gone into for relief of adhesions which are supposed to result from former operations, and we find that the pain is not relieved by these successive operations.

So the classical paper to which we have listened has admonished us to ponder deeply and to search long and carefully for the cause of conditions we find in the abdominal cavity before we proceed to operate. It is said by those who have authority to express an opinion that there is no case of chronic appendicitis unless there has been a previous acute appendicitis. If that is true, and we have no reason to doubt it, we should hesitate to operate in a case in which there is some tenderness in the right side, with no acute symptoms and no history of an acute attack having previously existed. If we heed the admonition that Dr. Connell has given us and look carefully for the cause of the pain in the region of the appendix, and if, in our attempted differential diagnosis, we finally have arrived at the appendix after a process of elimination of all other symptoms and conditions, and then we remove an appendix which does not show a great deal of pathology, I think we can feel that we are excused in doing so, because, while many patients that are operated on for so-called chronic appendicitis do not thereby gain relief from the pain, we do know that in many cases in which the appendix is removed and no very great amount of pathology is found, we, nevertheless, obtain relief from the symptoms. Consequently, we feel that we are justified in removing the appendix if there is any considerable tenderness or disturbance in its vicinity, even when it is not actually inflamed.

TREATMENT OF VARICOSE ULCERS*

By J. M. HAYES, B.S., M.D., M.S., F.A.C.S.

MINNEAPOLIS, MINNESOTA

Varicose veins result from diseased vessel walls or some interference with the return circulation. Veins of the legs are supplied with large valves, which assist materially in the return flow of blood. Marked dilatation of the vein renders the valves incompetent. A dilated vein with consequent incompetent valves gives us a sluggish stream against the force of gravity. The tissue about the vessels soon becomes drenched with this stagnant venous blood, which diffuses through the dilated vessel walls. An excellent culture medium is thus established. Slight trauma to the surface renders the tissues less resistant, and ulceration frequently results. After some time dense fibrous connective-tissue areas become evident about the ulcers.

Poor nutrition and the presence of this dense fibrous tissue are unfavorable factors in the cure of the ulcer. Support the vessel walls or empty

them by force of gravity, remove the necrotic tissue, and render the field aseptic, and usually the ulcer will heal.

To prevent recurrence of the ulcer we must dispose of the diseased vein. To do this in the presence of a gangrenous sloughing ulcer is not always simple. On the other hand, it is comparatively simple to remove, surgically, veins which are not complicated by ulceration. Steele and others advise surgical removal of veins even in the presence of varicose ulcers.

For the surgical removal or obliteration of varicose veins many different methods have been devised:

Trendelenburg obliterated the saphenous vein by ligature in the thigh and above and below the knee.

Swartz removed a section of the vein.

Morisch made circular incisions above and below the ulcer, going under the flap.

*Presented as an inaugural paper upon admission to the Minneapolis Clinical Club, September 18, 1924.

Schede made circular incisions below the knee, ligating all veins encountered.

Madelung removed the internal and external saphenous veins by long incisions.

Rindfleisch made a spiral incision from the knee to the ankle, ligating each vein encountered.

Mayo first used the stripper for the subcutaneous removal of the vein.

Babcock devised a stripper to pass inside of the vein for subcutaneous removal.

Many surgeons prefer to heal the ulcer, then treat the veins surgically. This is, perhaps, the most popular method at the present time.

As stated before, we must support the walls of the vessel or empty it by force of gravity in order to heal the ulcer.

We cannot keep the patient ambulatory and at the same time empty the vessels by force of gravity. We must then turn to some method of supporting the vessel walls if the patient has not the time, inclination, or opportunity to enter the hospital. For the purpose of this support, we have found nothing more efficacious than the so-called Unna cast. To make this cast we take one part glycerine, one part gelatin, one and one-half parts zinc oxide, and one and one-half parts water. This is all mixed together and heated over a water bath until it takes on the consistency of a thick paint. It is then allowed to cool until it is comfortably warm, when it is smeared over the leg. We use a large spoon and put it on much the same as the plasterer puts on his plaster. We put this on well out to the toes on the foot and up to the knee. The paste soon cools, becomes adherent to the leg, and makes a very comfortable stocking-like cast. A gauze bandage is then put on over the entire cast. This cast is valuable because of its elasticity, its absorptive qualities, taking up the secretions from the ulcer, and because of its antiseptic and astringent characteristics.

If the secretions are excessive and the cast over the ulcer becomes saturated, a window may be easily cut at this point and the ulcer dressed through it. Various antiseptic and astringent drugs may be used to dress the ulcer, but the most useful and constant is zinc oxide ointment.

With this cast on, the ulcer seems to heal just as readily when the patient remains ambulatory as when in the recumbent position. With this procedure alone the ulcer will usually heal in from two to four weeks, but we know it will not remain healed unless, as before stated, we take steps to dispose of the cause, which is the vari-

cose veins. These may be removed, ligated and left in place, or thrombosed by injection of solutions.)

The basis of this report is a series of 43 cases treated in the Out-patient Department of the University of Minnesota.

I recall Unna's cast having been used to some extent in this department fourteen years ago, but in many of these cases nothing was done to dispose of the varicose vein.

Our interest was first aroused in the injection method of treating these veins by indirect reports from Dr. Kretchmer, who had recently come to Minneapolis. On looking up the literature, we found that Linser had first written on this subject in 1917, although he had been using the method since 1911. In this year, he first injected bichloride of mercury into the collapsed vein for the purpose of producing a thrombosis and consequent obliteration of the vein. He had observed that in post-partum and post-operative phlebitis, the involved vein was frequently fibrosed and obliterated. He also had observed that while injecting bichloride of mercury into the vein of the arm for the treatment of lues, the vein was frequently thrombosed. From these observations, he decided to attempt the obliteration of the varicose veins by the injection of bichloride of mercury. After some experimenting he used as a safe and effective dose, 1 c.c. of a 1 per cent solution of bichloride of mercury. Stronger solutions may result in pain and necrosis and general symptoms of hydrargyria.

In pathology we learn that injury to the intima frequently causes thrombosis of the vessel.

The object of the procedure, then, is to cause an injury to or necrosis of the intima of the vessel. To get this result it is necessary to have the bichloride come in contact with the intima. If injected into the full vein it would be diluted to a high degree and swept away in the blood stream without producing results. The vessel may be compressed with the finger at the site of injection so that the walls come in contact with each other. A pad is then bound on without letting up on this pressure. We do not know how long it is necessary to collapse this vessel after injection, but perhaps several minutes is sufficient. If there is an ulcer present, we put on the Unna cast immediately after the injection; if not, an elastic bandage is used.

While the cast is on, it may be cut to a point where a vessel is accessible for injection, then the cast bound on again. After the ulcer heals, which usually occurs in from two to four weeks,

the cast may be replaced by a simple elastic bandage.

The injection may be begun any time and given once in two or three days. It has been shown that practically all the mercury has left the circulation in twenty-four hours, but we give no two injections with less than a 48-hour interval.

Only one serious result has been recorded from this method so far as we have been able to ascertain.

Hammar, apparently following Linser's method, had one patient develop a stomatitis, enteritis, and general symptoms of hydrargyrisms, who died twelve days after the injection.

Model, following Linser's method, but making more than one injection at a sitting, had many good results. In one case, after making two injections at one sitting, multiple hemorrhagic spots developed over the skin and on the mucous membrane of the mouth.

Linser, over a period of ten years, having injected several thousand, had no bad results. He states that technical blunders are the cause of most serious accidents. A mild stomatitis, enteritis, or albuminuria results occasionally, but this is not serious. There is usually no pain if the solution is injected into the vein. If it is injected into the perivenous tissue, it produces a severe necrosis. If this occurs the area should be immediately excised and sewed up tight.

Out of 140 injections we had three perivenous injections. One we excised immediately and sewed up tight with good results. With the other two we got necrosis and sloughing. With close attention these cleared up in three or four weeks.

One case developed a marked albuminuria and passed smoky urine for a day or two after the fourth injection. The patient was perfectly well four or five days later.

Aside from the above-mentioned there were no bad results.

Thrombi usually do not become evident until ten to twelve hours after the injection. Frequently about this time a slight local inflammatory reaction is evident. The patient may have a slight general temperature. Occasionally a slight edema of the feet occurs, which readily clears up.

The thrombus resulting from injection is usually not more than 5 to 10 cm. in length in large vessels. It is somewhat longer in small vessels.

The site of injection depends largely on the site of the varicosities. It is usually made below the knee, although there is no objection to making it above the knee if those below can not be

entered readily. We may inject high up on the saphenous longus, even up to the middle of the thigh.

Linser advises against having the thrombus extend higher than the saphenous longus. He has not observed extensive spreading to the deeper vessels. We have been unable to find records of metastatic emboli from any of these thrombi.

The number of injections depends on the number of varicosities present. As a rule, we choose the main trunk of the vessel from which many branches extend.

There is usually an area of fibrotic tissue about the ulcers. We aim to catch the vessel just outside this area. Following around the border of this area, we inject whatever superficial vessels are encountered. The vessels within the fibrous area are usually not collapsible and do not form thrombi when injected.

CONCLUSIONS

1. Varicose ulcers are usually the end-result of neglected varicose veins.
2. The ulcers may be healed by various methods, but to prevent recurrence we must support or dispose of the varicose veins.
3. Surgery in the presence of ulceration is not usually satisfactory.
4. Treating the ulcer with Unna's cast and obliterating the varicose veins by means of mercury injections seems to be a satisfactory method.

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DISCUSSION

DR. LAJOIE: I would like to ask Dr. Hayes about the danger of embolism resulting from this procedure.

DR. BEARD: How many injections do you have to give?

DR. BOREEN: Have you ever used the mercury lamp on these ulcers? I find we get better results with the mercury lamp than with anything else.

DR. HAYES: In regard to embolism: That is usually the first question asked in connection with these injections for the production of thrombi; and it seems a perfectly logical question, too. Thrombi, as we think of them ordinarily, are infective. These, we know, frequently break up and give off emboli, sometimes resulting seriously. Seldom have we seen thrombi produced mechanically, as is done by this procedure.

Linsler has given many thousands of injections in this manner and has never seen nor heard of emboli breaking loose in these cases. There are no records in literature of any of the other men who have done this work extensively having experienced trouble from this source.

In answer to Dr. King's suggestion that we may inject small amounts into the wall of the vessel, or in weaker solutions into the vessels, and get results: We tried one-tenth of a 1 per cent solution, but got no favorable results injecting into the vessel. In the wall of the vessel or perivenously, we got a slough, the same as with stronger solutions.

The number of injections to each patient varies very widely. Occasionally two or three injections will clear up all accessible vessels, while in some cases, as the one shown on the screen, we used as high as fourteen injections. However, this was an

exceptionally bad case. His vessel walls were diseased. We expected him to have more varicose veins later, so injected every superficial vein we could enter at this time.

We consider the use of the Quartz Lamp very valuable in the treatment of these ulcers. Cutting a window in the cast over the ulcer and applying the light through this window has proven very efficacious. However, I do not believe that any other one thing is as valuable as this cast in the clearing up of the ulcer.

DR. BARRON: As Dr. Hayes has said, emboli do not originate from thrombi unless the thrombi are infected. It is the digestion of the thrombus by the bacteria that will cause the liberation of fragments into the circulation. An aseptic thrombus like that produced by the injection of mercury will, therefore, not produce any emboli.

PROCEEDINGS OF THE MINNEAPOLIS CLINICAL CLUB

Meeting of September 18, 1924

The regular monthly meeting of the Minneapolis Clinical Club was held at the Y. M. C. A. on Thursday evening, September 18, 1924. After dinner the meeting was called to order at 7 p. m. by the vice-president, Dr. Max Scham, in the absence of Dr. Peppard. There were 27 members present.

After a short business meeting the program of the evening was taken up and the following case reports and papers were given:

DR. J. S. McCARTNEY gave as his inaugural thesis a "Discussion of Bone Tumors" of which the following is an abstract:

"The purpose of this paper is to acquaint you all with the classification of true bone tumors and diseased conditions of bone simulating bone tumors, which we are now using at the University of Minnesota.

"The classification was prepared by a committee of surgeons and pathologists which met in New York City last fall. It adopted this classification only tentatively, desiring to use it for a few years before officially publishing it. Since it has not been published by them, it would not be proper for me to do so.

"I merely desire to present this classification to you, to mention briefly some of the characteristics of each of these different types of bone tumors, and to show you a few representative gross specimens and x-ray plates.

"At the University we have been using this classification for the past year. We have found that the students get a much more definite notion of what these tumors are like, under this nomenclature, than they did when we divided bone tumors into the 'more' or 'less' malignant groups. By less malignant we meant tumors which microscopically were no more malignant than a fibrosarcoma. The other tumors fell into the more malignant group.

"Doubtless you all well remember what a vague conception of the tumor you had, when the diagnosis was made of spindle-cell sarcoma, round-cell sarcoma, chondrosarcoma, etc. You had no idea, whatsoever, as to what the tumor was like grossly.

"You will notice that in this classification but little reference is made to the microscopic picture, experience having shown that, in case of a real sarcoma, the gross appearance of the tumor is of far more importance clinically and from the standpoint of prognosis than the microscopic picture, the latter making but little difference so far as the eventual outcome is concerned, but being of some importance in determining the rate of growth. However, in our classes, we do not neglect the study of the sections, but, insofar as possible, give the students the clinical data, the gross specimen, the section and the x-ray plate to examine."

DISCUSSION

DR. BARRON: This is a very interesting classification which greatly simplifies the pathology of bone tumors. The previous classifications were very confusing at times.

The osteogenic tumors are characterized by their origin from cells that normally produce bone, while the myelomata originate from the medullary elements which produce normally the blood cells. The myelomata are divided into several types, depending upon the character of the cells. The plasma cell type is the most common, the cells being identical with the plasma cells found in tissues. The second type seems to show an origin from the granular leucocytes and is known as the leucocytoma. The third group seems to have an origin from the erythroblastic tissue and is known as *erythroblastoma*. Hemoglobin has been found in these cells.

There is another group suggesting lymphocytes and known as lymphocytoma.

The malignancy of the osteogenic sarcoma is often very great, as Dr. McCartney has stated. The parosteal sarcoma seems to originate in the attachments of muscles and run parallel to the shaft of the bone. The so-called giant-cell sarcoma forms a very interesting type of tumor. It is best known as epulis of the jaw. This tumor presents a stroma of rather well-differentiated connective tissue cells which is more like a benign type of fibrosarcoma. Through-

out this stroma are scattered large numbers of rather characteristic giant cells. It is important to be able to recognize the type of these cells. They generally present deeply staining cytoplasm containing large numbers of nuclei gathered in the center of the cell. This type is benign. Malignant sarcomata also frequently have giant cells, but these giant cells present cytoplasm, which is pale staining and the groups of nuclei are generally smaller, the nuclei themselves are larger and the distribution is more irregular through the cytoplasm.

Osteitis fibrosa cystica is a peculiar lesion in long bones which shows cysts surrounded by fibrosed tissue which at times resembles the benign giant-cell sarcoma. Some of these lesions are solid and contain no cysts. These are known as osteitis fibrosa. The condition is benign.

DR. ALLISON: In Boston last week I heard Drs. Codman and Ewing present this classification. I think they have done an excellent piece of work and that this is going to be a good working classification. I think that the committee has made their work unduly difficult by ignoring Dr. Baetjer's differentiation of benign and malignant tumors.

There were fifty tumors presented to this committee by members of the American Roentgen Ray Society. Each man presented the tumor, a micro-photograph of the section, and x -ray lantern slide, and the history and outcome of the case.

Dr. Ewing's conclusion at the time was that there was nothing quite so conclusive as the history and the x -ray plate. He remarked that he would rather base his opinion on the history and the x -ray plate than on the microscopic slide.

I think the main thing that has been brought out by this committee, and that Dr. Baetjer brought out several years ago, is that malignant tumors very rarely expand the cortex of the bone. When they do expand the shaft the expansion is always spherical.

Benign tumors almost invariably expand the shaft. The expansion in benign tumors is always fusiform.

DR. McCARTNEY (closing): We have been teaching the students right along that the gross appearance of the tumor itself is of far greater importance than the microscopic slide, the latter being of little interest or importance clinically. We give them, so far as possible, the gross specimens with the clinical data and the section.

When these groups of tumors come to us we take the microscopic slide and try to make up our minds as to what the tumor is, then go back and look up the clinical data.

Dr. Scham has asked which of these tumors occur particularly in childhood. Under the chondroma multiple osteochondromata (cartilagenous exostoses)—a sub-group not listed here—involving multiple bones, the growth of the cartilagenous exostoses stopping with the cessation of normal bone growth, is probably the most common.

Of the osteogenic sarcoma of the long bones—you may get any of these; the age is an unimportant factor. It may be any of them.

DR. ARCHIE BEARD presented two cases for Dr. Kenneth Buckley:

1. This case is presented in the hope that the discussion may be aroused concerning kidney function. This patient is a woman of about thirty-five years

who was admitted to the Asbury Hospital because of a prolonged history of indisposition and of urinary symptoms. On admission she was found to have some frequency of urination, to have lost somewhat in weight, and to be slightly anemic. Her hemoglobin was 84, her red cells approximately 4,000,000, and her white cells approximately 5,000. Her urea nitrogen was 12.87; her creatinin, 2.77. The x -rays of her chest and gastro-intestinal tract, including a barium enema, were all of them negative. X -rays of her urinary tract were also negative. This patient was cystoscoped on two occasions by Dr. Owre, who found on each occasion a considerable degree of cystitis without ulcer formation and a pouting, inflamed right-ureter mouth. The left-ureter mouth appeared normal. Catheterization of the ureters disclosed the fact that from the right kidney almost nothing but pus was being excreted. From the left kidney a few pus cells only were obtained. Microscopic examination of ureteral specimens showed many tubercle bacilli from the right kidney and a few from the left; in other words this patient presented a case of bilateral kidney tuberculosis. It was Dr. Owre's opinion, after an intravenous indigo-carmin test, that the left kidney was functioning in the proportion of two to one.

About two weeks ago we did a nephrectomy on the right side of this patient in the hope that with the removal of the major focus the patient would be able to care for the minor focus. On cutting down on this kidney it appeared quite normal in the gross. However, in view of the definite urinary findings a nephrectomy was done.

We present here the gross specimen removed. You will note that it shows with the exception of a caseating ulcer in the lower pole, measuring about 1 centimeter in diameter, what is apparently a normal kidney. The cortex is well preserved, and the markings, particularly when the specimen was fresh, were well defined. The question arises as to why a kidney with so small a lesion and presenting such a large area of normal tissue should function to so slight a degree.

DISCUSSION

DR. WEBB: I had a case nearly a year ago, and the patient had had symptoms for two years. Two or three months before I saw her she had had a cystoscopic, both ureters catheterized. The doctors who were examining her thought she had tuberculosis. I saw her and cystoscoped her. Her bladder was normal except right around the left ureter. All her clinical symptoms were left sided. There were edema and inflammation around this ureter. We found no tubercle bacilli in the urine, but we did get some from the bladder. The two sides put out practically the same amount,—19 per cent on the right and 17 per cent on the left.

We found the lesions were entirely in the upper pole of the kidney and not in the pelvis. We took the kidney out. (Pyelogram shown.) Certainly the damaged kidney tissue would not seem to be more than one-half.

DR. McCARTNEY: Ordinarily, before you have extension into the second kidney the first kidney is involved more than this one in Dr. Beard's case. One interesting thing about these is that you never find at autopsy lesions that you can call "old healed tuberculosis of the kidney"; not any such healed

lesions as this is. You find them in the lungs, but not in the kidneys.

DR. TAYLOR: In the first kidney to be involved, where are the lesions found? Are they in the parenchyma? I was of the opinion that tuberculosis was usually hematogenous in origin.

DR. McCARTNEY: They may be and probably are hematogenous in origin, but in the second kidney it is probably ascending. If primary in one kidney it is apparently hematogenous.

DR. MAXEINER: Walker, of England, is doing experimental work with infections of the kidney. He takes the stand that these frequently are not hematogenous but are secondary to tuberculosis of the genital tract, the infection ascending to the kidney. The same thing applies in cases of the epididymis. In rabbits inoculated with tubercle bacilli he finds that the lymphatics surrounding the ureter and epididymis are involved. Microscopic sections show the mucosa of the prostatic end to be involved and the mid-portion not involved. The glandular portion near the orchis again has involvement of the mucosa. He believes that the spread is through the lymphatics and not by continuity of surface, or that the spread is against the current by the lymphatics.

DR. McCARTNEY: How does he get primary tuberculosis of the epididymis?

DR. MAXEINER: He believes there are primary infections which are blood-borne.

DR. McCARTNEY: We are inclined to believe that primary infection of the epididymis is primary hematogenous in origin.

DR. MAXEINER: A large number of men now feel that the primary infection is not in the epididymis but in the prostate and seminal vesicles. Others, on recorded clinical examinations of the prostate in cases of suspected tuberculosis of the epididymis, found that the seminal vesicle is involved, and they can demonstrate it clinically in a large proportion of cases.

DR. KREMER: Dr. Beard states that these symptoms had gone on for several years. I think that at the recent Urological Society meeting this question was brought up, and it seemed to be the consensus of opinion that tuberculosis of the kidney gone on for a number of years should be operated on. One surgeon mentioned a case that he had operated on hurriedly. He found many tubercle bacilli in the catheterized specimen of urine. He cut down on that kidney and found it, to all appearance, normal. He split the kidney from pole to pole, and it looked normal, so he put it back and closed the kidney up. That case he watched for a year or so, and there were absolutely no symptoms.

DR. ALLISON: I think he stated that after the operation a pulmonary tuberculosis was discovered. There have been a number of cases reported where the patient had pulmonary tuberculosis with excretion of tubercle bacilli in the urine. Operation and later autopsy showed the kidneys to be entirely free of tuberculosis.

2. The following case is presented for the diagnosis of the terminal condition, consequently the early history will be given only in brief:

This patient is a woman of approximately sixty-

five years of age. She developed in July, 1924, without pain, a progressive jaundice. She was admitted to the Northwestern Hospital on August 21st for observation and was operated on on August 28th with a diagnosis of carcinoma of the pancreas. Previous to operation practically all laboratory examinations on this patient were negative. X-rays of her gastro-intestinal tract, kidney, and gall-bladder region were all of them negative. Her blood count, except for a very mild degree of secondary anemia, showed nothing. Her urine examinations presented a constant faint trace of albumin with a very occasional granular cast. Examination of her stools showed no blood. Her right upper quadrant presented an indefinite mass which was never tender. This mass, then, and her jaundice were the only subjective and objective symptoms presented.

This patient was operated on on August 28, 1924, when a much-distended thin-walled gall-bladder was found without stones. The head of the pancreas was large, hard, and moderately nodular. The clinical diagnosis of carcinoma of the pancreas was apparently verified, and a permanent drainage of the gall-bladder was done.

This patient's convalescence for a period of six days after operation was normal in every way, with no rise of temperature or pulse and a normal urinary output. On the sixth night, however, she had a chill, her temperature rose to 106°, her respirations rose proportionately, and her pulse became rapid and feeble. No focal symptoms of either a pulmonary or cerebral embolus presented themselves. Repeated physical examination of the patient was negative, nor was there any cough. Her mentality was clear. There were no anesthetics or paralyses. Her temperature quickly dropped to normal, only to again rise within the next twenty-four hours to 103°. Following the first rise in temperature this woman developed an anuria which was almost complete. From the time of her first chill until her death, thirty-six hours later, she excreted but three drams of urine.

The interest in this case seems to lie in the unusually high temperature, unexplained, except for the possibility of a cerebral embolus. This case is presented to the Society for discussion of the localization of this embolus. Personally we are unable to explain this temperature unless the embolus lodged near the floor of the fourth ventricle. We regret exceedingly that even though the husband and son of this patient were doctors, it was impossible to obtain an autopsy.

DR. McCARTNEY: It might have been a post-operative fat embolism.

DR. WALTER CAMP presented a case of edema of the optic nerve and retina following trauma to eyeball and orbit.

The case is that of a woman, aged 49, who was seen September 10th, complaining of total loss of vision in the right eye following an injury to the eyeball and orbit. Two weeks ago, while chopping kindling wood, a stick of wood struck the right eyeball and the inner and outer margins of the right orbit. After the edema and hemorrhage in the soft tissue had subsided she found the right eye to be totally blind. She was nauseated at the time of the accident and now has some pain in the small of her back.

Examination showed the left eye to be practically

normal. The pupil of the right eye was regular and more dilated than the left. Cornea, clear; sclera shows some absorbing subconjunctival hemorrhages. The upper eyelid droops slightly, but no enophthalmus or exophthalmus could be detected. The pupil of the right eye does not react to direct stimulation of light, but does to consensual stimulation. Pupils react to accommodation, but the right eye does not converge. Extraocular movements are normal. Media, clear. The optic papilla and retina are edematous, the greatest swelling measuring about three diopters. The retinal veins are slightly dilated; arteries are about normal. The right optic papilla is somewhat more pale than the left. No rupture or hemorrhages are found in the retina or choroid. Blood examination, including Wassermann, is normal.

Stereoscopic radiograms of the head show a small chip fracture of the outer margin of the right orbit. No pathology is found in apex of orbit.

In three or four days the retinal edema had markedly improved and showed a pale disc.

DISCUSSION

DR. PHELPS: Injuries to the anterior portion of the eye do not usually produce optic neuritis, but such a condition may occur. The only theory that I have to suggest explaining it is one concerning lymphatic drainage. In case of injury to the eye which interferes with anterior lymphatic drainage, there may be an increase in the posterior drainage along the hyaloid canal. In such a condition I can imagine enough pressure on the optic nerve from the dilated lymphatics to produce a compression which would cause an edema of the disc. In such a case you would expect the prognosis to be fairly good, for when the injury to the anterior portion of the eye is healed proper drainage should be restored and the vision should return.

DR. ERLING HANSEN: I saw this case with Dr. Camp one day and have conjectured what might have produced the edema. She had originally a great deal of reaction externally in the lids and conjunctivæ, before she came in. How much of the same sort of thing she had posteriorly it is hard to tell.

There has been a great deal of controversy about the classification of swellings in the optic disc, the differentiation between an optic neuritis, a true in-

flammatory condition in the nerve itself, and so-called choked disc, purely mechanical, from pressure. A man like Uhtoff makes this differentiation: that when the disc is not raised more than two diopters it is a neuritis, and more than that it is choked disc. It is certainly possible, and we must have at some time in the early stages, a papilledema which shows less than two disc diopters. In cases of choked disc, that is, in the pressure papilledema cases, we are told there is good vision and in optic neuritis a rapid loss of vision. If that held true, this case would be optic neuritis and not one of papilledema. Everything that could be done to rule out optic neuritis was done, and there was nothing anywhere to suggest optic neuritis. However, it seemed to be due to pressure from an increase of lymph flowing back into those channels or pressure from behind blocking the flow of lymph. I think Dr. Phelps's explanation may clear that up.

DR. MAXEINER: showed several "urethrograms."

I have asked several men if they had ever seen an urethrogram, and they said they had not, and I found nothing in a hasty search of the literature about it. I had a patient who had a prostatectomy six years ago and has had a urethritis ever since. I finally decided to determine if possible whether anything could be gained by injecting the urethra. I injected it under pressure and ballooned the urethra and then took a radiogram. I have urethrograms of four different patients.

1. This boy has an absolutely normal urethra following removal of the kidney and tuberculosis of the bladder.

2. This patient has an absolutely normal bladder filled with a 20 per cent solution of sodium bromide, and the urethra is filled. I know that it is a normal urethra.

3. This patient, with perineal prostatectomy seven years ago, had five perineal fistulæ but a markedly strictured urethra.

4. This patient with probably two strictures at the upper end of the urethra and, besides that, some marked canals which lead off from the urethra. I would like to know whether they are seminal vesicles or whether they are passages which account for his continued urethral discharge.

DR. JAMES M. HAYES then read his inaugural thesis entitled "Treatment of Varicose Ulcers."

(See Page 12)

—J. C. MICHAEL, M.D., Secretary.

PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of November 12, 1924

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, November 12, 1924, at 8 p. m. The meeting was called to order by Dr. Hamilton, in the absence of the president and vice-president. There were twenty-nine members and two visitors present.

The minutes of the October meeting were read and approved.

The following resolutions were read by Dr. Arnold Schwyzer in memory of Dr. Archibald MacLaren:

IN MEMORIAM

DR. ARCHIBALD MACLAREN

The members of this Academy who attended our State Medical Society meeting in St. Cloud are aware of the deep gloom that was cast over the convention because its President, Dr. Archibald MacLaren, was not able to preside on account of serious illness. The whole profession of the state, as well as the public, was shocked a few days later to hear of his death.

Measured by the highest standards known to our profession, Dr. Archibald MacLaren always occupied a foremost place in medical ethics and progress. He will continue to be so regarded by those who follow him.

Few members of our profession ever obtained such unbounded confidence of their comrades as that enjoyed by Dr. MacLaren. He was wise in counsel and competent and able in the application of surgical and medical measures.

His contributions to surgical literature were always of the highest merit, extremely practical, and richly instructive, in which he never hesitated to point out his own mistakes.

He was a successful and stimulating teacher, as hundreds of the graduates of the Medical Department of our University of Minnesota and scores of internes of our hospitals will gladly testify.

Dr. MacLaren took the keenest interest, and kept himself richly informed, in the progress of all science, especially the sciences collateral to those of medicine and surgery, thus making him the broad and liberal-minded man that we knew.

In church, state, and medical affairs he was universally trusted on account of his sincerity of purpose and absolute integrity. He enjoyed the confidence of the public as much as that of his own profession.

He demonstrated his loyalty to his country by offering his services in times of war and performing the duties of Surgeon-General of the state.

He was not only one of the originators of this Academy, but one of its staunchest and most faithful members.

The Minnesota Academy of Medicine takes this opportunity to express its keen appreciation of what Dr. Archibald MacLaren has done for it and for the medical societies throughout the nation, and to express their deepest sympathy to his family for the loss which they have sustained.

Signed: ARNOLD SCHWYZER, M.D.,
H. B. SWEETSER, M.D.,
JOHN F. FULTON, M.D.,
Committee.

These resolutions were accepted by a rising vote, and a motion was carried that they be spread on the minutes and a copy be sent to the medical journals and to the family.

DR. S. E. SWEITZER showed several lantern slides of smallpox patients at the General Hospital, after which there was a short discussion of the present smallpox situation.

DR. WM. R. MURRAY then read his inaugural thesis, entitled "Visual Field Changes in Normal Pregnancy." Numerous lantern slides were shown.

DISCUSSION

DR. BURCH: I have enjoyed Dr. Murray's paper very much, and I think he has done a fine piece of research work. I once started to get some material for this same study, but so many patients in late pregnancy had normal vision that they did not care to come in to have fields taken, and I got little co-operation.

One of the noteworthy facts revealed in this series is, that, with the quite uniform contraction of the fields as shown, occurring in approximately nine-tenths of the patients during the last weeks of pregnancy with quite uniform concentric contraction,

evidencing considerable pressure, there should be such infrequent evidence of impairment of central vision. In these enlargements of the pituitary glands the effect of hypertrophy upon the vision is entirely due to mechanical pressure on the overlying chiasm. Therefore, it seems remarkable in this series and in the series published by Dr. Finley and by Dr. Carvill that there should be so very few reports of involvement of the papillomacular bundle of the optic nerves. This seems to escape involvement in most cases. Dr. Murray, I think, showed only one in which there was a definite scotoma. One would expect, with marked contraction, that this very sensitive portion of the nerve supplying central vision would become involved.

Another outstanding feature is that the primiparæ, in whom the gland is not nearly so enlarged as in the multiparæ, show quite as markedly contracted fields as do the multiparæ, notwithstanding the statistical evidence that there is practically twice as much enlargement of the gland in multiparæ as in primiparæ.

Whether all cases of hyperplasia of the pituitary gland remain physiological, perhaps, is not proven. I have seen two reports of cases with permanent hypophysis disease following pregnancy, and this leads to the question whether physiological hyperplasia may not become pathological at times, more frequently than we know.

This thesis is a real contribution to the subject of hypophysis disease or, at least, the physiological changes which occur during pregnancy and their effects upon vision.

DR. FULTON: Dr. Murray has demonstrated by his paper to-night that he is an acquisition which this Academy should have obtained many years ago. He has brought out some new points in his paper. He has brought out the fact that there is concentric contraction, as well as bitemporal. He has also demonstrated that recovery may be slow after parturition. I have seen one report published in which hypertrophy of the gland remained permanent. Dr. Finley, of Cuba, read a paper on this subject before the International Ophthalmologists' Congress in Washington. He said that when he started on this investigation he thought it was something new, but he found on looking up the literature that other investigators had worked it up with similar findings. It came out in the discussion that Dr. Lancaster and Dr. Maud Carvill, of Boston, had been working along this line with about the same results.

Dr. Murray's paper is a highly meritorious one.

DR. A. SCHWYZER: It may seem queer that one not an oculist should discuss a paper of this kind, but it involves physiology, points between physiology and pathology, and it involves obstetrics. What impressed us all was the enormous contraction of the visual fields. This contraction came on in the later months of pregnancy and lasted at times from four to six months after the delivery. In multiparæ you seem to have more swelling of the pituitary gland; still most of the worst cases of contraction of the visual field were in primiparæ.

If you consider the increase of the gland—about 0.3 of a gram, representing a volume of about four drops of water—it is difficult to understand how this little increase in the size of the hypophysis should press on the chiasma. I noticed that the reduction

of the field was at times much more from above and also from below. In fact the constriction was in the main circular. There may be an explanation for this other than pressure on the chiasma.

We know from the physiology of pregnancy that there is a great activity in the cerebral membranes, especially in the dura. We know that there occurs such a succulence and hyperemia in the dura from congestion that we have at times an apposition of bone on the inside of the skull, especially anteriorly. This occurs in the later months of pregnancy and especially in younger persons, that is primiparæ. If the dura can become so much congested that it causes an apposition of bone, forming distinct plaques, could it not be that here we have the cause of the circular reduction of the optic field, by a pressure or another influence on the optic nerve at the optic foramen? It would explain why it takes several months for the recovery to normal, while the pituitary gland returns to normal very promptly after the child is born. Could it not be that the trouble is at the foramen opticum, where the leptomeninges and the dura meet and envelop the nerve? This appears, *prima facie*, more probable than that the slight increase of the strongly encapsulated pituitary should damage the chiasma, which lies very free above the fibrous lodge of the pituitary and may well be lifted a trifle without any consequence. In tumors of the pituitary with changes in the bony structures of the sella turcica we have, of course, an entirely different mechanism, which consists of a considerable expansion of the bony structures and a vastly greater increase of the size of the pituitary.

DR. LITZENBERG: I thought, when the theory of pressure from the pituitary gland was advanced as the cause of this condition, that we might have something akin to the enlargements of the other endocrine glands during pregnancy. The thyroid always enlarges in pregnancy and never quite goes back to normal. In each succeeding pregnancy this enlargement recurs and does not go back to its size before pregnancy. The suprarenals are stimulated, and we have the corpus luteum of pregnancy in the ovary; but the one that we can study the best is the thyroid. There certainly is definite evidence that enlargement of the hypophysis takes place in this disturbance of pregnancy.

According to the theory of pressure by the gland, Dr. Murray's conclusions should have been different, but he had to make his conclusions according to his findings. If pressure were the only factor, then the field ought to remain smaller by virtue of this organ never going back to normal.

We shall have to look some other place for an explanation of these visual field changes. I do not know, but perhaps Dr. Schwyzer's explanation may

be at least a hint as to where to look for the explanation. It does not seem to me that the mechanical enlargement of the gland is the only explanation. There may be some physiological change in the pituitary which offers an explanation.

DR. BURCH: I would like to ask Dr. Litzenberg if he does not sometimes find acromegalic symptoms in some cases of pregnancy.

DR. LITZENBERG: It is rather rare, but they do occur.

DR. FULTON: I would like to ask Dr. Murray what percentage of cases have impaired visual fields.

DR. MURRAY (in closing): Every one that I have examined. I do not know that I have very much more to say in conclusion. Dr. Burch mentioned that the papillomacular bundle does not seem to be affected, and yet it is supposed to be the most sensitive of all the fibers of the optic nerve. Perhaps the anatomical location of the papillomacular bundle has something to do with the explanation. It is in the central portion of the optic nerve; it is well within the substance of the optic nerve, and that may protect it to a certain extent.

In regard to Dr. Schwyzer's theory that this may be due to pressure in the optic foramen: I do not believe that it is definitely established that these changes are due to pressure on the optic nerves. If pressure occurs at the optic foramen, then we would expect to find a very marked difference in the two fields. If you will recall the fields shown here, you will remember that we get pretty nearly symmetrical contraction in both eyes. The pressure is apparently on the fibers of each optic nerve and we find a change more or less symmetrical in each eye.

In regard to the return of the fields to normal following parturition: The cases which have been published would give one the idea that all of these cases return to normal within eight or ten weeks. These cases shown tonight do not show it. Some of these cases, as late as four months, show very marked contraction.

These cases show that the fields are more contracted in primiparæ than in multiparæ, whereas you would expect just the reverse. It may be that in the primiparæ, where that nerve has not yet been subjected to pressure by the pituitary gland, it is more sensitive; the fields of the primiparæ thus showing more contraction.

DR. EMIL GEIST (Minneapolis) read a paper entitled "The Accessory Scaphoid Bone." Lantern slides were shown.

The meeting adjourned

—JOHN E. HYNES, M.D.
Secretary.

THE
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MEDICAL LEGISLATIVE PROBLEMS

The Minnesota legislature convenes on January 5, and no one knows what it will do. It is composed of a rather mixed lot of men who have some incoherent ideas, some have no ideas at all, and a few are men of discernment and perspective and have business training. But even among those who are looked upon as leaders they have little or no conception of what should be done for medicine. Some of them think they know enough about medicine to prevent it from advancing; that there are medical practitioners enough, and those who are not medical practitioners belong to the cults, and consequently the health of the people is conserved!

The introduction of a new Medical Practice Act would be a very unwise thing in our opinion, and so far we have heard nothing to indicate that the Legislative Committee of the State Association are going to ask for any radical legislative acts. Whatever is done in the matter of medicine should be for health protection, and that should be not only very emphatic but should be very clearly defined. The recent epidemic of smallpox all over this country has been felt in Minnesota as it has been felt in Pennsylvania, and doubtless there are hundreds of people who have died of smallpox, a preventable disease. The newspapers have been particularly liberal with their space in order to convince the unvaccinated citizen that it is a duty, not only to himself but to others, to be vaccinated. Even

among the non-believers there are many coming for vaccination. Large numbers of Christian Scientists are perfectly willing to be vaccinated, and there is no reason why they should not be, as it does not interfere with their belief, and the surest way is to co-operate for the benefit of our fellow-man. The indication is, therefore, that many people hold vaccination to be a safe preventive method which is accompanied by but slight and temporary disability if properly done. When one realizes how many deaths have been prevented by timely vaccination it should make everyone ready to endure a slight inconvenience. There are many persons about town who have smallpox and have been distributing it among others, and this is done because the victim himself is unaware of his own danger or the danger to others. An earnest appeal has been made, on the basis of good citizenship, that people be vaccinated. This is endorsed not only by the Board of Public Welfare of Minneapolis, but by practically all the physicians over the state and country.

Consequently if there is anything to be done by the legislative medical bodies, the compulsory vaccination law should be re-established. Notwithstanding the seeming rivalry between the Twin Cities as to which had the greater number of cases the publicity of this news has done no harm,—rather good than otherwise,—because it has set the people thinking and rather awakened some of them to possible danger on their own account, and the ultimate danger to others. Both cities are looked upon as safe cities because of their large numbers of vaccinated people, and it is the man who is ignorant, the man who is opinionated, and the man who does not believe in vaccination who is the greatest danger element we have to contend with.

The number of deaths from smallpox has not been alarmingly large, but they have come in unexpected quarters, and many of them have come to people who did not even know they were in any way exposed. There seems to have been a larger number of deaths from hemorrhagic smallpox than usual, but, considering there have been more than 2,000 cases in the state of Minnesota, the number of deaths is not unusual in proportion.

Another legislative medical problem that may come up will be along the line of preventing the extension of medical privileges to uneducated people. That is one thing that should be very carefully considered, and if an effort is made by cults to enlarge their sphere of influence they should be very promptly suppressed. This will

probably be one of the difficult problems of the Legislative Committee of the Minnesota State Medical Association.

THE PROSPECTS OF THE MEDICAL SCHOOL OF THE UNIVERSITY OF MINNESOTA

The State has been offered an opportunity to redeem itself from criticism which has lately been in circulation, particularly directed against the Medical Department of the University. The prospect in view indicates that a brighter and better chain of years may be allotted to the medical department.

The General Education Board, a Rockefeller institution, has offered to donate to the University \$1,250,000 with the provision that the State or the University raise \$2,350,000, making a total of \$3,600,000. This additional sum to be raised by the University has been supplemented by a tentative offer from William Henry Eustis, who has already donated \$1,000,000 to the University for the establishment of a hospital for crippled children, and within the past day or two Mr. Eustis has modified his offer so that out of the amount that he is to donate \$500,000 is to apply upon the amount that the University must provide, and he suggests that other men may be willing to help out in this donation, otherwise the money will have to be raised by the legislature, and from what most of us hear or know of legislative generosity it is very unstable. More money has been raised the last few years by private donation.

The Mayo Foundation of more than \$2,000,000 and the donation for the Todd Memorial Hospital have been privately subscribed. Mr. George C. Christian has given \$250,000 for a cancer hospital, and doubtless there are other bequests which we are not able to name at this time.

With this amount of money the University ought to be put on a very firm basis. Incidentally, and after a great deal of conference by the University and the General Hospital, there has been an effort made to consolidate the two in that the new General Hospital should be located near the University Campus, thereby offering additional clinical facilities for medical students and medical men.

We think that Mr. Eustis had in mind this very proposition when he designated that a change should be made in the distribution of his gift. The General Hospital in Minneapolis is under the supervision of the Minneapolis Public Welfare Board. They have the right to say what

shall be done with the General Hospital, and there is some question as to whether the Welfare Board members will agree to the transplantation of the General Hospital from its present location to a location with larger ground space near the University Campus, and whether it would be an advisable thing for the public to have its General Hospital at a greater distance than at present. That is a matter of no great concern, however. People can just as well be taken or go one mile farther than at the present time without undue injury. The University Regents have all these matters under consideration and they have appointed a special committee of medical men to raise money for the construction of buildings. They want to raise at the present time about \$600,000 for the construction of a nurses' home, and this committee has already been appointed by the medical faculty. The plan is endorsed by Dr. W. J. Mayo of the Board of Regents, and a contemplated program has been advanced. It is proposed to construct a building unit known as the Women's Unit at a cost of \$450,000; a Psychopathic Unit, \$250,000, a very much needed building in connection with the hospital; the completion of the Institution of Anatomy Building, \$450,000; an addition to Millard Hall, \$250,000; and the erection of the Pediatric Unit, \$250,000.

This seems like a great amount of money, and yet other cities have raised much larger sums. Iowa is far ahead of us in the construction of its medical buildings and its hospital. Toronto has a \$5,000,000 general hospital. Other buildings in other cities are in like proportion. This seemingly large amount of money may be distributed over a number of years as fast as the various units are completed.

The plan which has been under consideration will change the status of things very materially on the University Campus; probably there will be a shifting of buildings and equipment, and a transfer of activities from one building to another which is more adaptable for its purpose.

Up to the end of 1922 Mr. Rockefeller had contributed \$129,000,000 to the General Educational Board. The Board makes its contributions to colleges and universities upon four general principles: first, that its gifts shall be conditional upon additional sums to be given by others; second, centers of wealth and population are preferred as the pivots of a general system of higher education; third, systematic and helpful co-operation has been established with institutions set up by religious denomination; fourth, the Board's gifts are concentrated in the form of endowment. Gifts once made to an institution are alien-

ated from any control whatsoever by the Board.

If these donations can be supplemented with additional donations it will greatly strengthen the University's status, and it is to be hoped it will greatly aid the University Medical Department. It has been known for some time that there is more or less wobbling in the faculty, more or less friction between different factions of the faculty, and dissatisfaction regarding some of the faculty members. A second housecleaning might not be out of order.

THE WAGES OF CRIME

The number of unemployed men at this time of year is unusually large, and doubtless many of them feel a very decided pinch in their home life or in their general activities, and perhaps much of the crime which has been so freely commented on is a wave of need expressed by criminal acts, but this does not justify the man from seeking a legitimate charitable aid or appeal by indulging in dangerous crimes which not infrequently result in crippling, disability or murder.

Recently fifteen young people were arrested in this city for criminal acts; two were women. They had indulged in all sorts of robberies, holdups, and other criminal acts and are now about to come before the grand jury for investigation. The unfortunate part of the investigation of these people is that it is a slow process, frequently delayed and frequently interrupted by the miscarrying of justice. All these people should be tried immediately after arrest. That is the safest way, but our courts are overcrowded. Evidently many attorneys are not doing very much, and it is very easy to secure a delay in justice. Some are able to furnish bail and promptly leave the country forfeiting the securities given by their friends. Some of these people, perhaps a large number of them, are more or less deficient mentally—have a moral obliquity. They do not seem to be able to resist temptation, and of those few people a small number should be sent to hospitals for detention, observation, and study, but that means another delay and the final discouragement of an effort to bring these people to justice.

From the financial side the average criminal earns about \$1.00 a year. At times his loot is good and profitable, his ventures become more indiscreet and he loses out. Once in a while an archcriminal is able to get away with a large amount of money, but inevitably he sags down, and is caught and punished after long delay, and in the end has not made or saved anything. The

State then is obliged to step in and take care of him. He spends from a few weeks to months or years in a properly ordered penitentiary where he is fed, clothed, entertained, amused, and has more of the comforts of home than he is accustomed to, and he prefers to stay there rather than do honest, hard work. This is no punishment to the average criminally minded man. He manages to exact a considerable amount of enjoyment out of it; he learns nothing, gains nothing, and goes on the way that is set for him by his progenitors. He is a marked man. He has an inherent instability or weakness or intent, and no amount of temporary punishment or deprivation will make a man of him. He sells himself for a song and sings the song himself, and it is the only song he knows.

NORTH DAKOTA ADMITTED TO THE FEDERAL HEALTH REGISTRATION AREA

We congratulate the State of North Dakota, its State Medical Association, and its efficient State Health Officer, Dr. A. A. Whittemore, on the admission of the State into the Federal Health Registration Area, which is the first object sought by the first full-time health officer appointed by North Dakota.

To enunciate in detail, especially to physicians, the value of this attainment would be done at the risk of leaving out some of the most important functions of a State, for the most important things done by a bureau of vital statistics touch the life of practically every citizen, from birth to death, "both inclusive." To give a correct enumeration, therefore, would be like solving the most difficult cross-word puzzle.

BOOK NOTICES

THE NATIONAL HEALTH SERIES. Twenty health books edited by the National Health Council.

In order to make available to the general public at moderate prices authoritative books on all phases of human health, the National Health Council has arranged with the Funk & Wagnalls Company for the publication of the National Health Series. It contains twenty books of about 18,000 words each, written by the leading health authorities of the country. These books bound in flexible fabikoid, sell for 30 cents net, per copy or \$6.00 for the series of twenty. The entire set is now ready.

"Your Mind and You: Mental Health," By George K. Pratt, M. D., Medical Director, Massachusetts Society for Mental Hygiene, Boston, is a sample of the series. In it the author has offered a vast amount

of information on the subject of mental hygiene, which is included in the title "Your Mind and You," or, as he says, a better title would be, "Your Mind is You." He emphasizes the fact that more and more we are coming to consider placing the insane in a hospital for the mentally sick, just as we have general hospitals for the physically sick.

Mental health is as important in a community as the physical welfare, but generally a disregarded fact. He tries to make clear the diagnosis of these mental disorders and the importance of the use of these principles in mental health training during childhood.

This book would be well to recommend to the laity, as well as to the profession, and especially to parents and those dealing with children. It sells for the moderate price of thirty cents and should have a broad distribution.

—EARL A. LOOMIS, M.D.

DIFFERENTIAL DIAGNOSIS. Presented through an Analysis of 317 cases. By Richard C. Cabot, M.D., Ethics at Harvard University, Volume 2, Third Edition. Revised. Octavo of 709 pages, 254 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$9.00 net.

The cases analyzed in this volume are the same as in previous editions.

The book is divided into nineteen chapters, each dealing with a different symptom or symptom-complex. Each chapter is preceded by introductory discussions which are of great value. In this edition the introductory discussions have been revised and brought up to date. Of special importance are the discussions in regard to abdominal tumors and dyspepsia.

Among the nineteen symptoms analyzed are dyspepsia, diarrhea, vertigo, hematemesis, melena, hemoptysis, edema, fainting, pallor, delirium, ascites and tremor.

In each chapter there is present first a general discussion of the symptom under consideration. This is followed by complete case reports—including autopsy findings, etc.—illustrating the various diseases which may produce this symptom.

The book is of great value in teaching differential diagnosis to student and practitioner.

—ARTHUR A. WOHLRABE, M.D.

NEWS ITEMS

The Union Hospital, of New Ulm, has established a nurses' training school.

The staff of the Minneapolis General Hospital has passed a resolution favoring compulsory vaccination by a State law.

Extensive improvements have been made in the commodious building of the St. James Hospital at St. James, Minn.

Dr. Mabel Ulrich, of Minneapolis, has withdrawn under pressure, her resignation from City Board of Public Welfare.

Notice of the handsome gifts recently made to the Medical School of the University of Minnesota will be found in our editorial columns.

Dr. P. A. Smith, of Faribault, has been appointed by Governor Preus a member of the State Sanatorium Advisory Commission of Minnesota.

Dr. Richard Plackett, a pioneer South Dakota physician, died at Redfield, S. D., in November at the age of 81. He was a graduate of Rush, class of '72.

Dr. W. T. Pearson, of Ericsburg, has purchased the practice of Dr. D. J. Jacobson at Russell. Dr. Jacobson will probably locate on the Pacific Coast.

Dr. C. Eugene Riggs, of St. Paul, gave a public lecture in Faribault last month under the auspices of the Rice County Medical Society. His subject was "Personality in the Making."

The Twin Cities have concluded to fight smallpox together, and have joined the State Board of Health in a determined effort to stop the ravages of this loathsome and wholly preventable disease.

Dr. Per J. Oyen, of Fessenden, N. D., died last month at the age of 54. Dr. Oyen was graduated from the University of Christiania, Norway, and from the Medicó Chirurgical College of Philadelphia in the class of '11.

Dr. Aloys Mahowald, formerly of Prior Lake and recently of Breckenridge, has purchased the practice of Dr. Tolbert Watson, of Albany. Dr. Watson is going to Sunnyvale, Calif., to enter into practice with Dr. Glycer.

Dr. W. P. Larson, bacteriologist of the University of Minnesota, has been granted patents covering the apparatus and process of making vaccines, and he has announced his intention to donate the same to the public.

The citizens of Russell gave Dr. D. J. Jacobson a handsome farewell banquet upon his retirement from practice in that village last month, and were equally cordial in receiving Dr. Jacobson's successor, Dr. W. T. Pearson.

North Dakota has been admitted to the Federal Registration Bureau, which is a great triumph for Dr. A. A. Whittemore, State Health Officer. Editorial comment on this important event is made on another page of this issue.

An Austin (Minn.) Osteopath is attempting to compel the Board of Health of that city to recognize an Osteopath's certificate of health

which the Board requires for admission to the swimming pool in the high school of the city.

Dr. H. E. Michelson, of Minneapolis, delivered a stereoptican lecture at the St. Raphael's Hospital Staff meeting at St. Cloud at their December meeting. The subject was "Practical Points in the Diagnosis and Therapy of the Commoner Skin Diseases."

At the annual meeting of the Freeborn County Medical Society, held last month at Albert Lea, the following officers were elected: President, Dr. John P. von Berg; vice-president, Dr. W. L. Palmer; treasurer, Dr. J. R. Nannestad; secretary, Dr. J. W. Gamble.

The handsome new Nurses' Home of St. Luke's Hospital, St. Paul, erected at a cost of \$200,000, was opened on December 16 and is now occupied by the nurses and members of the nurses' training school of the Hospital. It is home-like in all its appointments.

At the annual meeting of the Silver Bow (Montana) Medical Society held at Butte last month, officers were elected as follows: President, Dr. H. F. Carman; vice-president, Dr. V. O. Ungherini; secretary, Dr. Alfred Karsted; treasurer, Dr. Harold Schwartz, all of Butte.

At the annual meeting of the Steele County (Minn.) Medical Society, held last month in Owatonna, Dr. Arthur Sweeney, of St. Paul, gave an address; and the following officers were elected: President, Dr. A. B. Stewart; vice-president, Dr. T. C. Quigley; secretary-treasurer, Dr. E. W. Senn, all of Owatonna.

Examinations for licensing physicians will be held this month in the following states: Minnesota, Jan. 6-8, Dr. Thos. McDavitt, St. Paul, Secretary of the Board; North Dakota, Jan. 6, Dr. G. M. Williamson, Grand Forks, Secretary of the Board; South Dakota, Jan. 20, Dr. H. R. Kenaston, Bonesteel, Secretary of the Board.

The January meeting of the medical staffs of Lymanhurst School and Parkview Hospital of Minneapolis will be held on the evening of the 27th instant. The subject of the evening is a symposium on tuberculosis and allied conditions of the nervous system. All physicians, in and outside of the city, are invited to attend the meeting.

At the annual meeting of the Central Minnesota Medical Association, held at Willmar last month, papers were presented by Dr. J. C. Jacobs and Dr. George H. Freeman, of Willmar, and officers were elected as follows for 1925:

President, Dr. R. J. Hodapp, Willmar; vice-president, Dr. G. H. Freeman, Willmar; secretary-treasurer, Dr. C. L. Scofield, Benson.

Dr. Charles C. Pratt, of Mankato, died last month at the age of 48. Dr. Pratt graduated from the Medical School of the University of Minnesota with the class of '06. He had charge of the branch Laboratory of the State Board of Health located at Mankato for several years, and later became the pathologist of the Mankato Clinic, which position he held at the time of his death.

At the annual meeting of the Sioux Falls (S. D.) District Medical Society the following officers were elected: President, P. R. Billingsley; vice-president, Dr. W. P. Roberts; secretary-treasurer, Dr. D. A. Gregory; delegate, Dr. Joseph Schwartz; censor, Dr. E. E. Gage. The speaker of the evening was Dr. H. C. Bumpus, of the Mayo Clinic, who spoke on "Renal Infections."

At the annual meeting of the Cass County (N. D.) Medical Association, held at Fargo last month, the following officers were elected: President, Dr. J. F. Hanna; vice-president, Dr. Rolfe Tainter; secretary-treasurer, Dr. L. J. Evans, all of Fargo. Papers were presented by Dr. Walter D. Bayard and Dr. Rolfe Tainter. Dr. C. N. Callender gave a report on the late meeting of the Tri-State Association.

The Yankton (S. D.) District Medical Association held its annual meeting at Yankton last month. Dr. S. Marx White, of Minneapolis, presented a paper on "Hypertension and Arteriosclerosis." Officers were elected as follows: President, Dr. J. P. Isaac, Freeman; vice-president, Dr. D. S. Kalaygian, Parker; secretary-treasurer, Dr. J. A. Hohf; delegates,—Dr. Lottie G. Biglee, Yankton, and Dr. G. E. Johnson, Avon.

At the annual meeting of the Red River Valley Medical Society, held at Crookston last month, Dr. E. A. Meyerding of the Minnesota Public Health Association gave the principal address, which was on public health; and officers of 1925 were elected as follows: President, Dr. A. A. Kahala, Crookston; vice-president, Dr. J. H. Roy, Red Lake Falls; secretary-treasurer, Dr. M. O. Oppegaard, Crookston; delegates,—Dr. O. E. Locken, Crookston, and Dr. H. W. Freulich, Thief River Falls.

Dr. H. G. Lampson, health officer of St. Louis County (Duluth) and formerly of the Nopeming State Tuberculosis Sanatorium, has designed, with the aid of an architect, a portable sleeping-

porch for tuberculous patients after they give up sanatorium treatment or sanatorium schooling. It costs about \$175. Of course, no one is seeking to make money out of it. It will be a help in the solution of the problem of the care of the patient who will co-operate in his own case when living at home.

At the annual meeting of the Olmsted County Medical Society, held last month at Rochester, a resolution was passed favoring the employment of a full-time secretary for the State Medical Association; and the following officers were elected: President, Dr. George Steven, Byron; vice-president, Dr. L. W. Pollock, Rochester; secretary-treasurer, Dr. M. C. Piper, Rochester; delegates,—Dr. D. M. Berkman, Dr. D. F. Hallenback, Dr. M. S. Henderson, Dr. Verne C. Hunt, and Dr. M. C. Piper, all of Rochester.

The annual meeting of the Sixth District (N. D.) Medical Society was held on December 15 at Bismarck. Dr. A. A. Whittemore, the State Health Officer, discussed the work of the health department of the State; and Dr. H. A. Brandes, of Bismarck, presented an unusual case of blood disease. The election of officers for the current year resulted as follows: President, Dr. J. O. Arnson, Bismarck; vice-president, Dr. G. H. Speilman, Mandan; secretary-treasurer, Dr. R. W. Henderson, Bismarck; delegate, Dr. C. E. Stackhouse, Bismarck.

THE SIOUX VALLEY EYE & EAR ACADEMY

The Sioux Valley Eye & Ear Academy will meet at the West Hotel, Sioux City, Iowa, January 19th. The program is as follows: Dry Clinics in the morning, addresses in the afternoon and evening.

AFTERNOON SESSION

Fractures of the Base of the Skull (Involving the Frontal Sinuses and Mastoid Antrum)—Dr. Cassius C. Rogers, Chicago.

Open Method of Submucous Resection—Dr. A. H. Andrews, Chicago.

Calcareous Foreign Bodies in the Nose and Sinuses—Dr. Fred Bailey, Cedar Rapids.

A Case of Iridocyclitis—Dr. L. B. Bushman, Omaha.

Fundus Findings in Encephalitis Lethargica—Dr. F. E. Franchere, Sioux City.

Some Remarks on Muscular Anomalies of the Lids and Eyes (Illustrated with moving pictures)—Dr. J. C. Lichtenberg, Kansas City.

F. H. ROOST, M.D., Secretary.

Office or Hospital Laboratory Position Wanted

Position as technician in doctor's office or assistant technician in hospital laboratory wanted. Address 168, care of this office.

Opening for a Specialist

In eye, ear, nose, and throat work, an internist, or a children's specialist, in a town of 25,000 with a doctor and a dentist. Address 160, care of this office.

Office Position Wanted

By a highly competent office girl and stenographer with large experience and best of references. Familiar with medical work. Address 169, care of this office.

Good Location and Office in Minneapolis

An excellent location and an office with a dentist can be had at 3805 Nicollet Ave., Minneapolis. A fine modern heated apartment is also open on the same floor. For information, telephone Colfax 2754.

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In modern progressive town of 1,500 in east central South Dakota. Excellent roads. Practice, drugs, and equipment at very reasonable price and on easy terms to suitable purchaser. Address 167, care of this office.

Apparatus for Sale

Complete X-ray Equipment consisting of Meyer New Model Transformer; Meyer A Combination; Stereo-Radiographic Table; Stereo-Radiographic Tube Stand with lead glass shield and lead lined compression cone; Wheatstone Stereoscope; Transformer for Coolidge Filament and Single Contact Foot Switch. Address, Hot Springs Clinic, Hot Springs, S. D.

A Practical Course in Standardized Physiotherapy

Under auspices of Biophysical Research Dept. of the Victor X-Ray Corporation, is now available to physicians. The course offers a highly practical knowledge of all the fundamental principles that go to make up the standards of modern scientific physiotherapeutic work. It requires one week's time. For further information apply to J. F. Wainwright, Registrar, 236 South Robey St., Chicago, Ill.

Physician Wanted in Southern Minnesota to Practice on Salary

By a Health Association. To take over the practice and drug-store of the present physician. A salary of \$3,000 annually is paid for taking care and treating about 100 families. Night calls and drugs are paid extra, and the physician is allowed to practice for those outside of the families of the members of the Association, and to keep the money so earned. Give your age, college of graduation, years in practice at present place, etc. Address 170, care of this office.

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THE TREATMENT OF FRACTURES OF THE FEMUR BY MEANS OF SKELETAL TRACTION*

By CYRIL J. GLASPEL, M.D.
GRAFTON, NORTH DAKOTA

By skeletal or direct bony traction is meant the application of the traction force to the bone. Although this method of traction was employed occasionally previous to 1918 by means of the well-known Steinman pin and Ransohoff ice-tongs, their use was very limited and their many advantages were apparently not appreciated. Skeletal traction is certainly far more efficient than the old-time skin traction regardless of whether we use adhesive plaster, mole skin, or Sinclair's glue. The advantages of bony traction are the following: The better control of the bony fragments; less force is necessary to effect reduction; it allows active motion of the knee-joint; it can be applied immediately following the injury, and is certainly the method of choice in compound fractures with large wounds as skin-traction is often impossible in such cases; it is easily applied with the knowledge of a few anatomical principles; and sepsis resulting from it is very rare.

In fractures of the neck of the femur in the aged, plaster of Paris employed according to the method of Whitman, that is, immobilization of the entire leg and thigh in a position of complete abduction, complete extension and slight inward rotation, is the method of choice. It is also probably best not to use skeletal traction in fractures of the femur in young children or in fractures where there is little or no displacement of the fragments.

The transportation of a person who has sustained a fractured femur is a matter of considerable importance. It is far better that such a person should not be moved at all until his limb has been temporarily splinted, in order to avoid shock and other complications. The ideal emergency transport splint is that of Thomas, and it should be well known and available to all doctors. Transportation is carried out with the limb in complete extension in the long axis of the body, maintaining slight traction by means of a sling or Spanish windlass around the foot. In the absence of a Thomas splint, heavily padded board splints can be used, extending from the side of the foot to the axilla on the outside and the perineum on the inside.

Before reduction is attempted it is essential to have x-ray skiagrams in both lateral and antero-posterior planes to determine the location and character of the fracture. With this knowledge, reduction should be attempted, practically always under a general anesthesia unless there is some definite contra-indication for such. General anesthesia is necessary to obtain complete muscular and fascial relaxation. The fascia lata and its iliotibial band and the broad sheets of intermuscular fascial septa become relaxed in fractures of the femur, and when this fascial mass is stretched to its normal length again, it tends to reduce the fracture and keep the fragments in a natural position. The sooner such a fracture is reduced the better, as round-cell infiltration of these fascial bands results in stiffness

*Presented at the Thirty-seventh Annual Meeting of the North Dakota State Medical Association, at Bismarck, N. D., September 10 and 11, 1924.

and increased difficulty in returning them to their normal length.

With the patient completely anesthetized the fracture is carefully examined. (An assistant steadies the pelvis and upper thigh while the surgeon grasps the lower thigh and makes traction in the long axis of the limb, reducing the fracture as nearly as possible). A couple of sand bags are placed under the knee-joint to elevate it, and the entire condylar area is prepared surgically with iodine. The application of traction calipers is a matter of but a few seconds and can be painlessly done under local anesthesia if a general anesthetic is not to be given.

With ordinary precautions it is impossible to damage the knee-joint in applying the calipers. The limits of the synovial attachments should be known and particular care should be taken in those cases where a complicating synovitis is present and the joint distended with fluid. The skin is pulled slightly upwards and a small incision just sufficient to admit the point of the calipers is made through the skin and fascia just above the most prominent parts of the condyles. The adductor tubercle forms an easy guide to the inner point and while the outer landmark is less defined, it should be above the broadest part of the condyles, and in front of the ridge formed by the junction of the iliotibial band with the external intermuscular septum. With the caliper points held firmly against the bone in the desired position, an assistant screws in the points so that they penetrate the bone about one-fourth of an inch. The wound around each caliper point is painted with collodion and wrapped with a small sterile dressing. Subsequent dressings are to be avoided and only invite infection, and it is best in most cases not to disturb the original dressing until the final removal of the calipers.

The entire leg and thigh is now placed and held suspended in a Thomas splint with a hinged knee-flexion attachment, using a foot piece to hold the foot at right angles to the leg and to prevent any inward rotation. The entire splint is suspended from a Balkan frame by means of a system of pulleys and weights, and a weight of from five to fifteen pounds is applied, depending upon the muscular development of the patient and the length of time the fracture has been present. Suspension of a fractured thigh is comfortable for the patient. The wounds, if compounded, are easily dressed, the general nursing care is easier, the repair of the fracture is more rapid, excessive callus-formation and non-union are less frequently observed, the circulation in the limb is better, and the fracture is immob-

ilized more completely along with greater mobilization of the joints. It has been too common an occurrence in the past to have recovery from a fracture of the femur prolonged several months, due to an ankylosed or partially ankylosed knee-joint.

Some cases of fractured femurs present conditions around the condyles and joint which may prevent the proper application of calipers. In such cases the calipers may be applied to the malleoli, but this method has the disadvantage of obtaining traction through the knee-joint, which is indirect and involves the risk of stretching the joint ligaments. When applied to the malleoli the proper position is on the shafts of the bones one-fourth of an inch above the malleoli, their position is usually slightly oblique due to the somewhat posterior position of the external as compared with the internal malleoli. It is best to introduce them about one-eighth of an inch and not enter the cancellous bone, which results in more pain than is desired.

During the course of treatment in a fracture of the femur it is necessary to keep several things in mind: First, shortening is to be avoided; second, outward and posterior bowing of the thigh must be prevented; and, third, the knee and ankle-joint must be kept mobilized. A sufficient traction weight (5 to 20 pounds) will prevent shortening and can be checked up by measurement; to prevent outward bowing, the thigh and leg should be in an abducted position, the degree depending upon the site of the fracture. To prevent posterior bowing a posterior coaptation splint can be used and the supporting bands of flannel tightened each day. Eversion of the foot and leg can be controlled by holding the leg in a corrected position by means of a flannel bandage tied to the inside of the Thomas splint. By the use of a hinged knee-flexion splint the knee and ankle-joint can be made mobile, and motion should be started the day following reduction. Since the leg and thigh are exposed, massage and electrical stimulation of the muscles can be easily carried out, and the patient leaves his bed when union has occurred with movable joints and active muscles. The course of a fracture of the femur should be carefully watched. The limb should be frequently inspected and measured, and x-ray examination every two or three weeks is of value. A large percentage (80 per cent) of fractures of the shaft of the femur are firmly united in about nine weeks. The length of time it is necessary to keep the calipers in position will vary from four to nine weeks. It is surprising how a well-developed callus will

yield to body weight; therefore it is best not to allow walking with an unsupported thigh too early. It is my opinion that the general text-book teaching in regard to the time required for union in various bones is unreliable, and while fractures may appear firm at the end of a few weeks new bone-formation at the site of injury is not mature for many months. Sir Robert Jones has called attention to the fact that a callus which is tender to pressure is still immature and will yield to either favorable or adverse mechanical influences.

In compound fractures the first temporary dressing to be applied is of utmost importance. Mechanical cleansing of the wound by complete excision of all traumatized and devitalized tissue is the only safe procedure. A complete primary operation can usually eliminate and prevent infection and allows the wound to be closed without drainage. Antiseptics are of less value. If the Carrel-Dakin's treatment is used, it must be employed according to Carrel's technic and not in some modified form. While all dead tissue and foreign bodies should be removed, apparently loose bony fragments, if attached to the soft parts, should be left in situ.

RESULTS

In my limited experience the end-results as regards shortening and deformity have been much better when skeletal extension has been used. I have employed this method of traction in fifty cases, and the total amount of shortening has amounted to twenty inches, all of this occurring in twenty-six cases. The greatest amount of shortening in any case was two inches and occurred in a patient treated in the army where the calipers had to be removed early because of infection. One case presented one and one-half inches of lengthening due to excessive traction being used and not checked up by *x*-ray examination. In 70 per cent of the cases the final *x*-ray films showed satisfactory results; that is, good alignment, little or no angulation or over-riding and abundant callus formation.

DISCUSSION

DR. E. P. QUAIN (Bismarck): I brought along an apparatus to demonstrate as of special use with certain fractures, but after listening to Dr. Glaspel's excellent discussion of his particular method, I am not sure that it is entirely fitting in connection with his subject. Nevertheless, if closer study be given to the two methods, it will be found that both are based on the same underlying ideas.

First comes the question of open or closed operation in fracture. You may call this method, as well as the one I favor, *open*, if you so choose. There are wounds produced, and metal is introduced into bone, but the metal does not come in contact with

the fracture line. That is important. Dr. Clough told us yesterday that metals coming in contact with bone interfere with bone-production.

We must appreciate the doctor's interest and enthusiasm, as well as his ability, in obtaining such good results. He mentioned that some become proficient in one method and others adopt, successfully, some other general method. It is undoubtedly true that after one has become thoroughly familiar with all the possibilities, as well as shortcomings, of a given method, he is apt to apply that method in most of his cases. This is no doubt to the best interest of the majority of the patients also.

We have for some time used external extension fixation of fractures by a method described particularly by Dr. Leonard Freeman. Sometimes the fracture line may be opened, when necessary to reduce the fragments, at other times reduction is made on the Hawley table or by manual traction, and the fracture is not exposed at all. In either case screws are inserted, one or two in each fragment, and these are then held by an external clamp which maintains the extension and the reduction.

Lambotte, of Antwerp, went a step farther and devised an apparatus with a clamp which holds several screws. This permits one to place the screws at different angles in the fragments and provides for a more firm fixation. With the Freeman clamp the two screws must be placed in the same plane or they are but poorly held in the clamp. The Lambotte instrument has become very expensive and difficult to obtain since the war, which fact led me to devise a simple ball and socket joint which serves to hold several screws at different angles with one inexpensive Freeman clamp. (The speaker here demonstrated the apparatuses devised by Lambotte, Freeman, and himself.)

We have used this method with uniform satisfaction in many fractures of the lower jaw, clavicle, humerus, ulna, radius, femur, tibia, and pelvis. There is a possibility of osteomyelitis developing in the neighborhood of the screw, but in our experience this has not been in evidence except on one or two occasions. It has never been a serious complication, nor delayed materially the healing of the fracture.

Much appreciation is due to both Dr. Glaspel and Dr. Clough for calling our attention so vividly to the problems of fracture management.

DR. GLASPEL (closing the discussion): Perhaps the future will develop a method of treating fractured femurs which will be more simple and more efficient than skeletal traction. This method, of course, has certain disadvantages, but I believe it will produce results in certain types of fracture which no other method of treatment will. The method of external fixation, which has been described by Dr. Quain, is more complicated and can be used only by men who have a good deal of surgical ability. I know of nothing easier than applying traction calipers, providing one has a knowledge of the anatomy of the knee-joint.

This method of treatment allows active mobilization of the knee and ankle joints and it is exceedingly important to have a patient get up, when union is complete, with mobile joints and active muscles. The mobilization of joints during treatment and a protest against early weight-bearing with a non-supported leg and thigh are points which I again desire to emphasize.

ACUTE ULCERATIVE COLITIS*

BY PAUL H. ROWE, M.D.

MINNEAPOLIS, MINNESOTA

Ulcerative colitis was first described as a disease entity in 1888 by W. H. White, of England. The bulk of the literature on this subject has been contributed by British physicians. During the past decade the disease has attracted the attention of both internists and surgeons in this country. While the condition is not common it is by no means rare.

Ulcerative colitis may be defined as an inflammatory condition of the colon of unknown etiology, causing congestion, infiltration, and thickening of the mucosa with the formation of discrete or confluent ulcers and granulation tissue, with at times resultant polyps, pedunculated papillomas, perforation, and stricture. The disease is prone to relapse and is resistant to many methods of treatment. As the diagnosis is not difficult when the condition has become chronic, acute ulcerative colitis only will be considered in this paper.

Because the name *ulcerative colitis* is very loosely used, it is advisable to define the scope of the term. Ulceration of the colon due to amebic or bacillary dysentery, tuberculosis, syphilis, typhoid and paratyphoid, diverticulitis, malignancy, scybala, known toxins as chemicals, and uremia are excluded; also secondary involvement of the colon from exogenous pathology, as, for example, rupture of an appendix into the bowel, parasitic colitis, and infective proctitis of local origin and extent. So-called institutional dysentery in this country and asylum colitis in England have been shown to be bacillary dysentery. It is the type of sporadic case seen in ordinary private practice that will be discussed.

Bacteriologically, numerous organisms as the *B. coli* group, *B. pyocyaneus*, pneumococci, and streptococci may predominate and appear to be the causal agents. Bassler believes that the infecting organism is, in all probability, a *B. coli* communis. Other writers believe ulcerative colitis is a sequel of dysentery, in which the specific organism has died out and the infection is kept up by secondary invaders. Because of the favorable opportunities for secondary infection in the colon, ulceration begun by one organism may be kept up by the combined action of many different bacteria. Logan believes a number of organisms are capable of producing the disease if the body

is in a receptive condition. McCarrison's work on deficiency diseases is interesting in this regard. He showed that animals on a devitaminized diet are less resistant to infectious disease; healthy monkeys which were carriers of *Entamoeba histolytica*, as a result of a deficient diet, developed amebic dysentery. By feeding an excess of fats and starch affording a deficiency in the water soluble vitamin B, the whole alimentary tract of experimental animals showed atrophy, necrosis, and colitis, but not ulcerative colitis. The symptoms of onset suggest a generalized infection, but I have found no reference to hematogenous origin in the literature.

It is not uncommon for the disease to develop in a patient subject to recurrent or chronic diarrhea. Young adults and the middle-aged are chiefly affected. The sex incidence is about equal.

The sites of election for the beginning of the inflammation are the rectum and sigmoid, and from these it spreads upwards. This assumption is based on the findings with the proctoscope, x-ray, and at autopsy. However, any part of the colon may be involved, and sometimes the entire length is attacked at once. In acute cases the mucosa is intensely hyperemic, has a granular or fish-spawn appearance and bleeds easily. The ulcers as a rule are small, have sharp-cut, irregular, overhanging edges, and tend to be circular. Later the ulcers may become confluent. Deep ulcers may be present destroying the intestinal coats down to the peritoneum, and marked thinning of portions of the bowel wall may occur. At times longitudinal tracts of ulceration are present with intervening lengths of healthy mucous membrane between. The bowel is often fragile like wet paper. The ulcerative process stops abruptly at the ileocecal valve. If perforation occurs irregular holes with ragged, shreddy edges are produced with no thickening, few adhesions, and little evidence of repair. (In most post-mortem examinations there is a singular absence of peritoneal inflammation, but peritonitis and local abscess do occur.) Later there may be much thickening in the bowel wall with contraction and even stricture.

The histopathology is that of an acute inflammation of a mucous membrane; marked congestion and edema, which may be limited to the mucosa or involve the entire bowel wall; exudate

*Presented as an inaugural thesis upon admission to the Clinical Club of Minneapolis, April 17, 1924.

of pus cells, bacteria, and inflammatory elements; destruction of the glands if necrosis has progressed; round-cell infiltration of varying degrees, and fibrosis in long-standing cases.

The onset in very acute cases may be with severe pain in the back and limbs simulating lumbago, influenza, or variola. The pain in the back may precede the other symptoms two or three days. It may be accompanied by fever and rigors. Headache is common. More frequently the first symptoms indicate some abdominal disorder and consist of acute abdominal pain, vomiting, diarrhea, or melena, either of which may be profuse. The onset may be gradual with headache, diarrhea, and pyrexia simulating typhoid fever.

Abdominal pain at the onset may be described by the patient as "rawness inside" or severe and colicky, requiring morphine. Tenesmus is present when the rectum is involved. On the whole, ulcerative colitis is not a very painful disease after the onset, and very intense, even fatal, ulcerative colitis may be painless from beginning to end. Tenderness is usually present over the portion of the colon involved, most commonly the descending colon and sigmoid. Abdominal distention is rarely extreme and usually there is no general tympanites. The distended outline of the portion of the colon affected is often discernible.

Diarrhea is practically always an early symptom. The number of stools may vary from three to thirty a day, most often six to eight. The stools are at first watery, but soon contain mucus, blood, and pus in variable amounts. A common symptom is desire to defecate as soon as food or liquid is taken into the stomach.

The temperature is usually 101° - 102° and of the continued type, less frequently remittent or intermittent. Rigors may occur without any subsequent indication of local complications and are apparently due to toxic absorption.

After the onset the patients, as a rule, have a fair appetite, and food is well borne in most cases. Emaciation and debility are not as rapid as might be expected, probably due to usual lack of involvement of the small intestine. The patients are usually bright, cheerful, and hopeful; and the mental condition is no criterion of the seriousness of the disease. Sleeplessness is often a troublesome symptom.

Severe anemia is very apt to develop, partly, no doubt, from melena, and tends to be long-lasting after recovery. Leukocytosis is present.

Of the immediate complications perforation is probably the most important. It may be long

survived as shown by dried putty-like fecal material sometimes found in the peritoneal cavity at autopsy. Hemorrhage is not usually alarming but may demand colostomy. Embolism to the lung, liver, or kidney may occur, but is usually after the acute stage. Neuritis and arthritis are troublesome complications, but, as a rule, come on later. The sequelæ are polyps, pedunculated papillomas, contraction, and stricture.

The course and duration of the disease are variable. Some cases run a rapidly fatal course with death from exhaustion and toxemia. Other cases run a definite course of about three weeks with recovery, but may have relapses. Many patients run on indefinitely with recurring attacks of inflammation and end fatally after many months from asthenia and exhaustion.

The prognosis is always serious and must be based on the severity of the symptoms.) Ulcerative colitis is a grave and dangerous disease. Very severe cases may recover. Statistics as to fatality are wanting. (In 1910 Mummery reported a mortality of 78 per cent in unoperated cases and 50 per cent for all cases in London hospitals.)

The diagnosis of acute ulcerative colitis usually presents little difficulty if it is borne in mind that such a disease exists. The chief aids in diagnosis are the history of onset with bloody diarrhea, the sigmoidoscope, and the x-ray. As the disease usually starts in the rectum or the sigmoid the condition is easily recognized on sigmoidoscopic examination, which should be carefully made in every suspected case. The extent of involvement may be surmised by x-ray examination, and points of constriction can be demonstrated in those cases beginning high up in the colon without involvement of the rectum or sigmoid. The x-ray examination should be done with a barium clysma, when a rapidly-filling, narrow tube-like colon without haustration will be observed. If the rectum and sigmoid alone are involved, the x-ray examination is of little assistance.

The onset of symptoms with severe pain in the lumbar region and extremities may simulate lumbago, influenza, or variola; with abdominal pain, renal, biliary, or lead colic. Commencing with diarrhea, ulcerative colitis must be differentiated from gastro-enteritis, typhoid, and paratyphoid. There is greater difficulty if the disease begins with headache, diarrhea, and pyrexia simulating typhoid, but in colitis the headache is less severe and persistent, the temperature is not step-like, the distention is limited to the colon area, splenomegaly, and cutaneous eruption are

absent, leukocytosis is present, the stools contain blood from the onset or before the tenth day, and acute abdominal pain may occur. The Widal test is also of value. Abdominal tuberculosis may cause pyrexia, diarrhea, and bloody stools; and if, in ulcerative colitis, physical signs of lung congestion develop, as from an infarct, the difficulty is increased. As a rule, however, abdominal tuberculosis so acute as to simulate acute ulcerative colitis will give some other distinctive evidence of itself.

(Dietetic, medical, and surgical methods of treatment have been employed, none of which is very satisfactory.) Until specific treatment can be provided, no dogmatic rules can be laid down. The diet should be non-irritating and nourishing. The patient should remain in bed, and care should be taken to avoid chilling of the body surfaces. A large variety of intestinal antiseptics, a few of which are bismuth, salol, betanaphthol, small doses of calomel, acroflavine, and gentian violet, have been used with disappointing results. Lavage of the colon with boric acid, argyrol, silver nitrate, and many other substances has been extensively employed. Logan reports good results with irrigations of hot water at 120° F., through a two-way tube, being careful not to overdistend the bowel, and given twice daily for twenty to thirty minutes. In conjunction with this he uses retention enemas of three ounces of olive oil containing from sixty to ninety grains of bismuth. Einhorn has recently reported good results from irrigation through a jointed intestinal tube, fifteen to twenty feet long, introduced through the mouth and carried into the cecum under guidance of the x-ray.

A mild acute attack may yield to rest in bed, bland diet, bismuth, and opium, but such treatment is purely symptomatic, and the natural resistance of the patient to the infection is relied on to overcome the disease which may or may not be forthcoming. In severe acute cases the same type of treatment may be adopted, but, if improvement does not take place, we are confronted with a condition which may prove fatal in a few weeks or go on to chronic extensive disease. A decision must be made between rectal irrigation, appendicostomy and irrigation, and colostomy or ileostomy and irrigation. Appendicostomy or cecostomy has largely superseded rectal irrigation, to enable more satisfactory cleansing of the colon. It has been estimated that appendicostomy cuts in half the time of illness that would be experienced under medical treatment alone. Stone has recently advocated complete transverse ileostomy for providing physiological rest

to the colon in combination with appendicostomy for irrigation. Surgery, to be given a fair chance, should be done before the patient is debilitated. The tendency is to wait too long before undertaking radical measures. In the majority of cases cecostomy or ileostomy will probably provide the most life-saving procedure. It affords complete rest to the colon and an efficient means for irrigation. The disadvantage is the artificial anus, which may be permanent, as the colon undergoes progressive contraction when out of use and becomes surrounded by dense fibrous fat after the lapse of a certain time, estimated at one year. Closure of the artificial anus then becomes difficult, dangerous or impossible. Premature closure before the ulceration in the colon has completely healed is equally disastrous.

The following case-reports represent more or less typical examples of this disease:

J. G., a broker, aged 48, was taken ill December 12, 1923, with abdominal cramps, pain in the legs and lumbar region, nausea, vomiting, and diarrhea. He passed watery stools every half hour. It was thought his illness was due to "ptomain poisoning," and he was purged freely. Two days after the onset the patient noticed blood in all his stools. Tenesmus was marked. His bowels moved immediately after taking food or liquid into the stomach. When seen December 19, the patient was extremely weak; temperature was 102°. He complained of pain and "rawness" in the left side of the abdomen. Cramp-like pain in the left side of the abdomen preceded a bowel movement. He had passed fifteen stools, all containing blood in the previous twenty-four hours. Physical examination was negative except dehydration and tenderness over the course of the descending colon. Hemoglobin, 70 per cent; leukocytes, 12,000. The stools contained mucus, blood, and pus. Proctoscopy revealed a red edematous, granular mucous membrane, which bled easily. Multiple small superficial ulcers were present. The diarrhea responded to rest, bland diet, bismuth, and opium. In three weeks the stools were free from blood and pus. Proctoscopy on February 15, 1924, did not reveal any ulceration. Except for weakness, which is becoming less marked, the patient has remained well for the past three months. (On September 15, 1924, the patient was in rugged health.)

The outcome in the second case was not so fortunate.

S. N., widow, aged 29, had tonsillitis July 1, 1923. One week later she began to have cramp-like pains in the upper and left abdomen accompanied by loose stools. The symptoms started while on a vacation in the country, and she attributed the diarrhea to the drinking water. She first consulted a physician July 23, complaining of generalized abdominal pain of cramp-like character, weakness, and diarrhea. She stated that her bowels moved eight or ten times a day and that the stools contained blood. Tenesmus was a prominent symptom. Her temperature was 99.5°. There was tenderness over the entire

abdomen; no distention and no rigidity. Hemoglobin, 56 per cent; leukocytes, 7,500. She entered the hospital July 27 and passed thirteen stools, all containing blood, during the first twenty-four hours. Three Widal tests were negative. Stool cultures were negative for specific causal organisms. A barium clysmma revealed marked narrowing of the sigmoid and descending colon. The bloody diarrhea continued, and on August 7 I saw the patient in consultation with Dr. F. E. Murphy. At this time she ran a septic temperature reaching 102°. There was marked tenderness over the course of the entire colon. Little abdominal distention was present. Hemoglobin was 28 per cent; white count, 12,500. Proctoscopy on this date revealed an engorged, granular mucosa, which bled freely. Multiple ulcers were present as far up as could be seen. Transfusion and ileostomy were advised. The patient was transfused August 7 and again August 12, and the hemoglobin reached 58 per cent. Ileostomy was refused. On August 14 hiccuph was a prominent symptom, the abdomen was considerably distended, and the white count was 4,000. August 19 the patient developed pneumonia, and death occurred August 23.

The necropsy revealed generalized fibrinopurulent peritonitis and multiple perforations in the cecum and at the junction of the descending colon with the sigmoid. The colon was extremely friable, and when opened, ragged, necrotic ulcers and multiple hemorrhages were present throughout the entire length. There was confluent bronchopneumonia in both lungs. It is questionable in my mind whether ileostomy would have saved the life of this patient when such an extensive acute ulcerative colitis was present.

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THE CANCER PROBLEM*

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Cancer, with its cause and treatment, is one of the greatest problems before the medical profession. With the possible exceptions of tuberculosis and venereal diseases, no malady in late years has received more diligent search to find out its nature and cause than cancer, and yet to many it is still a great mystery, and most writers, both recent and older, say that we know nothing of its cause.

Someone has likened the systemic process of carcinosis, which results in the local lesions in various locations of the body, to which have been given the name of "cancer," to a mutiny or rebellion of certain previously normal or healthy

body cells, to the condition in which they exist, in regard to nourishment, hygienic surroundings, personal treatment, etc. We can understand how the body cells rebel against wrong conditions of nourishment, in the light of the remarkable book by Quevil, in which the subject of "Cell Intelligence" has been worked out and developed scientifically, and so convincingly that there is no question but that their aberrant and riotous action is the result of the condition in which they find themselves.

Soldiers in a regiment have endured their increasing discomforts and distress without resistance or mutiny until some unjust or unkind treatment, or a blow, from a corporal or a sergeant led them to open rebellion. In the same

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way the cells of a part may have long suffered nutritive and neurotic or other grievances, and yet have striven to perform their functions faithfully, secreting milk, gastric juice, bile, urine, etc., until some external agency gave them a shock of unusual or unjust treatment. Some local injury precipitates matters and leads them to throw off their allegiance to physiologic control and action, and starts them on their abnormal and riotous career. Ceasing to functionate as before in their proper glandular action, they still have the power of growth and reproduction, and a useless malignant neoplasm is formed.

Its incidence has increased in civilized countries until now it looms large as a national, or even universal, scourge. It is estimated to cause the death of half a million persons yearly among the civilized people of the earth, and untold misery and suffering to many times that number. In the United States, with 93,000 deaths from the disease in 1921, the mortality has risen about 30 per cent, about the same proportion as the death-rate of tuberculosis has fallen.

Cancer has too long been studied and regarded as a purely local disease. However, evidence has been steadily accumulating all over the world that, while the individual lesions of carcinosis may be incited by local injury, the disease is really of a constitutional nature, like so many other diseases, especially in middle or advanced life.

About one hundred years ago Abernethy said, "There can be no subject which I think more likely to interest the mind of the surgeon than that of an endeavor to amend and alter the state of a cancerous constitution. The best timed and best conducted operation brings with it nothing but disgrace if the diseased propensities of the constitution are powerful and active. It is after an operation that, in my opinion, we are more particularly incited to regulate the constitution lest the disease be revived or renewed by the disturbance."

Over seventy-five years ago Walshe, in his treatise on cancer in all its relations, gave numerous references, original or quoted from recognized authorities, in regard to the constitutional nature of cancer, as well as expressions in regard to the futility of expecting that surgical intervention could cure the disease in any great proportion of cases. He says: "It would in theory appear that the removal of a tumor cannot of itself cure the disease, as the local formation is but the symptom of a general vice of the economy."

Sir James Paget over fifty years ago spoke

very strongly in regard to cancer: "I believe it to be constitutional in the sense of having its origin and chief support in the blood, by which the constitution of the whole body is maintained." And he further states: "The existence of the morbid material in the blood, whether in the rudimental or in the effective state, constitutes the general predisposition to cancer." Murphy has repeatedly expressed himself as not being optimistic in regard to the ultimate results of the surgical treatment of carcinoma, especially in those patients who are fat and have lax tissue; that is, exhibiting evidence of imperfect metabolism. Dr. William J. Mayo, speaking of the prophylaxis of cancer, mainly from its surgical aspects, says: "Cancer of the stomach forms nearly one-third of all cancers of the human body. So far as I know this is not true of the lower animals, nor of uncivilized man." And again: "Is it not possible, therefore, that there is something in the habits of civilized man, in the cooking or other preparation of his food, which acts to produce the precancerous condition? Within the last hundred years four times as much meat has been taken as before that time. If flesh foods are not fully broken up, decomposition results, and active poisons are thrown into an organ not intended for their reception, and which has not had time to adapt itself to the new function." In conclusion he says: "Where cancer in the human is frequent, a close study of the habits of civilized man, as contrasted with primitive races, and lower animals, where similar lesions are conspicuously rare, may be of value, and, finally, the prophylaxis of cancer depends, first, on a change in those cancer-producing habits, and, second, on the early removal of all precancerous lesions and sources of chronic irritation."

In "Optimistic Medicine" Arthur G. Crandall says: "Probably no condition which presents itself to the physician is less suggestive of an optimistic prognosis in the woman of middle age than cancer. Nevertheless, there is considerable evidence in support of the theory that even this dread and mysterious condition may be arrested sometimes by a suitable system of diet. This is certainly indicated in inoperable cases, and affords a certain basis for the encouragement of the patient. The fact that races who subsist almost exclusively upon vegetable foods are seldom afflicted with cancer, certainly justifies the physician in making a radical change in the system of feeding."

To understand properly the relation of food and drink to cancer, and the satisfactory appli-

cation of the principles involved, it is necessary to bear well in mind the chemistry of the body, and the relation to nutrition of the various elements which contribute to form its tissues and cells, both in health and disease.

The human body is composed of approximately fifteen different primary elements, which are found in the composition of what enters the mouth and lungs. It is understood, of course, that all food is ultimately broken up into its composite organic elements, which are carried by the blood and appropriated by the cells, for their formation and nourishment, and to enable them to perform their functions.

Cancer has its formation in the erroneous formation of previously healthy cells. Throughout the domain of Nature it is recognized that plants and animals must have the right food in order to have healthy and vigorous life, and man is no exception. There must be proper balance in the various elements of nutriment, which ordinarily is found in their surroundings or is supplied by human intelligence. Wild animals, guided by instinct, select their proper food, and are never sick, but with man matters are different. He does not seem to be guided so much by instinct as by taste, or whim, or fancy, or by the influence of others, and will often indulge in gratifying the taste rather than simply in satisfying the appetite, and temptations to this, in modern life, are increasingly great. Hence it happens that gross errors are continually committed, leading to various diseases, as we all know. It is to be remembered also that man is the only animal which cooks its food, or attempts to alter or refine it from its natural state.

In Sherman's table on the composition of the human body, we have O 65 per cent; C 18 per cent; H 10 per cent; N 3 per cent; A 2 per cent; Ph 1 per cent; etc. It is well known that in order to preserve health and proper weight there must exist in the economy a certain balance or equilibrium between the amount of the ingesta and the excreta. We thus speak of nitrogen equilibrium, iron equilibrium, etc., some of which are disturbed continually in ill health and in different diseases, including cancer. Thus we have the carbohydrate equilibrium disturbed in diabetes, the carbohydrates and fats in adiposis, and proteins in gout, etc.

It would be quite beyond the scope of this paper even to touch on all the intricate questions connected with the metabolism of nitrogenous and other food, but Chittenden has well put the reasons, "Why prominence is given to the establishment of nitrogenous equilibrium and why the

protein intake assumes a greater importance than the daily amount of fats and carbohydrates consumed? Fats and carbohydrates when oxidized in the body are ultimately turned into simple gaseous products, namely, carbonic acid and water. Therefore, these waste products are easily and quickly eliminated, and cannot exercise much deleterious influence, even when formed in excess. To be sure there is a waste of energy in digesting, absorbing, and oxidizing the fats and carbohydrates when they are taken in excessive amounts. Once introduced into the alimentary canal, they must be digested, otherwise they will clog the intestines or undergo fermentation, and so cause trouble. Further, when absorbed they may be transposed into fat and be deposited in the various tissues and organs of the body; a process desirable up to a certain point, but undesirable when such an accomplishment renders the body gross and unwieldy.

"With protein food, on the other hand, the story is quite different: These substances when oxidized yield a row of crystalline nitrogenous products which pass out of the body through the kidneys. Prior to their excretion, however, these products, frequently spoken of as toxins, float about through the body and may exercise more or less of a deleterious influence upon the system or, being temporarily deposited, may exert some specific or local influence that calls for their speedy removal. Hence the importance of restricting the production of these bodies to the minimal amount, owing to their possible physiological effect and the part they are liable to play in the causation of many diseased conditions."

When we consider the small part which nitrogen plays in the human economy, only 3 per cent, it is easy to understand how an excess of nitrogenous food must necessarily either pass off unassimilated or undergo imperfect cleavage into its ultimate elements, and so derange the general metabolism. Chalmers Watson and others have shown in a most convincing manner, by animal experiments that an excessive meat diet alters very materially the microscopic structure of the cells of very many organs and portions of the body.

In England, a few years ago, the consumption of what was called "butcher's meat" had risen to 130 lb. per capita, that is, of the total population, men, women, and children. This was in addition to large quantities of fish, game, poultry, rabbits, eggs, cheese, etc. Among the well-to-do the meat consumption has been estimated at between 180 and 330 lb. per year. All this is much

more than double the amount consumed fifty years ago, and in the same period deaths from cancer have increased fourfold. In Ireland, where meat consumption is estimated at about one-third that of England, the cancer death-rate is much lower, not much over one-half; and yet the average age of the population is very high, as the young people emigrate and the older ones stay in the country. In the United States the mortality from cancer has certainly risen very greatly in the last fifty years, and the consumption of meat has also increased very greatly. The 1916 report showed 172 lb. per capita yearly, a quantity much greater than that of England.

Australia stands first in the consumption of meat, with the enormous rate of 262.6 lb. per capita in 1902, and the increasing of deaths from cancer is most striking. In 1851 the death-rate per 100,000 living was 14; in 1900, 62.6; and in 1913, 75 per 100,000. The most striking difference is exhibited by those who are native born, who in 1900 had a cancer death-rate of only 22 per 100,000, while the British born had a mortality from cancer of 203, or over 9 times as great. Those who have written there on the subject ascribe the frightful proclivity to cancer to the glutinous habits of the immigrants, who have meat for breakfast, lunch, dinner, tea, and supper.

Italy, consuming the least quantity of meat, 46.5 lb. per capita, in 1901, had the lowest cancer rate. However, the mortality from this disease is steadily rising, from 50.9 per 100,000 (from 1860 to 1900) to 63.6 per 100,000 (from 1900 to 1910). The cities, however, where travelers bring luxurious living, show a very high death-rate from cancer. In 1912 Rome had 99.6, Genoa 100.7, Turin 111.6, Milan 120.7, and Florence 165.1 deaths from cancer per 100,000 population. The poorer country districts must have a very low cancer death-rate, as the general death-rate in 1912 from cancer was only 64.7 in spite of the very high rate in populous cities. In the same year Spain, also with a very low meat consumption, 49 lb. per capita, had a cancer death-rate of only 55.5 per 100,000 living.

This goes to show that the real basic cause of neoplastic growths is due to some or many derangements of metabolism inducing a blood current which does not properly nutrify the body cells, and that derangement is not necessarily due to any one single cause, as meat diet, although that forms a large share of it, and, with that wrong, all else is wrong.

Ehrlich has shown that mice living upon a rice diet cannot be inoculated with cancer, while mice

living on a meat diet can be readily inoculated, cancerous tumors developing quickly, and continuing to grow until the animal dies. He also found that when mice, with cancerous tumors, the result of inoculation, were placed upon a rice diet, the tumors ceased to grow, and in many cases degenerated and disappeared. Dr. Bulkley, in his trip in the Far East, made close inquiry of physicians, missionaries, civil and military authorities, and was repeatedly told that they did not have cancer among rice-eating people.

A series of experiments by White, Corson, Sweet, and Saxon were made upon the influence of certain diets upon the growth of experimental tumors, all with the same results. Of 50 white mice, 25 fed upon glutenin and gliadin, and 25 on normal diet; 23 of the 25 on the normal diet acquired tumors, against only four in the 25 on glutenin and gliadin. This was repeated on 50 males, with the result of 18 in 25 as against 3 in 25 of the latter class; and in a third series of 50 females, the figures were 15 in 25 against 7 in 25. Thus they found that 75 per cent of 75 mice developed experimentally inoculated tumors when on normal diet; while only 19 per cent of the other 75 developed such tumors when under a diet of glutenin and gliadin, that is, vegetable proteins. Moreover, the tumors in the latter were in 30 days hardly larger than those in the former in 10 days.

While there are, no doubt, many contributing factors in the causation of cancer, the fact remains that the proper diet must lie at the bottom of all medical treatment. And while meat eating alone is not responsible for the neoplastic growth, still, disordered metabolism is the fundamental cause, and this is influenced by diet to such a degree that without this being controlled, simple medical or surgical measures can never hope to check its ravages.

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DISCUSSION

DR. ALEXANDER J. McCANNEL (Minot, N. D.): I will admit that I do not agree with everything that the essayist has said, but if we agreed on everything that comes up there would be no use in discussing our problems. The essayist has considered a feature of the cancer problem to which not enough attention has been given in the past. A short time ago I picked up a chiropractic paper a considerable proportion of which was devoted to the subject of cancer, and in this article the statement was made, in effect, that physicians admit they do not know the

cause of cancer and that the treatment of cancer is very ineffective; and they go on to say that "we" have the rational treatment. That sort of propaganda is going out to the public all the time. What our profession should do is to try to educate the public along the lines of prevention of cancer. We certainly know a good deal about that phase of the problem, and also as regards the necessity of an early diagnosis in cancer. If we can do that, we shall have accomplished a great deal towards lessening the mortality, even if we do not find out the exact cause of cancer.

The Doctor has dealt with the question of the cause of cancer being due to an irritation of the tissues that has, we might say, thrown them out of their normal course in a physiological way. Then, taking up the consideration of diet as having an etiological bearing on cancer, he quotes several authorities in support of the theory that the increase in cancer may be due to the faulty preparation of our food and the amount of meat that we are eating. The amount of meat, per capita, that is eaten in this country has increased. It has increased in England, and so also has cancer increased. I do not know that we can connect up the increase in cancer with the amount of meat in the diet. Perhaps I am misinformed, but I do not believe that the tribes that live in their aboriginal way and subsist almost entirely on meat, eating more per capita than we do, suffer from cancer. If I am wrong I can be corrected. I have had this theory, and I am giving it to you as my own idea. It may not suit you, or you may think there is something in it. The development of cancer is due more to faulty preparation of our food than to the food itself, and if we analyze the figures Dr. McGurran has given us right along that line we may see that there is something to it. For instance, the people who lived one hundred or two hundred years ago did not drink large quantities of ice-water at every meal, then immediately throw into the alimentary canal food that was just as hot as they could possibly bear it. I believe we are injuring our stomachs by the extremes of heat and cold we are using, thereby irritating the stomach and so forming a basis for the development of cancer. Take our ordinary meal: We start off with food just as hot as we can get, then we drink water, and finish with enough ice-cream to put the meal in cold storage for the balance of the day. Is it any wonder we have stomach troubles of every kind.

If we take the figures presented by Dr. McGurran and analyze them in connection with the use of extremes of heat and cold in the stomach and other improper methods of eating, as well as our improper methods of preparing foods, I am satisfied that they will bear out my theory just as well as the theory of excessive meat consumption. This is submitted merely as an additional theory of cause as the faulty methods referred to have increased with the increase of cancer.

DR. COLIN C. CAMPBELL (Ashley, N. D.): Dr. McGurran's very excellent paper is only another indication of the care he has exhibited in equipping himself so splendidly as chief of the forces of preventive medicine in North Dakota, and, of course, the fact that the aspect of the cancer problem which he views is that of prevention excludes him from any discussion of the surgical problem of cancer.

And really, when one considers it, is it not true that there is no cancer problem as far as the surgeon is concerned? Is it not pretty definitely decided that the surgeon has but one thing to do, and that is to remove cancer in its incipient stages as widely as ordinary common prudence will allow him without contaminating any tissues, and is it not also decided that a surgeon has no right whatever to touch a cancer or any malignant disease unless he can radically remove it?

Another thing that occurred to me is that each surgeon has a definite civic duty to perform in conjunction with the general practitioner, and that is to insistently and persistently urge upon the lay public the fact that any newly developing disease or disorder in those over forty-five years of age, in men along the alimentary tract, and in women amongst the genital organs, is a proper subject for immediate investigation.

It also occurs to me to inquire whether the world is really whole-souledly in earnest in regard to the control of cancer, when the Doctor tells us that it is estimated that each year half a million persons among the civilized people of the earth die from the ravages of cancer, and is that not a more painful, horrible death than that which any war in any year ever has produced? And while I am not a prophet and not even a prophet's son, it might be interesting to speculate as to what really would happen if the cancer problem were approached with the same absolute determination to see the thing through that this country and other countries have used in the prosecution of an apparently useless war. If there were given to those special workers in cancer research say one-tenth of the dollars, the pounds sterling, the francs, the marks, the rubles, etc., that were spent in the prosecution of the late destructive war, and their efforts were supported by the whole civic structure with the same absolute abnegation of all ulterior purposes, the same determination to see the thing through to a successful conclusion, is it not possible, or even probable, that sometime, some one, somewhere would find, aided, it may even be, by the prayers of the saints, that magic "mittel" which would give to the elders of the generation and to the countless generations still to come, at least a relative assurance against the ravages of malignant diseases, as they are stepping down from whatever heights their achievements may have taken them, down toward the melancholy, the all-leveling sea, and add, say, ten, fifteen, or twenty years to the time when they, after a hard life, have a right to expect to travel the primrose paths of a well-deserved dalliance before they do put out to sea?

DR. MCGURRAN (closing): From all the data we can gather it would seem that cancer is a disease of advanced civilization. We know that it thrives where the intake of food is not embarrassed in any way, where the people have plenty to eat and the surroundings seem good. In this respect it is quite contrary to the rule in tuberculosis. We find that infection with tubercle bacillus is most apt to occur in those localities where the conditions are very bad, with lack of proper sanitation, the diet restricted, and the surroundings not of the best. On the other hand, cancer does not seem to be increased by these factors. The only way we can succeed in preventing the disease is to follow along the lines that are being followed in the attempt to prevent

tuberculosis. In the last ten years the Society for the Control of Cancer has done an enormous amount of good through the dissemination of information that finds its way into the hands of the general public. If the proper educational propaganda is carried on, and carried on with the same vim and vigor that is employed in the campaign for the prevention of

tuberculosis, I have no doubt that the public will understand that when a lesion begins to appear the individual should seek medical or surgical aid in time to cut short the disease, because a sane, common sense diet together with early recognition are the paramount factors in cancer control.

PHYSIOTHERAPY IN GENERAL AND DIATHERMY IN PARTICULAR*

By B. T. GREEN, M.D.

BROOKINGS, SOUTH DAKOTA

No apology is offered for this choice of subject; rather, an apology for the apathy of the medical profession in recognizing the claims of physiotherapy is needed. Certainly no other group of remedial agents enables the therapist to meet inadequacies of nature's curative reactions so perfectly and in her own physiological way.

In the past, physiotherapy has been mainly in the hands of irregulars and the ignorant; however, it may be recalled that surgery was once practiced by the barber and that drugs were administered by the pagan priest.

While the medical profession is to be commended for its conservatism in accepting new and untried therapeutic measures, it should be more prompt in examining their claims. Because of this neglect much that is of value falls into the hands of quackery and is exploited to the disgust of all but the gullably ignorant.

Physiotherapy claims superior therapeutic value as an excitant of corrective physiological reactions. The claim should have been examined and subjected to rigid tests and clinical trial, and either adopted and developed or consigned to oblivion, as have been the electronic reactions of Abrams. Because of this neglect it has been necessary to rescue physiotherapy from quackery.

This accusation of neglect may be made concerning some of the older remedies as well. The time-honored physical remedy, massage, which has been employed by the profession for centuries, has been appropriated by two cults—osteopathy and chiropractic—and developed and popularized under false theories until recognized in most states as a system of healing. Massage should have had its greatest development within the profession and so taken its proper place in therapy. Had it been so these cults would have no excuse for existence.

The medical profession has been so busy working out the big problems confronting it that, too often, the means for the relief of the every-day ills from which humanity suffers have been neglected. It is upon these that the business of the cults thrives. The public is not always deceived, as we in our arrogance may imagine. They do often get relief from the irregular where they fail to get it from us and at a price that would pauperize us.

Many of the most brilliant achievements of medicine have been in diagnosis. Despite the fact that the principal end of diagnosis is therapy, it seems sometimes that the *end* is almost forgotten and that the dazzling glamour of achievement obscures the sufferings of humanity.

But, notwithstanding, physiotherapy is coming into its own. It has become a well-recognized and increasingly busy department of many good hospitals. It is being adopted by clinics and clinical groups the country over, and it has found a place in the armamentarium of many ethical practitioners. Physiotherapy has the recognition of several medical societies, and in our own state it is an affiliated organization with the State Medical Association. A national organization of state societies is the probable ultimate result.

The recognition now being given to physiotherapy is due largely to the painstaking work of a few scientifically minded men in charge of physiotherapeutic sections of U. S. Government Hospitals given over to the reconstruction of disabled veterans of the World War. General Hospital No. 41, Fox Hill, N. Y., set a record of treating an average of 2,300 patients daily by physiotherapeutic measures, and its staff received the commendation of the U. S. Government for the high percentage of cures and the relief rendered. It is a matter of gratification that an authoritative literature on the subject is being built up and having standard publication. One of the most recent additions is a valuable section

*Presented before the Madison (S. D.) District Medical Society, Madison, S. D., October 8, 1921.

to be found in "Forcheimer's Therapeusis." It is a safe prophecy that our Grade A. medical schools will, in the near future, include departments for physiotherapy in their curricula of instruction and that an internship will not be complete without physiotherapeutic practice. Excellent short courses of instruction are now being offered by manufacturers and sales institutions of physical apparatus. The objection to these is that they bear the marks of commercialism as an unethical stigma.

Physiotherapy, as the name indicates, is the treatment of disease by physical agencies. It is not a new therapy; on the other hand it is perhaps the oldest. It is new only as surgery is new—in its recent scientific development. It has a well-defined and limited field of application in therapy. Its place is among the specific remedies, and its empirical application is taboo when diagnosis is clear. If properly and understandingly applied no therapy can be more positive in its results. With this, as well as with other remedial measures, diagnosis must be well worked out and all departures from the normal well understood. With this knowledge clear and a definite understanding as to how the physical remedies influence pathology there can be no question as to proper selection.

All physical remedies may be roughly classified as mechanical, thermal, and chemical according to their action upon living tissue. In other words, physiological reactions in living tissue are induced by the activations of either mechanics, heat, or chemistry, or by some combination of these. In all physical therapeutic agencies one of these three modalities predominates: the mechanical in massage, vibration, sinusoidal, static electricity; the thermal in all forms of heat,—conductive, radiant, convective, and converse; the chemical in ultraviolet light, galvanism, x-ray. One's choice for a given pathological condition answers the question: Will mechanics, heat, or chemistry, singly or in combinations, activate corrective physiological reactions? If so, which and what is the means to be employed?

All therapy deals with the reactions of inflammation. These reactions are specific and are always the same. They constitute nature's attempt to repair damage in living tissue, and they operate regardless of the cause. These reactions differ only in degree of intensity. If they are adequate they result in repair; if inadequate, the result is chronic disease or death, either of a part or of the whole.

It is here that physiotherapy affords a specific

means of supplementing nature with a safe and controllable agent that can initiate, intensify, retard, or balance her reactions; that is, control her inflammatory changes in a manner best calculated to repair the given pathological condition.

It has been stated that the field of physiotherapy is inflammation and that its activities are confined to living tissue. Since the reactions of inflammation are always independent of the cause, it follows that the cause, if still active, should have primary attention. No indicated procedure should be omitted. Physiotherapy may be adjuvant in its own field and is certainly taboo outside of it. It is simply a remedy to be rationally selected and applied where indicated. This does not in the least detract from its value.

Physiotherapy has its failures, which may be due to a variety of causes: there may be failure in the reaction of tissue. (A tissue that is dead cannot react.) Fault in diagnosis is another cause. (An overstimulated nerve cannot improve with more stimulation.) Lack of proper control of the patient (damage in excess of repair). A far greater number of failures are due to faulty technic. Fault in technic leads to indifferent results, no results, or to actual damage. It is obvious that the technician is himself mainly responsible for his failures, though it is human nature to place the blame elsewhere.

The foregoing general discussion has all too briefly covered a large field. It has undertaken to define "physiotherapy," outline its field of application, define its limitations, consider its relations to therapy in general, and to point out its claim as a safe, controllable, and reliable means of exciting corrective physiological reactions in line with the processes by which nature undertakes her repairs. It remains to make these claims more specific. To that end diathermy (converse heat) has been chosen as a means of illustration.

The object to be attained will be served best by choosing one particular form of diathermy,—the sedative as applied to local inflammation. While a suitable electrical apparatus is necessary for the production and control of the heat effects in diathermy, apparatus has no part in the discussion. The successful application of so potent a remedy requires that the operator must necessarily know the details of the apparatus used in order to insure the safety of operation, must know how high-frequency effects are produced, must understand the electrophysics involved, must work with a clear knowledge of voltage, amperage, resistance, etc., must know the reac-

tion of living tissue to high-frequency effects, must be master of a technic of great detail, and have a judgment that decides wisely upon dosage with all that term implies. This must all be conceded as necessary to success.

Treatment by diathermy with correct technic gives the patient no electrical effects. He has the sensation of heat and heat only. Treatment by this modality must not be considered from any other standpoint than heat, and it must be used only when heat is therapeutically indicated. By governing heat production, accurately localizing its action in the tissues, controlling its effects, and timing its application, simple heat has a very large field in therapy. The production of heat in the tissues is explained by well-known physical law. The d'Arsonval current, with its low measurable amperage and high controllable voltage, is bipolar with the tissues under treatment completing the circuit. The current meeting the resistance of the tissues through which it passes is transformed into heat. The heat is formed in the tissues and nowhere else, because it is there and there only that the current meets sufficient resistance to make this transformation. This heat may be localized at the will of the operator by the size, shape, and relative position of the electrodes in contact with the tissues. In this way heat is accurately localized in almost any tissue, whether deep or superficial, while the quantity and intensity of the heat production may be accurately governed by the operator through the generator controls. Heat so produced must necessarily be within physiological limits to have physiological effects.

The therapeutic value of heat so produced and localized in pathological tissue is explained by reactions. It produces an arterial hyperemia, increasing nutrition to the part; dilates capillary, venous, and lymph channels, increasing drainage and favoring osmosis; the high degree of heat inhibits bacterial growth and increases phagocytosis; fibrosed areas are softened, the inflammatory tissue dissolved, and the débris eliminated; pain is relieved because pressure is removed. The end-result is repair of the diseased tissue under treatment.

This may be made clearer by citing an illustrative case:

A woman, aged thirty, with the following history of injury; accidental dislocation of the left elbow twelve hours previously. Dislocation was reduced soon after the accident, and hot wet compresses

applied. The x-ray did not show fracture of bone or bony prominences. The bones of the elbow joint were in good position. Tissues about the joint were extremely swollen. Redness and ecchymotic discoloration. The patient complained of severe pain in the vicinity of the joint, the pain extending to the hand and shoulder.

Treatment: Apparatus, a resonant transformer producing d'Arsonval current, amperage up to three amperes, and voltage up to 30,000, equipped with a hot wire milliamperemeter, an accurate voltage control, and finely adjustable spark gap, connecting cords and suitable electrodes.

The arm is bared and painted with soap lather above and below the injured joint. Block-tin electrodes one inch wide and twelve inches long are applied, encircling the arm six inches above and six inches below the elbow. These electrodes are held in place by lightly applied woven elastic bandages. Flat metal tips on the conducting cords are placed in contact with the block-tin electrodes and held in place beneath the elastic bandages. The conducting cords are attached to the d'Arsonval binding posts. The high tension switch is open and all controls on lowest points, spark gap is closed. All connections are quickly inspected and the high-tension switch closed. The spark gap is now slowly opened and the needle of the milliamperemeter watched. If necessary the volt switch is advanced. About five minutes will be required to reach the desired amperage, which in this case is 800 to 1,000 milliamperes, depending upon the heat sensation experienced by the patient. A feeling of distinct warmth is all that is allowed. Continue the treatment for about thirty minutes. Observe that the skin between the electrodes is warmed and reddened and that the swelling about the elbow is slightly increased. The patient has already volunteered the information that the pain is greatly relieved.

To stop the treatment reverse the steps as outlined in beginning treatment. When the bandages and electrodes are removed the arm is moved much more freely and with less pain than before treatment. Cover the arm with cotton, bandage, and adjust to an ordinary sling.

Pain will probably return in four to eight hours but with less severity. Two treatments should be given daily for two or three days, then less frequently, depending upon the pathology and the resulting reactions. After the first few days the arm should be massaged gently and the elbow given motion within the limits of pain. Keep under observation. If there is limitation of motion give similar treatments for the softening and absorption of fibrosis.

Here the diagnosis was clear, the pathology known, the specific treatment clearly indicated and rationally applied with results positive. Nature's inflammatory reactions were imitated and intensified within physiological limits resulting in hastened repair.

GREETING FROM MINNESOTA IN CHINA*

University Hospital

BY J. HORTON DANIELS, M.D.

NANKING, CHINA

After practicing five years in China it is truly an inspiration and a joy to share in such medical gatherings as this with the Lymanhurst Staff and others interested in tuberculosis.

It is evident, too, that the whole world has its eyes fastened on China with its revolutions and its renaissance. China is in travail, and we are only assisting, for the real pain and labor must be borne by China herself. Something of the task can be appreciated by knowing of the teaching for centuries of the ancient classics, of the worship of ancestral spirits, of the desire for many sons, primarily that they may in turn look back with due obeisance upon their parents' spirits in the future world. Their very word for the past, translated literally, is "from front," and future, "back coming." Thus they have stood, facing the past with their backs to the future. For old China to have turned about would have been of no avail, for the same eyes would be seeing. Truly, nothing short of a spiritual internal revolution, an internal rotation, has brought the new China to life.

We are happy in our service over there, and I think you will be pleased, possibly surprised, as I was, to realize how large a group of your Minnesota friends are there at work. In the University Alumni office one finds fifty-two cards filed under China, and of these thirteen are of the medical profession. Still room for the joker. China is so large that many of us never meet, but the Minnesota spirit still binds us together.

Dr. Bruce Jarvis, rather recently arrived, is hard at work in Tai-an-fu, Shantung, a city at the foot of China's most famous and sacred mountain. I have heard that it is rather new work without a great deal of equipment to work with. There are some things greater than mountains to challenge one's faith.

Dr. Clara Nutting, returning last year from her first furlough, came back to a splendid new hospital in Fengechow, Shansi. According to the report in a recent number of *The China Medical Journal*, they may well point with pride to the hospital, equipment, prestige, and staff. It is this center which enjoys large interest and support from Carleton College.

At a medical conference in 1923, I met Dr.

E. C. Andreassen, and we had a good visit. He, too, has been doing a constructive piece of work with brick and plaster, as well as medicine, and has won a place for himself in the hearts of all, and especially in Kwei-teh, Honan.

Dr. Calvin Buswell and I both claim fellowship with Minnesota through our first two years of medical schooling as well as academic work, though our medical degrees were taken at Columbia. It happens we are both at home at the same time on furlough, both eager for work and chances to chip off the rust. He has been stationed at Kuling, Kiangsi, where about three thousand foreigners congregate in the mountains for the summer months. In addition to both foreign and Chinese practice, they have there the largest tuberculosis sanatorium in China.

The names of Dr. Nellie Pederson Holman, of Kioshan, Honan, and Dr. Helen Brenton Pryor, of Nanking, indicate, at least to their old friends, their state of matrimony—none the less powerful for good. Happily for us, Dr. Pryor is finally settled with her husband in Nanking after finishing her internship in the Peking Union Medical College Hospital. She has already helped greatly in our hospital, aside from her regular work in language study and household cares. Strange to say, Dr. Frances King has withstood all attacks, and fights the good fight alone. After her year in the Nanking Language School she joined the staff of the Margaret Williamson Hospital, Shanghai, where she is specializing in internal medicine.

Dr. Ellen C. Fullerton, '03, at St. Elizabeth Hospital, Shanghai, and Dr. Niels Nelson, '06, somewhere in Manchuria, were ahead of my time, and I have not known them. The same must be said for Dr. Rudolph L. Crook, '20, now in Yachow, Szechuen, and Dr. Arthur J. Colberg, '21, of Hsuechow, Honan, who have come out since my time.

In the Peking Union Medical College, Miss Edna Wolf carries heavy responsibilities in the Nurses Training School. Dr. Bert Anderson heads up the department of dentistry, and Dr. Marshall Hertig, entomologist, is with a special research group, searching for the method of transmission of Kala-azar—an urgent problem.

This has been a rather extended personal report, but designed to bring you greetings, revive

*Presented before the Consulting Medical Staff of the Lymanhurst School for Tuberculous Children, Minneapolis, Minnesota, September 23, 1924.

your interest in them, and provide sufficient address to let you act.

Concerning tuberculosis in China, it is there in abundance with little to check it. With the poverty of the people and greed of the officials, with smallpox, insanity, and leprosy all wandering freely about the streets, with human fertilizer, an economic necessity, daily broadcasted over all the growing vegetables, with the poor crowded in small mud houses, dark, and with dirt floors, and with scientific medicine and hygiene only in its infancy, the difficulties may easily be seen.

The government, local or otherwise, supports no tuberculosis sanatoriums nor farms, no public hospitals nor clinics of any kind. Even educational work, the foundation of China's centuries of culture, must beg and beseech for funds, and then often in vain when the war lords are fighting. Thus we can only hope that some private benefactor, such as the Rockefeller Foundation, may some time take up the task, and one of you may lead it.

In most mission hospitals such as ours, where beds are too few and the policy of an active service must prevail, tuberculosis patients are admitted, if at all, only for a brief stay with the hope of teaching them how to live and protect others. The average person's idea of germs is that they can be killed by vigorously rubbing between the shoe and the floor, when reprimanded for the spitting. The greatest need comes with our valuable co-workers, teachers, preachers, and doctors, many of them returned students from America, and it is to meet this need especially that the sanatorium has developed in Kuling. Dr. Buswell, I am sure, would be glad to tell of his work there.

This evening's paper and discussion on the recently developed ring test of Dr. Larson sounds most interesting, and I hope we may take it back to China. If it proves reliable it would be very valuable in differentiating pulmonary tuberculosis from another newly recognized disease in China, bronchial spirochetosis, which bears much clinical resemblance, even with hemoptysis. Even though the latter appears to be a distinct clinical entity, curable with arsenic, it is often found with tuberculosis, and some hold the view that it is only superimposed secondarily on a previous infection, similar in tendencies to Vincent's angina. Thus in a case with cough, fever, hemorrhage, and sputum, positive only for bronchial spirochetes, it would be a great relief to be able to rule out an active hidden tuberculosis by means of this test.

Someone has remarked that, "a nation's social

development is fairly well indicated by the degree of development in her work against tuberculosis." When we realize how little was being done in this country twenty-five years ago, it is not our place to scoff. In comparison with this backward look, it is interesting to read a section of the "Chow Rituals," dating back about ten centuries before Christ.

"Physicians attend to the sicknesses of the people. There are particular diseases in the four seasons of the year. Headaches and neuralgic affections are prevalent in the spring, skin diseases in summer, fevers and agues in autumn, and bronchial and pulmonary complaints in winter. The patients are sent to the different departments to be treated."

The Chinese are a people rich in inheritance, conservative, reliable, intelligent, friendly, and eager for the New Order that is dawning. We in America have something to give and much to learn.

PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of December 10, 1924

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, December 10, 1924, at 8 p. m. The meeting was called to order by the Vice-president, Dr. H. L. Ulrich. There were thirty-six members and two visitors present.

Dr. Gustav Schwyzer presented a specimen of goiter.

Dr. Carl B. Drake (St. Paul) then read his thesis, entitled "The Clinical Significance of Glycosuria."

DISCUSSION

DR. ULRICH: Dr. Drake mentioned some work Dr. Rigler and I did on this subject. We were trying to standardize the blood sugar curve. We called attention to the fact that "glucose tolerance test" is not a good term. We called it *blood sugar reaction following the injection of glucose*. We tried to get some sort of a quick accurate method to determine this curve. At the present time that work has not been finished.

This thesis covers a very big territory. It includes not only glycosuria but glycemia and diabetes.

I have taken the blood sugar on every patient who is given a thorough examination in my office, and find a large percentage of these have hyperglycemia. These people are not diabetics. All diabetics are ruled out. They come with all sorts of symptoms, particularly complaining of vague pain. They improve on mild dietary measures.

DR. SCHLUTZ: The peculiar greenish-yellow color given by some urines, if tested with Benedict's reagent, is probably due to pentoses. Patients on a diet consisting largely of vegetables often give this reaction.

Prof. Folin, in a recent article on carbohydrate tolerance, mentions the effect of excitement upon blood sugar and finds that it easily causes an in-

crease. We are now carrying out some experimental work along similar lines in children, but so far have not observed this influence. It is possible that the psychic reactions of the child may not be as sensitive or profound as those of the adult.

DR. FREEMAN: I would like to mention a very simple and accurate test for sugar in urine that Dr. Edward Boeckmann showed me about twenty years ago. An ordinary test tube is filled three-fourths full with the urine to be examined. About 5 c.c. of a saturated solution of sodium hydrate is added. The thumb is placed over the opening, and the test-tube is inverted so as to mix the liquids. The upper part of the column of the fluid is then gradually heated over a Bunsen burner. In positive cases a chocolate brown color appears at the top in the heated area of fluid.

DR. GILFILLAN: My understanding has been that these are not discussed. The paper is very interesting, and I think one of the things to be learned is that we have no absolute test for diabetes. In the case mentioned by Dr. Drake, of a physician who had glycosuria and somewhat doubtful blood sugar curve, I do not think we can tell whether or not he has diabetes.

I think renal glycosuria is not so uncommon as we used to think. I see cases now who pass sugar on a blood sugar of 0.12 or 0.13, but that is not diabetes. Then there are cases we have seen with high blood sugar who do not pass sugar. I don't think that is diabetes. They are utilizing sugar; they are running a high blood sugar, but they are using all the sugar or it would accumulate.

Then there is the relation of that to some other diseases; for instance, the relation of high blood sugar to furunculosis, cataract, and some other eye diseases. In many of those cases high blood sugar is found, but not diabetes.

Of course in diabetes the effect of hyperglycemia itself is somewhat doubtful. Of course the hyperglycemia itself does not produce serious direct manifestations of diabetes. All of the efforts made to differentiate true diabetes from those conditions has led to no results so far. Ordinarily diabetes is a progressive disease. I should say, for instance, if in ten years we found that curve the same, we could not say the patient had diabetes. If it progresses, it is diabetes, but if it stays the same we can not tell.

I do not think, in renal glycosuria, that the glycosuria is independent of diet, either. Some may have a threshold of 1.1 or 1.5; in one case they would secrete sugar possibly with ingestion of carbohydrates and the other without the ingestion of carbohydrates. We see a great variation in the threshold cases both in diabetes and in health.

In this curve it shows slow utilization of sugar in the body, but the sugar is utilized, so that it is not diabetes so far as we can tell.

DR. HALL: I think this is a very important paper. We very frequently see cases in which the urine shows a small amount of sugar at times only, with a blood sugar about the borderline. It is difficult to know how to classify these cases. The metabolism of sugar is an intricate process which is influenced by many factors. Insulin appears to affect the metabolism of sugar from whatever cause, but we know very little as to how insulin really brings this about.

In the presence of an infection it certainly is not nearly as efficient as in other diabetics.

There appears to be some evidence that inefficient Islands of Langerhans may improve. In one case cited by Dr. Drake, the man's organism apparently handled a diet normally which had formerly produced glycosuria. We see this very frequently in dieting diabetics. After they have been dieted for a time they take care of an amount of carbohydrates which they were previously unable to handle. In the early part of this year the Banting group obtained an autopsy, in a few hours after death, on a child who had been killed in a street accident. This child was one of their first insulin cases. At autopsy they thought they found evidence of degeneration in the Islands of Langerhans. This is an interesting observation.

There is no way to be sure how we should class such a case as Dr. Drake cites. I do not believe the glucose test is of great value. I think it best to consider him a potential diabetic.

DR. DRAKE (in closing): The last case I reported led me to investigate this subject. Dr. Gilfillan had seen the case and felt it was not diabetes, and another internist said it was. I did not know, so I started investigating, and when I got through I had to come to the conclusion that I still did not know.

If we can follow Joslin, this is the type of case we can hope to do something with in the prevention of diabetes. If it is overworking the Islands of Langerhans that has to do with the causation of diabetes, then regulating the diet and keeping down overweight is the most we can do in the way of prevention.

DR. E. J. SIMONS read a paper entitled "Observations on Blood Pressure during Pregnancy, Labor, and the Puerperium," by Drs. F. L. Adair and E. J. Simons.

DISCUSSION

DR. ADAIR: The way the blood loss was determined in these cases was as follows:

As soon as the child was delivered a basin was placed against the perineum, and all the blood lost was collected in this basin and measured. So far as the blood loss is concerned, I think that was fairly accurate.

In the manual removal of the placenta, one losing 1,800 c.c. and the other 2,000 c.c.—this includes the amount of blood lost up to the time the placenta was removed. I realize that this is a tremendous amount of blood. I think in both instances the hemorrhage with the third stage of labor was one of the causes for the manual removal of the placenta.

I think the management of the third stage is fairly uniform in the hospital. Essentially the same technique is used, that is, merely the expectant management of the third stage.

The interesting things to me in the series are:

1. The tendency of the blood pressure to rise during pregnancy so that it attains not only the average pressure, but the curve shows an upward tendency.

2. The rather abrupt rise of blood pressure during labor, with a subsequent drop and gradual decline until a normal or usual level is reached about the end of the second week.

3. The difference between the behavior of a normal case without hypertension and the case with

hypertension. In cases without any abnormal blood pressure, both the systolic and diastolic drop uniformly but show no secondary rise. In others with hypertension we get the same rise during labor, with subsequent fall, then a secondary rise and a secondary fall.

I am not certain that the use of drugs should be taken as the reason for the large amount of blood loss in these cases. Many of these cases were cases of prolonged labor, cases which had gone overtime, etc. Various factors enter into this loss, so I hardly think it is fair to attribute the greater loss of blood solely to the administration of drugs.

DR. SWETSER: How high was the highest systolic pressure?

DR. ADAIR: 196.

DR. SIMONS: I might add that in one of the cases in which manual extraction of the placenta was done, the extraction was done for hemorrhage. The woman went into shock; her systolic dropped to 78 and the diastolic to .66. She was given intravenous injections of saline. In the other case pressure was exerted, expression was done, and eversion of the uterus resulted. These are the two cases in which loss of blood was the greatest.

—JOHN E. HYNES, M.D.
Secretary.

PROCEEDINGS OF THE MINNEAPOLIS CLINICAL CLUB

Meeting of November 20, 1924

The regular monthly meeting of the Minneapolis Clinical Club was held at the Y. M. C. A. on Thursday evening, November 20, 1924, with dinner at 6 P. M. The meeting was called to order by the Secretary, Dr. Michael, in the absence of the President and Vice-President.

The minutes of the October meeting were read and approved.

After some discussion it was decided to see if arrangements could be made with the University Club for holding the meetings there, and, if so, to try it out for at least one meeting.

Dr. George Douglas Head was a guest of the Clinical Club, and read a paper entitled "The Diagnosis of Abscess of the Lung." Several charts were shown. (To be published in THE JOURNAL-LANCET.) Dr. Head said:

In conclusion: The thing I want particularly to emphasize is the case with which one may confuse abscess of the lung and pulmonary tuberculosis; the case with which one may overlook an abscess in a previous pneumonia area or in inflammations of the lung, which, forming slowly and gradually is overlooked unless one is very careful and makes examinations from day to day. It is not infrequent to find that we become careless in going over these cases, particularly a case we have had to observe for a considerable period of time. Take a case of lobar pneumonia that has gone on through partial convalescence, the temperature has partially disappeared and other symptoms diminished, and yet the process goes on from day to day. The physician thinks that it will probably clear up in a short time; he comes in and cheers his patient up, and fails to go over the lungs carefully, and very frequently to his sur-

prise after a month of dallying around he wakes up some morning to find that he has a very serious condition to deal with in the way of a lung abscess, or a circumscribed empyema; and, if he is real careless, perhaps a general empyema in the lung itself.

DISCUSSION

DR. MICHAEL: The Clinical Club may certainly feel itself distinctly honored to have been given this privilege of listening to this paper by Dr. Head. I am going to ask Dr. Schlutz to lead the discussion.

DR. SCHLUTZ: I can fully agree with Dr. Head that at times it is very difficult to differentiate abscess of the lung from other conditions. This is certainly true in children in such conditions, for example, as circumscribed empyema.

I can absolutely endorse what he says about the use of a large-caliber needle. It is the only kind to use in exploratory chest punctures. While my experience is not as extensive as Dr. Head's, I can also say that I have never seen any dangerous complications from the use of the exploring needle.

Dr. Head did not mention the occurrence of lung abscess in scarlet fever. I have observed it several times in this condition. Scarlet fever is a disease in which lung complications are quite rare. Lung pathology in this disease, especially in the base of the lung, accompanied by high fever and prostration and occurring toward the end of the exanthematous stage means in all probability beginning abscess formation. The expectoration is quite profuse and has a fetid, foul odor. The leucocyte count is apt to be low. Lung abscess was demonstrated in all of these cases and its presence was confirmed by autopsy in two of them.

Dr. Hedblom, of Rochester, recently reported a series of cases of mediastinal abscess. He pointed out the frequent connection of this condition with a recent tonsillectomy under ether anesthesia. In children a general anesthetic is practically always necessary for nose and throat work; but in no single instance in my experience was this complication encountered.

DR. LA VAKE: Did you ever see any trouble arise from a lung puncture?

DR. HEAD: Not that I can remember, more than that, once in a while, a patient will cough up a little blood. I have never seen any ill effects, even in these cases where one goes into the abscess.

DR. LAVAKE: I recall a case, at a New York hospital, of a circumscribed empyema in a man. The man died in a few minutes following puncture. It was thought that the needle entered the pulmonary artery, for he immediately began coughing large quantities of blood.

On the other hand, I saw a case of lung abscess in a child caused by a chicken-wire staple that, from the history, had been supposedly swallowed ten years before. A physician told the parents that "it would be absorbed." Ten years later the boy was treated for tuberculosis for three months. X-ray showed the staple unabsorbed. Two open operations failed to get the staple. After the third operation the boy, on coming out of the anesthetic, coughed up the staple and promptly recovered. This case shows what tremendous operations can be performed on the lung without untoward results.

DR. HEAD: I have seen one death in puncture of the pericardium, but that was never explained. Autopsy did not explain it. The patient was an able-bodied man who had an effusion into the pericardium. The needle had been introduced once before, a puncture made into the pericardium, and fluid removed. Death came at the second puncture about ten days after the first puncture. The man died almost instantaneously, but nothing was found at autopsy. Curiously enough an x-ray picture of the chest was made at the same time to show the needle in the pericardial sac, as a demonstration picture. The needle was not in the wall of the heart at all, but clearly in the sac. It was not a paracentesis cordis. Why that man died suddenly none of us could explain.

I think that when one is going to make a chest puncture he ought to bear in mind this possibility and warn the patient or family and so protect himself against such an accident.

DR. SCHAAF: Don't you think that in these cases one should not make a diagnosis of pulmonary tuberculosis unless the tubercle bacilli can be found? I remember that at the last meeting of the Congress on Internal Medicine, Dr. Graham presented a paper on lung surgery and the use of cautery in chronic non-tuberculous lung conditions, and he stated that most of his cases came to him diagnosed as chronic pulmonary tuberculosis, and many of them had been in tuberculosis sanatoriums. It appears to me that this is unnecessary and that we should consider obscure lung conditions of this type as non-tubercular until the Koch bacilli have been found.

DR. WITTICH: Certainly one hesitates to discuss at all this paper of Dr. Head's because it is so thorough. In this age of rushing to the x-ray plate for a diagnosis, to get the views of a man who is always accustomed to go into his diagnoses with the thoroughness Dr. Head does, is a great privilege, I am sure. These observations are very interesting to me and show that we should not be in too much of a hurry in making a diagnosis.

Concerning the occurrence of abscess in children following tonsillectomy: In my experience it has been relatively common. I have had three cases in one year. I think it has been pointed out that this only occurs in certain localities, and whether due to faulty administration of the anesthetic, or what, we do not know. We have a case now in a girl about eleven years of age.

In pneumonia or bronchopneumonia that goes on unresolved to a suppurative process, there is a little point in diagnosis I should like to call to your attention, and that is, when pulmonary tuberculosis progresses to the stage where elastic fibers appear in the sputum, tubercle bacilli are generally present, so that the presence of elastic tissue in the absence of bacilli after three or four examinations of the sputum, especially by the concentration method, is pretty strong evidence that the suppuration is non-tuberculous.

Personally, I have not used the exploratory needle very much, probably hesitating because of a possible unwarranted fear. I see no reason why it should not be done more frequently.

In his analysis of cases Dr. Hedblom has emphasized that the early diagnosis means so much in the treatment of abscess, that two-thirds of the cases

are cured by operation if diagnosed early, and less than 50 per cent are helped either by drainage or pneumothorax if allowed to go on, so that the early diagnosis of these conditions is very important. I think it has been shown that after about three weeks the pleura is involved and of course complications arise so that it is a good point to urge early drainage as soon as a diagnosis of a suppurative non-tuberculous lesion exists.

I want to thank Dr. Head for this very clear differential diagnosis he has given us tonight.

DR. MICHAEL: I do not know whether it is common to have lung abscess follow the opening of a peritonsillar abscess, but I know of a case which I attended during my period of general practice in which the abscess occurred in the left lower lobe following this procedure.

DR. PHELPS: I am very much interested in this subject, on account of abscess of the lung being a complication following tonsillectomy. I have recently read many articles in which removal of the tonsils was placed at the head of the list as the cause of this condition. Heurer reported a series of cases in which over 75 per cent followed tonsillectomy. When I was in Baltimore we had a series of over 2,000 tonsillectomies, none of them followed by abscess of the lung. We felt there that the pre-operative examination was important, for no operation was done when any evidence was found of a respiratory infection.

As regards the cause of the abscess: Some believe it is due to administering ether by some form of pump, thus forcing the aspiration of material into the lung. Others have reported a number of cases following local anesthesia, so that the anesthetic is not the whole thing.

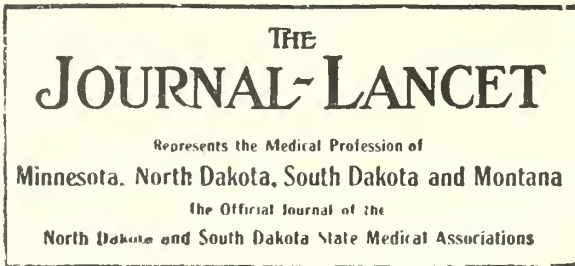
One other thing I would like to mention, and that is a foreign body in the lung, if left undisturbed, will very commonly produce lung abscess. In one case I saw recently a foreign body had been present in the lung for eleven years; the patient had clubbed fingers, and other signs of pulmonary sepsis and was thought to have tuberculosis. The x-ray revealed the foreign body. The case Dr. Head reported, of abscess following the extraction of a tooth, I thought was going to prove to be due to the tooth having been aspirated.

Another point is the use of the bronchoscope as a means of treatment of cases of lung abscess. This has been done in eastern clinics with very wonderful results. I would like to ask Dr. Head, if, in his experience, he has seen any benefit from bronchial lavage.

I should like to answer Dr. Michael's question and say that abscess of the lung is the most dreaded complication of opening a peritonsillar abscess. The abscess should be aspirated first, by means of a syringe, or it should be opened with a good suction machine at hand to get every drop of pus out of the mouth, rather than take any chance of some of it being inhaled.

DR. MICHAEL: I hope Dr. Head will realize how thoroughly we have appreciated his paper. I wish to thank him, in behalf of the Club, for coming this evening in response to Dr. Peppard's invitation of some months past.

—J. C. MICHAEL, M. D.,
Secretary.



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JANUARY 15, 1925

THE HOSPITAL SITUATION IN MINNEAPOLIS

There has been so much comment on hospital matters for the last few years and probably a good deal of criticism directed toward hospitals that an effort is being made now to settle the hospital situation through an association or council which represents the different hospitals in Minneapolis. Mayor Leach has gone so far as to appoint a committee to investigate the situation at the General Hospital, particularly because the General Hospital has been so very much overcrowded, and something will have to be done before long to relieve this congestion. At the present time, of course, the smallpox situation is predominant, and the General Hospital has had to give up for smallpox cases not only its building for contagious diseases but a floor of one wing of the general space. The result is that there are no vacant beds to be had, either for new cases of smallpox or for other cases, surgical or medical.

Dr. Walter E. List, who has been superintendent of the General Hospital for several years, has raised it to a point of such efficiency, both as to management and the care of the patients as well as to ethical problems, that nothing but praise can be given in its behalf. The Hospital is on a business basis and is looked after by a hospital committee and is serving the people in the highest possible manner. It has a staff of well-known men in all the departments of med-

icine, and the result is that patients are taken in for any ailment and are referred to the respective departments to which they belong. This condition has resulted sometimes in criticism which is largely unwarranted. Many of the medical men feel that the General Hospital has been taking in pay-patients, and, in a limited way, they have, but those were emergency cases, and it was the duty of the Hospital to look after them until some other arrangements could be made. A large number of patients that are brought into the General Hospital are claimed by their families or physicians and are promptly transferred to some other institution, all of which is quite in line with the working of the General Hospital, the University Hospital, and all other hospitals of a sectarian or private nature. People who can afford to pay varying amounts are told that they will have to be considered as pay-patients, and the amount sometimes varies from twenty-five cents a day to three dollars and twenty-five cents a day,—the estimated cost of each bed patient. Like all other hospital business, the General Hospital takes its chance with the rest in collecting its bill, and, like other hospitals, they sometimes care for patients and the bill is never paid.

But, in spite of this, the complaint has been made that there are too many so-called pay-patients in the General Hospital. This is denied by Dr. List, and he has the evidence to disprove such statements. Of course, occasional cases get into the General Hospital that ought to be elsewhere, but these mistakes happen in all lines of business, and happen very frequently in professional service. The same sort of thing may prevail elsewhere, and probably does. Patients may go to the University Hospital, on the Campus, who ought to be in a pay institution, but they get in and are kept there because it is a duty and a justice to the sick person.

None of the hospitals is attempting in any way to run a commercial business, and certainly not the General Hospital nor the University Hospital. The pay situation which has arisen in hospital controversies is very much talked of by men in the medical profession and perhaps they have not made sufficient investigation to know how far it goes, nor to what extent it is carried. Some of the younger men suffer more, perhaps, because their patients are sent to the General Hospital or other similar institutions and are taken care of by the staff. The result is that complaints spread, and the matter has been discussed perhaps more than it should be, and someone is dissatisfied.

Some years ago a hospital council was organized with representatives of the various hospitals in Minneapolis, that is, hospitals which do a hospital business. The smaller places and "rest homes" and "rest cures" and hospitals of that sort, are not represented in this body. But the so-called private general hospitals have formed a council and they meet and discuss hospital problems. These private hospitals, whether they are sectarian, endowed, or self-maintained, usually have governing bodies, boards of trustees or boards of directors, and a paid superintendent with other paid employees; and they are recognized throughout the city as properly conducted and officered institutions. They differ from the General Hospital and the University Hospital in that they endeavor to make the hospital a paying unit, but no one will claim at the present time that any hospital is making any money at all. If they can come through with their expenses, the intake and output within reasonable calling distance of each other, they think they have done very well. The so-called private hospitals which are conducted by individual medical men or by nurses do not come under this category at all. They thrive for a time and disappear. The ownership changes when the management changes; they are will-o'-the-wisps in hospital life and they are not, as has been said before, under the name of private general hospitals.

These private general hospitals cater largely to medical men and take care of private patients as such, and sometimes they come out very well in their final accounting. On the other hand, all of these hospitals do a large amount of charity work, and they do it from the best of motives; they do not call their patients charity patients, but they care for them because their hospital spirit prompts them to take care of these people who are unable to pay.

A few days ago the Mayor's committee on the General Hospital, met and the council of the hospitals in Minneapolis met with them to discuss problems on common ground, and the medical men from the Hennepin County Medical Society were there to listen in on the discussion so they might know more about the situation. There was some misunderstanding, some friction on the part of the committee on the council which in the end was approaching a better understanding, and it will probably result in a coming together of all the heads of all the hospitals that are so classified; and if that combination can be effected it will clear up many

of the misunderstandings in the various hospitals. There was no worthy criticism of the General Hospital, in fact the hospital representatives approved of the General Hospital, its management and its function; and they decided, at least tentatively, to relieve the congestion of the General Hospital by taking in a certain number of the people who are unable to pay, or at least they would take them in for the same price as that estimated by the General Hospital as the cost of each bed patient,—and even the average hospital man knows that that would not be enough to pay for the actual care of the patient in the private general hospital. For instance, some years ago Dr. Abbott made a survey of the hospital situation, and it was found that, although patients were admitted to a ward bed at a two-dollar per-diem rate, it cost practically twice as much to actually care for the patient, and it is well known now that \$3.25 is not enough to take care of a ward case in a private general hospital, and in some hospitals it costs much more, perhaps not less than \$4.50 or \$5.00 a day; and even this does not include the operating room, the anesthetic, and the many other necessary methods of treatment, all of which can be carried out in the University Hospital or the General Hospital because the taxpayers foot the bills.

People do not seem to appreciate the expense of maintaining a hospital, whether it is a large institution or an institution of one hundred beds or twenty-five beds. These patients demand a great deal of service, which is a part of the upkeep of the hospital, and they will demur and protest that the payment of from four to five dollars a day is excessive, when, as a matter of fact, they will go to a hotel downtown and will pay a like sum for a room without any special attention and without food; so that the average downtown hotel will get from seven to ten dollars a day from its patrons, while at the hospital a five-dollar rate is looked upon as exorbitant. The wear and tear and destruction and the unexpected expense which comes to every hospital should be considered a part of the upkeep of the institution, just as all those things are figured into the cost of the floor space in a hotel room. Yet the average person does not grasp this essential difference in maintenance.

We feel quite sure that the General Hospital will come out with a clear record, a better understanding between the Hospital and the people, and will be more earnestly supported by the medical profession. Any little differences which

may exist between the outside doctors and the Hospital proper can be easily and conservatively adjusted.

One very regrettable circumstance occurred at the meeting just described. A letter was read which was written to the Superintendent of the General Hospital by a superintendent of another Hospital in town, in which misleading and false statements were made and in which criticism was offered which had no foundation or not sufficient foundation to make it a matter necessary to comment on. The complainant should have known better or he should have had the facts in hand to verify the statements made. Such complaints should not disturb anyone except that it is rather irritating and unethical between hospital superintendents. The Mayor's committee will be ready to report at their meeting on January sixteenth. This committee is composed of business men, a club woman, and two physicians from the Hennepin County Medical Society.

A REPLY IN RE DR. HADWEN

In an editorial in our December fifteenth issue the editor of THE JOURNAL-LANCET commented on Dr. W. R. Hadwen's arrest in England for failing to take care of a case of diphtheria. The following letter is received from the editor of the *National Observer*, H. E. Soule, of Minneapolis, in which he sets forth his viewpoint. THE JOURNAL-LANCET does not like to get into these personal discussions, but it feels that some comment should be made on the action of the jury in Dr. Hadwen's case. Here follows the letter:

I have in my possession a verbatim report of the trial and acquittal of Dr. W. R. Hadwen, of Gloucester, England, to whom you so slightly referred in your editorial in THE JOURNAL-LANCET of December 15, 1924, both as to his ability as a diagnostician and by asserting that, following his arrest, "The probabilities are that he will get a term in the penitentiary for his carelessness and ignorance."

The facts in this case are that there were three children in the family treated by Dr. Hadwen, all of whom, apparently, had the same ailment. Two of these children had recovered and were about, and the one that died was well on the road to recovery.

The convalescing child got out of bed, went downstairs in her nightdress and with bare feet, and went to the scullery for water, over bare tiles and standing on a brick floor while the water was drawn. This caused a relapse, and she died.

Another doctor was called in to attend to the child after the relapse, and Dr. Hadwen did not know of either the relapse or the death of the child until summoned to attend a coroner's inquest on the body.

The evidence in favor of Dr. Hadwen was so convincing that the jury was out only 20 minutes after the case was turned over to them by the presiding judge until they returned with a verdict of acquittal. With reference to your slur of "Incompetency" contained in your editorial reference to Dr. Hadwen; will say that he is undoubtedly the best loved medical doctor in Gloucester, and his success and integrity in his profession is so well established, not only there but all over England, that the only ones who question it in any way are those who fear to let the truth be known.

In spite of the reply which Mr. Soule sends us, the editor of THE JOURNAL-LANCET is fully convinced that these people who are the antis of medical science are a menace to a community. It is quite evident from what we know of the antis that they do not believe in germ diseases. What their attitude is toward tuberculosis is not known to the writer, but tuberculosis is a communicable disease and is acquired by contact with a tuberculous patient, and tuberculosis is known as a germ disease. Probably Mr. Soule is not a believer in any transmissible disease by bacteria. Consequently he is unscientific in his ideas, he knows practically nothing about the laboratory work which has been carried on over a period of a great many years, and hence is not an authority from any point of view. He calls himself a *statistician*, whatever that means; presumably it means that figures do not lie, but occasionally they become very enthusiastic.

The editor of THE JOURNAL-LANCET still regrets that an example cannot be made of men who are careless in their methods of investigation, who do not accept scientific facts which are beyond dispute, and who, when the occasion arises, should be dealt with in a summary manner. All of these people and a lot of others who are practicing the healing art are hindering scientific advance in medicine, and they are proving what the biologist claims, that they belong to the lower strata in intelligence.

NEWS ITEMS

Dr. P. R. Bowdish has moved from Lake Park to Wheeling, W. Va.

Dr. A. P. Flaten has moved from Edinburg, N. D., to Yuma, Colo.

Dr. Julius Jensen, of Lincoln, Neb., has decided to locate at Kensington, Minn.

Dr. A. N. Collins, of Duluth, has been elected president of the Associated Charities of Duluth.

Dr. S. S. Houlton, who has practiced for some

years in Baltimore, Md., has located in Staples (Minn.).

Dr. Carl D. Kolset has moved from Benson to Sanborn. Dr. Kolset is a University of Minnesota graduate, class of '05.

Free vaccination will be continued in Minneapolis throughout January, as will probably be the case throughout Minnesota.

Dr. Einer W. Johnson, of Bemidji, who is doing postgraduate work in Edinburgh, Scotland, will not return until September.

Dr. M. S. Nelson has moved from Spring Grove to Granite Falls. Dr. Nelson is a University of Minnesota graduate, class of '08.

Dr. Evelyn Marynia Foot, of Red Wing, who graduated from the Medical School of the University of Minnesota last month, was married last week.

Dr. Mark Halphide, a pioneer physician of South Dakota, who practiced some years at Mitchell, died last week, at Dell Rapids, at the age of 85.

Dr. G. W. Dewey, of Fairmont, has been appointed assistant surgeon at the State Soldiers' Home, Lafayette, Ind. Dr. Dewey has practiced at Fairmont for fifteen years.

The children of the parochial schools of St. Paul are now under the health supervision of the City Health Officer, Dr. B. F. Simon, thus unifying the health work in all the city schools.

Dr. C. C. Pierce, of the United Public Health Service, located at Chicago, has come to Minnesota at the request of the State Board of Health to confer with the Board on the smallpox situation.

At the next meeting (Jan. 27) of the staff of the Lymanhurst and Parkview Hospitals of Minneapolis, the subject of discussion will be a symposium on tuberculosis and closely allied condition of the nervous system.

The Protestant Churches Hospital Association, of Brainerd, is beginning a campaign to raise money to take over and manage the Northwestern Hospital of Brainerd. Contributors to the fund will be given a 25 per cent hospital credit service.

Dr. William R. Claybaugh, of Grenora, N. D., died last week at the age of 50. His death was due to an accident which occurred in the Fall. Dr. Claybaugh graduated from the Medical College of the University of Illinois in the class of '03 and had practiced in Grenora about ten years.

At the annual meeting of the Clay-Becker County Medical Association, held at Moorhead last month, the following officers were elected: President, Dr. E. W. Humphrey, Moorhead; vice-president, Dr. M. C. Bergheim, Hawley; secretary-treasurer, Dr. J. H. Heimark, Moorhead; delegate, Dr. O. J. Hagen, Moorhead.

Dr. C. C. Pierce, of the United Public Health Service, who was invited to confer with the Minnesota State Board of Health on the smallpox situation in the Twin Cities, made his report this week. He advises *more vaccination*, to be effected by appeals to the public and by all measures within the powers of the health authorities.

Dr. M. D. Westley, of Cooperstown, N. D., was married on January 1 to Miss Margaret Hutchinson, of LaMoure, N. D. Dr. and Mrs. Westley will spend three months in New Orleans, where the Doctor will take up postgraduate work in eye, ear, nose, and throat work. Dr. H. Reed, of St. Paul, has charge of Dr. Westley's practice during Dr. Westley's absence.

At the annual meeting of the Watertown (S. D.) District Medical Society, held last week, the following officers were elected for the current year: President, Dr. W. G. Magee; vice-president, Dr. R. F. Campbell; secretary-treasurer, Dr. H. T. Kenney; delegate, Dr. J. B. Vaughn; censor, Dr. M. J. Hammond. A definite and progressive program will be followed out the ensuing year.

Information pertaining to the Inter-State Post Graduate Assembly's clinic tour of American physicians to Canada, the British Isles, and France, to take place in May and June, is now ready for distribution and may be obtained from Dr. W. B. Peck, Freeport, Ill. The tour begins at Chicago on May 17 and ends on July 4 at French sailing ports. There will be many distinguished American and Canadian medical men in the party.

PROGRAM OF THE SIOUX VALLEY MEDICAL ASSOCIATION

The Sioux Valley Medical Association will hold its winter meeting, January 20 and 21, 1925, at Martin Hotel, Sioux City, Iowa.

TUESDAY MORNING, JANUARY 20

Fifth Nerve Manifestations, Illustrated—Dr. A. H. Andrews, Chicago, Ill.

CLINICS

Under direction of Dr. Wm. Jepson:

1, Progressive Muscular Atrophy; 2, Con-

genital Syphilis; 3, Neuro Syphilis; 4, Muscular Dystrophy—Dr. W. A. Jones, Minneapolis, Minn.

1, Spleno-Myelogenous Leukemia; 2, Pernicious Anemia; 3, Chronic Nephritis; 4, Diabetes; 5, Gastric Ulcer—Dr. Reginald Fitz, Boston, Mass., and Dr. H. E. Robertson, Rochester, Minn.

TUESDAY AFTERNOON, JANUARY 20

Heredity and the Psychopath—Dr. W. A. Jones, Minneapolis, Minn.

Dr. Jones' reputation as a neurologist and psychiatrist is generally recognized, and his subject will be of interest from a professional and social standpoint.

The Potentialities of a Clinico-Pathological Conference Illustrated—Dr. Reginald Fitz, Harvard University, Boston, Mass., and Dr. H. E. Robertson, Rochester, Minn.

Drs. Fitz and Robertson together worked out this method of studying clinically and post-mortem obscure cases. Dr. Robertson's presentation at the Summer Meeting was outstanding. With Dr. Fitz, this number will score a triumph.

WEDNESDAY MORNING, JANUARY 21

CLINICS 9 A. M. SHARP

1, Asthenia; 2, Rickets and Tetany; 3, Post Encephalitis; 4, Habit Spasm; 5, Cervical Adenitis—Dr. I. Abt, Chicago, Ill.

1, Arteriosclerosis; 2, Asthma; 3, Heart Case; 4, Angina Pectoris—Dr. Joseph Miller, Chicago, Ill.

1, Chronic Osteomyelitis; 2, Multiple Fractures with Tetanus and Recovery; 3, Bowel Resection following Obstruction; 4, Stomach Resection for Ulcer; 5, Splenic Abscess—Dr. Dean Lewis, Chicago, Ill.

WEDNESDAY AFTERNOON, JANUARY 21

Toxin-Antitoxin and the Treatment of Diphtheria and Scarlet Fever—Dr. I. Abt, Chicago, Ill.

Dr. Abt is an authority on Pediatrics and his talk on the above subject will cover recent advances in diagnosis and treatment.

Some Probable Sensitization Diseases and Their Treatment by Non-Specific Means—Dr. J. Miller, Chicago, Ill.

As a teacher Dr. Miller is unexcelled and will be able to "put over" his subject in a gripping manner.

Infections—Dr. Dean Lewis, Chicago, Ill.

Infections, like the poor, are always with us—but not so Dr. Lewis. So come by all means, and hear what he has to tell us on this important subject.

Banquet Tuesday Evening, Martin Hotel Banquet Room, 6:30 P. M.

R. F. BELLAIRE, M.D., Secretary.

Office or Hospital Laboratory Position Wanted

Position as technician in doctor's office or assistant technician in hospital laboratory wanted. Address 168, care of this office.

Office Position Wanted

By a highly competent office girl and stenographer with large experience and best of references. Familiar with medical work. Address 169, care of this office.

A 10-bed Hospital in Wisconsin for Sale

In a village of 1,500 and very rich farming community. Will sell the equipment at 60 per cent of its value and rent the building at moderate price. Address 172, care of this office.

Good Location and Office in Minneapolis

An excellent location and an office with a dentist can be had at 3805 Nicollet Ave., Minneapolis. A fine modern heated apartment is also open on the same floor. For information, telephone Colfax 2754.

South Dakota Practice for Sale

In modern progressive town of 1,500 in east central South Dakota. Excellent roads. Practice, drugs, and equipment at very reasonable price and on easy terms to suitable purchaser. Address 167, care of this office.

Wanted—Assistantship by Woman Physician to a Physician or Clinic

A graduate of the University of Pennsylvania with three years internship in Philadelphia and New York. Has specialized in gynecology and obstetrics. Highest of references. Address 171, care of this office.

Apparatus for Sale

Complete X-ray Equipment consisting of Meyer New Model Transformer; Meyer A Combination; Stereo-Radiographic Table; Stereo-Radiographic Tube Stand with lead glass shield and lead lined compression cone; Wheatstone Stereoscope; Transformer for Coolidge Filament and Single Contact Foot Switch. Address, Hot Springs Clinic, Hot Springs, S. D.

A Practical Course in Standardized Physiotherapy

Under auspices of Biophysical Research Dept. of the Victor X-Ray Corporation, is now available to physicians. The course offers a highly practical knowledge of all the fundamental principles that go to make up the standards of modern scientific physiotherapeutic work. It requires one week's time. For further information apply to J. F. Wainwright, Registrar, 236 South Robey St., Chicago, Ill.

Physician Wanted in Southern Minnesota to Practice on Salary

By a Health Association. To take over the practice and drug-store of the present physician. A salary of \$3,000 annually is paid for taking care and treating about 100 families. Night calls and drugs are paid extra, and the physician is allowed to practice for those outside of the families of the members of the Association, and to keep the money so earned. Give your age, college of graduation, years in practice at present place, etc. Address 170, care of this office.

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BREAST-FEEDING AND THE COMMON FORMS OF MALNUTRITION OF INFANTS AND YOUNG CHILDREN: AN INFORMAL TALK*

BY WALTER R. RAMSEY, M.D.

ST. PAUL, MINNESOTA

I suppose I ought to apologize for discussing such a commonplace subject as breast-feeding in infants, but I am not going to apologize, I am going to tell you why I am taking up this subject. Certainly, the most fundamental thing, after all, for every physician who practices in the country is the subject of maternity and children. I am struck every day with the constant flow of inquiries, not only from nurses and doctors, but from the public generally, asking what they shall do about this question of feeding of infants and children. I find that a great number of these women still are under the impression that they cannot nurse their babies. Very frequently they get the idea from their physicians and from their nurses that they are unable to nurse their infants. We know from scientific investigation and from observation that 90 per cent of mothers can nurse their babies in whole or in part through at least the first six months of infancy. It would not seem to be necessary to say anything more in the way of argument than that the mortality among children artificially fed is from six to ten times greater than among those who are breast-fed. This does not only apply to large cities, but applies universally throughout the civilized world, wherever this question has been worked out.

If this is true, then why is such a large percentage of infants throughout the country still

artificially fed? It is not because the mothers do not want to nurse their babies; it is because they get bad advice, and they do not know how.

There are two reasons for the lack of success in breast-feeding. The chief reason is the lack of a proper technic, either on the part of the mother or on the part of the attendants. First of all, for breast-feeding to be a success, we must have two factors: one is a normal healthy mother, and the other is a normal baby. Those things being present, there is no excuse at all why at least 90 per cent of these mothers cannot nurse their infants successfully. I want to speak very briefly on this subject, and then later I shall show some cases, thanks to Dr. Brandt who has been able to get some very good cases illustrating these points.

The first question from the point of view of the mother is normal breasts which will permit proper secretion of milk and a normal nipple which the baby can take hold of. Breasts are not all the same. There are different types, depending upon the type of mother. The rather short, stout ones are prone to put on flesh rapidly, and have small, saucer-shaped breasts with rather small nipples. These mothers are not good milkers. We must consider these things just as the farmer does. Those mothers will have to have a good deal of patience to stimulate the development of their breasts. The quantity of milk secreted can usually be increased by completely emptying the breasts. The breast is completely

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emptied by simple expression with the thumb and index finger. The expression of milk is a bit of technic which is very important to know. I find most nurses do not know it. With the thumb and finger at the areola make a backward, downward, forward movement. With a repetition of this simple movement the milk can be expressed. Whatever is left over when the baby is through nursing should be expressed. By doing this systematically the quantity of milk can be very much increased, and within two or three weeks it will be adequate.

There is one other cause for failure of breast-feeding, and that is inverted nipples. Doctors should inform themselves regarding the conditions of the breasts. Inverted nipples are not due to our present civilization or present mode of clothing. I cannot see how the present mode of dress can interfere with nipple development because women to-day do not wear many clothes. The wearing of corsets, which make pressure on the breasts, may be responsible for inversion of the nipples. A simple remedy would be to apply a breast-pump drawing out the nipple so that at the end of a month this nipple would be reasonably developed and everted rather than inverted. I recently saw another type which may be called "cauliflower nipple." It is made up of little papillæ, which look like cauliflower growths. It is intensely painful to the mother and begins to crack as soon as the infant begins to nurse. I have never seen one of those where the mother was able to go on nursing for any length of time.

What are the common excuses for the lack of success of breast-feeding? We hear this almost every day: The mother did not have sufficient milk and, therefore, it was impossible to go on. Absolutely no excuse at all! The important thing is to get all the milk there is, and then, if there is not enough, to try to get these breasts to secrete more and more. I have seen as many as three infants put to the breasts of one woman who in the beginning did not have enough milk for one baby.

Another excuse is that the milk is not good. For all practical purposes there is no such thing as bad breast-milk. Another argument that I frequently hear is, that the milk is too rich or it is too poor. There is a difference in the richness of milk and in the quantity of fat it contains, but the average manner in which we try to determine it is of no value. I frequently find people saying, "The doctor made an analysis of the milk." "I took an ounce or so

to the doctor, and he said it contained too much fat or it did not contain enough." If you take the first half ounce from the breast you will find it contains very little fat. If you take the last ounce it is extremely rich in fat. There is no excuse in making any analysis of the mother's milk unless you make an analysis of the complete contents of the breast. If the milk is very rich, then the baby needs very little of it. If the milk is very poor, then it needs more. What the baby needs is milk, not exceedingly rich or exceedingly poor, but of medium quality. How can you secure this? It varies in different mothers just as in different animals; for instance, the Holstein cow gives a relatively large quantity with a low fat content, while the Jersey cow gives very little with a high fat content. How can you change the fat content of the average mother? A common policy among doctors and nurses is to advise the mother to take large quantities of milk. Often mothers come in with their babies because the stools are frequent and full of fat curds. I frequently find women drinking as much as three quarts of milk a day, and many times you will find the baby is vomiting and with frequent, green, curdy stools. The reason is that the mother is getting too much fat. Go back and see what the animals do. The more scientific we become the simpler we get. If we simply go back to Nature and have the nursing mother act exactly like any animal would, we will get along much better. In these cases if you will stop feeding these mothers on milk and give them three plain meals a day and nothing between meals but water, the baby's digestive tract will be better.

Those are some of the more important things from the point of view of the mother. From the point of view of the baby as to success or lack of success in breast-feeding, first, you must have a normal baby. If the baby has any defect in its sucking apparatus then it probably will not nurse, so it is a matter for the doctor to determine whether the baby has any such defect. The sucking mechanism is made up of the lips, jaws, tongue, palate, and cheeks. Dr. Brandt is going to show you a baby who will illustrate beautifully the importance of breast milk and also will illustrate the sucking pads, which you will see in each cheek. Even in the most extremely emaciated baby, you will find these sucking pads when all other fat in the body has disappeared, showing Nature's effort at conservation. One of the common defects which makes it difficult or impossible for the baby to nurse is what is com-

monly known as harelip and cleft palate. There are some devices whereby the baby can nurse with a moderate cleft in the lip. There is a little device to put on the nipple in order to close out the air and create a vacuum. It is made of rubber clam.

There is one very common thing which is responsible for lack of success in nursing, and that is the inability of the baby to breathe through its nose. In order to nurse, a baby must breathe through its nose, and, if it cannot, it cannot nurse. Babies are notoriously susceptible to infections of the respiratory tract. The most common obstruction is a large postpharyngeal tonsil. When the postpharyngeal tonsil is enlarged it becomes an adenoid. All babies have adenoids and it is only a question whether they are large enough to obstruct the breathing. If they are, the baby cannot nurse. I have seen babies who have been unable to nurse from birth because of this large postpharyngeal tonsil. If you have ever tried to put your finger behind the nose in a baby you know how small the space is, so it does not take much to block the breathing. In some cases you may have to remove that tissue before the baby can nurse.

Another cause is simple acute rhinitis or acute coryza. I cannot refrain at this time from mentioning the danger of exposing young infants to cold. One of the most common causes of mortality is exposure of very young infants to cold. They lose heat very rapidly on exposure. Obstetricians should remember if there is any difficulty in delivery, such as post-partum hemorrhage, the baby should be wrapped in warm blankets. If you bathe a baby and allow it to dry by evaporation you will find the temperature subnormal.

Congenital syphilis is one of the common reasons why the nasal passages are blocked. When young infants, a day or two old, begin to snuffle, and especially if there is a history in the family of frequent miscarriages, the possibility of congenital syphilis should be carefully considered.

If Dr. Brandt does not mind I will show you a case illustrating the importance of breast-feeding in a premature infant. I might say this: In all my experience, in this country or abroad, I have almost never seen a premature infant that "weathered the storm," became normal and grew to normal adolescence, that was not breast fed. All these infants who were not breast fed "blew out" in a little while. A great number of infants born prematurely, especially if born by the seventh month, have a fair chance for life and

normal development if breast fed. If they cannot have breast milk, then their chances are correspondingly less.

I will ask Dr. Brandt to give the history.

DR. BRANDT: This baby is now eight months old. It first came under our observation at the age of six months. It was born two and one-half months prematurely, and at birth it weighed only two pounds. It was so feeble that it was impossible for it to nurse, so it was fed by the mother expressing the milk from the breast. The baby did well on this milk, but for some reason the breast milk gave out, so that it was necessary for her to resort to artificial food. The first thing that was tried was Eagle Brand condensed milk. This did not seem to agree, so Nestle's Food and malted milk were tried in succession, but these did not agree with the baby. The baby's digestive apparatus became impaired so that it lost much in weight and was in a very extreme state of malnutrition when it was brought to us. On our first examination, the weight was five pounds and nine ounces for a six months old baby. The general physical examination showed nothing except this extreme state of malnutrition, which was marked because of the indigestion. There was no evidence of organic disease otherwise. I might say that the mixture that was given was very weak and quite inadequate, so that the baby was starving to death. We immediately put the baby on a milk formula with cow's milk and barley water. It remained under observation for four days, and during that time there was a gain of six ounces. On inquiring as to the possibility of getting a wet nurse we learned that it would be possible to get at least two feedings a day from a neighboring woman, so we thought it best to send the baby back home. The mother has been able to obtain about five or six ounces of breast milk each day. Along with this, the baby has been on a formula of milk and barley water. They have just returned to-day after a period of seven weeks, and the baby shows a very decided improvement and now weighs exactly nine pounds. It shows a very healthy general condition, and the rate of gain has been one ounce per day. That is doing very well for the type of case.

DR. RAMSEY: That is a very good case to show the value of breast milk, especially in a case of this sort. It is a fallacy which has come to be believed that if you cannot get a wet nurse to come into the house you cannot have breast milk. The baby is very well nourished now and shows good muscular tone and very good color.

It looks as though it might be a pretty normal individual.

I heard at the American Pediatric Society at Pittsfield this year that every county in the State of Massachusetts has its registry of wet nurses. It is very difficult to get some one to come into the house, but it is easy to find some woman who will give a few ounces of breast milk.

Dr. Brandt has two or three cases I want to show to illustrate other forms of malnutrition. There are more fallacies about the care of young infants than in any other branch of medicine, and one of the fallacies is this: The text-books used to say that the color of the skin on the second day was good bright red. That is not true: the skin of a normal baby on the second day is pink in color, but varies depending on whether the baby is a brunette or a blonde. The baby may be somewhat jaundiced on the second or third day, but that occurs frequently and has little significance. We do not see the intense red color of the skin that we were accustomed to see. Invariably that is produced by scrubbing the baby; in other words, grandmother or the nurse soon after the baby is born, begins to scrub off the vernix caseosa with which the baby is covered and which is often difficult to remove. As a result of this scrubbing, all the superficial epithelium is scrubbed off, so that the next day the baby has a beautiful dermatitis, and not infrequently you will find little pustules scattered all over the skin. A baby should never be scrubbed; it should be anointed with a neutral oil and the skin cleansed very carefully by mopping, not rubbing.

Babies are no more alike than are grown people. They differ just as much as do adults both in temperament and in disposition. Here is a baby who, I am sure, will go through life with a sunny disposition, while this other baby with a less fortunate disposition will have a harder time. All babies are not born "free and equal" by any means. One of the most common causes of malnutrition is overfeeding or underfeeding. More children die from overfeeding than from underfeeding. I have never seen in my whole life, except during the war, children die of starvation unless by some obstructive condition, but I have seen many die from overfeeding. There are a certain number of babies who are underfed.

Here is a baby who had the skin scrubbed off. It has a beautiful dermatitis. That is an acute dermatitis undoubtedly due to the vigorous scrubbing with soap or washcloth. You might say that is an "exudative diathesis" which predis-

poses to eczema. I think not. It is a dermatitis, but it may continue as an eczema.

I will ask Dr. Brandt to present the history of the next case.

DR. BRANDT: This baby is six months old and never had any breast milk. It was put to the breast at birth. Various milk formulæ were given, and when four months old it was brought here. It was in a very marked state of malnutrition. It was very feeble and showed all the signs of chronic indigestion. It was with considerable difficulty that we managed to adjust the feeding formula so that the milk would agree. In the last month it has been doing very well. It is happy and the indigestion has almost entirely disappeared. The feeding in this case has been simple and of varying strengths,—barley water, whole cow's milk, and dextrimaltose No. 3. At first, the baby would only take the whole milk mixture. At the present time it has six ounces of half-and-half with 5 per cent sugar in addition. The baby has an asthmatic tendency. It has had a little cough for several months. It does not now show malnutrition to any great extent. It is still a little pale and not quite normal, but it is doing very well.

DR. RAMSEY: I think that illustrates very well the impossibility of having one formula to fit all cases. You must study the digestion of the individual infant. There is one point I want to make which is of vast importance in these cases of breast-feeding, that is, weighing the baby from the time it is born. The remarkable thing about breast-fed babies is the tremendous resistance they have. A number of weeks ago Professor Finkelstein was here, and he emphasized this point. We know that many of these breast-fed babies, though they are not getting enough food each day, will not lose much for a considerable time. We are surprised to find, however, when the baby is weighed before and after feeding, how little the baby is actually getting. If you want to find out the amount, you should weigh the baby before and after feedings for twenty-four hours, and then total the weights. We know how much the baby needs and how many calories it needs. Not infrequently you will be very much surprised to find that in some cases the baby is getting an enormous amount of food, perhaps twice as much as it needs, which accounts for the vomiting, the frequent stools, and the crying; or, on the other hand, you may be quite surprised to find that the baby is getting almost nothing, and you will wonder how it is able to live. Professor Finkelstein accounted for

it by the ability of these babies to retain fluid in the tissues. It is important to study carefully normal infants. As soon as you take hold of a normal breast-fed baby you find what the muscle tone is. You know what is the normal feeling of the skin. With that in mind you can study more easily the condition in abnormal babies.

Dr. Brandt has a baby illustrating what happens when babies are not weighed regularly.

DR. BRANDT: This baby is now three and one-half months old, and is a good illustration of underfeeding. This baby was born at our hospital with a birth-weight of seven pounds and eleven ounces. The baby did unusually well. The mother took it home and was advised to keep an accurate weight record, but she was a little lax about that. When it was three months old it weighed nine pounds and nine ounces, having only gained two pounds. For the first six weeks the baby probably got sufficient food. It was a beautiful picture of underfeeding. We immediately put the baby on complementary feeding, just a simple milk mixture, and again the baby picked up. The mother continues to nurse the baby at regular intervals, but after each feeding a certain amount of artificial feeding is given. To-day the baby weighs ten pounds and ten ounces, showing a gain of more than one ounce a day since the first visit on August 20.

DR. RAMSEY: I want to say that feeding is not the entire thing. We have been under the impression that it was only a question of giving breast milk or compounding the protein and fat and sugar in order to produce a milk equal to mother's milk. Even if the baby gets breast milk there are certain other elements necessary to the proper nutrition of that baby. There is one thing we have not known until recently and that is the great influence of sun on nutrition. On three occasions I went to Switzerland because I had heard so much about Rollier's sun cure. I was prone to think he was just a faddist. We had a colony on the Riviera of very bad cases that I had seen myself during the War. During the spring of 1919 I was amazed to see children who had hip disease and all sorts of open conditions, mostly tuberculous, running about apparently quite well. In 1921 I went to Rollier's Clinic and spent some weeks, and last summer I went again. I think it is the most fundamental thing I have ever seen. Rollier has demonstrated what we already know, that the direct rays of

the sun are absolutely essential for proper development of every living thing, including humans. We find most severe cases of malnutrition getting rapidly well with plain food and the sun's rays. The sun's rays must reach them directly. I have seen cases of hip-joint disease in children which I feared would get well only with an ankylosed joint, get perfectly well with a movable joint. However, you must be careful not to give the children too much sun. It must be given very gradually and with an understanding of the individual case.

Here is a case that is rather rare. It is probably a case of enlarged thymus gland. Not infrequently we see cases of thymus gland enlargement. I am going to caution you in this that you must not depend too much on *x*-ray photographs. Dr. Gerstenberger, of Cleveland, a number of years ago showed cases that were apparently thymus gland cases and had marked symptoms. In one photograph it showed a very marked enlargement; in the other it did not. The difference was due to the fact that the photographs were taken at different times of inspiration or expiration. It has been recently demonstrated that the *x*-ray is of great importance in the treatment of thymus enlargements. Dr. Brandt will give the history.

DR. BRANDT: This baby is nine days old. It was brought here in the middle of the night on the first day of birth because of dyspnea and apparent obstruction. You can all see that the baby has considerable difficulty in breathing. It sounds like laryngeal obstruction. It is continuous and has been since birth. It does not get any worse apparently because the baby gets oxygen enough. It can nurse and is apparently thriving otherwise. There was no evidence of any throat infection or any acute infection so that we suspect some sort of pressure on the trachea and inside the chest. The *x*-ray shows at this time a large shadow suggestive of the thymus gland.

DR. RAMSEY: I had in mind when the Doctor spoke of it the possibility of some physical defect. There seems to be a very broad shadow right up to the tip of the clavicle. It may be an enlarged thymus. Of course, it may mean an enormous thymus pressing on the trachea bronchus. There does not seem to be any difference in the two sides. There is no atelectasis, so it probably is either an enlarged thymus or some congenital obstruction to the trachea.

PRESENTATION OF NEUROLOGICAL CASES: A CLINIC*

BY W. A. JONES, M.D.

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I am very glad to be here at your State meeting, and to meet many friends and former students.

CASE 1.—This man gives me an opportunity to explain some peculiar nervous conditions which are not uncommon, though they are not very frequent.

This patient at the time his illness began, in 1914, was twenty-eight years old. In March, 1914, he was seized with hemiplegia manifested by aphasia and paralysis of the right arm. On June 21, 1914, he had a sudden attack of unconsciousness, convulsions, stertorous respiration, and a pulse of 70. The head was turned to the left. Three days later he was somewhat better. He talked fairly well, but his memory was poor. There was a paralysis of the right facial muscles. On June 28, four days later, his mentality had cleared up fairly well, but a slight deafness remained. As there was a history of lues, antiluetic treatment was advised, but the patient objected.

In August, 1914, a course of specific treatment was started. On October 9, 1914, further specific treatment was refused. He has been given mercury and potassium iodide. On the 14th of August, 1915, he had just finished a course of twenty-four mercury injections and on the 7th of October, 1915, the Wassermann was negative on blood and spinal fluid.

On April 25, 1917, he had two general convulsions similar to those described above, during which a hypodermic of morphine was given. At that time or shortly afterwards he began to complain of severe headaches. He had some infected teeth, which were extracted, and in 1920 he had a conjunctival hemorrhage. Since then he has had headaches and convulsions coming on day or night.

This man's history will bear out the diagnosis which can be made without much trouble. In the majority of these cases we have a potential handicap of an arteritis in a luetic subject. The convulsive attacks which he has are further evidence of the extension of the disease to the small arteries, these arteries becoming more and more involved or perhaps some of the small arterioles have diffuse aneurysmal sacs developing in them. He has a paralysis of one

side of the face and with it a certain speech defect which is not very noticeable except that he speaks with some hesitancy. His wife tells me that after these attacks have been relieved he talks just as well as he ever did. It is very difficult to appreciate this, perhaps, and it is open to some speculation. At all events, you notice when he converses that he halts a little in his speech. He enunciates very slowly and does not open his mouth very well.

The question always comes up to my mind, What is to be done with a patient of this sort? Supposing he was destined to have some arterial condition from infection and assuming that other conditions are equal, he has a definite fixed pathologic lesion, but how general it is we do not know. It may involve his aorta and many of the large cerebral blood vessels in the left hemisphere and probably in most instances the smaller vessels which penetrate into the interior of the brain. He has been under treatment for ten years. What the treatment has done for him is to produce a remission and perhaps a temporary suspension of the hemiplegia. What further can be done depends on circumstances. He is 38. We cannot give a favorable prognosis except as to the continuance of his life. His gait is a little uncertain because he had an attack on Friday, and he has not recovered entirely from the seizure.

CASE 2.—You notice this man has a halting of his left leg and a paralysis of his left arm. He has had that for ten years to my knowledge, as he was referred to me by Dr. Quain at that time. He is now forty years of age.

This man's history is characterized by two or three things which are perhaps more important than anything else. He gives a history of measles, mumps, rheumatism, which we assume to be inflammatory, and typhoid fever during the time of his nervous illness. His nervous condition came about ten years ago through some infectious disorder that, presumably, has been continuous. It cannot be relieved, or has not been relieved, and it is now too late. The result is that he has a multiplicity of symptoms, notably a left hemiparesis, a definite form of paraplegia, and, besides, a difficulty with his speech. He knows what he wants to say but is unable to express himself so that he has an aphasia rather than an amnesia. Three years before this present

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condition developed he had a fall from a horse and was injured in the left leg. I think that sometimes we put too much stress upon these injuries as a factor in the development of organic nervous disease. It seems to me that whatever is to come in the progressive nervous disease line will come irrespective of an injury. I heard Dr. Kinneer Wilson last year at the American Medical Association dwell upon this. He specifically stated that in many of these cases where a degeneration has come on that injury was very seldom the cause of organic progressive nervous disease. That I think we can put down as a fairly well-established fact by this time, though, I have no doubt, many men would state and with perhaps some justice in a litigation case that an injury had a great deal to do with organic nervous disease. Patients with paralysis agitans give a history of injury and ascribe that as a cause of the nervous disease, when as a matter of fact it has nothing to do with it.

Now, perhaps, you have made a diagnosis of this man's condition. He has no definite, selective lesion. He has not a lesion of his right side. He has a multiple insular group lesion all through his nervous system. He has a typical case of multiple sclerosis. When I first saw him I put him down as a possible brain tumor on the right side and considered operation, but I was obliged to change my mind because of lack of progress and the advent of the other symptoms which have been described in the history, from which we have a very complete knowledge of his condition and from the fact that there has been very little change in his hemiparesis. He has a moderate-size pupil, but his pupils are irregular in outline and do not respond to light as they should. He has a little nystagmoid movement when he turns his eyes to the left; he has a little ocular imbalance; and he has a very decided Romberg. He would not dare close his eyes to look up to the ceiling for fear he would lose his sensory orientation. He has to see where his feet are and know what they are going to do, in order to maintain his equilibrium. He has a little tremor in both hands, notably in the left. When turning the wrists he has not the same flexibility of movement in the right as in the left. He has what we call a diadochokinesia. It is an indication that the cerebellum is involved, as well as the cerebrum, because that is one of the intensive movements that is made through the smaller brain. The knee-jerks, which were formerly very active, are still so, though they have changed a little. He has a little clonus in the left leg. He has general muscular rigidity. He

had in the left side when I first saw him a marked Babinski, and that is a very common thing in these organic multiple sclerotic conditions.

There is a good deal of question and speculation as to the cause of multiple sclerosis. Investigators are trying to prove that it is entirely of luetic origin, and yet no one has succeeded in proving it. Others believe it due to toxic-infectious diseases. Injury and great mental strain were formerly classed as causative, but the theory is now discarded. As a matter of fact, we know very little about the cause except that it must be due to some infection that has produced these islands of hardening.

The pathology of these cases is very interesting. If you see very many of them, you will readily note the small islands of hardened tissue. They are scattered all through the cortex into the interior of the brain. They follow the tissue down to the brain-stem, spinal cord, and sometimes are found in the nerve trunks. The prognosis depends on the size and multiplicity of the islands of sclerosis.

This man, like all others, is better after he has rested for a time. The curious part is that none of these patients have any sphincter trouble. Even if the spinal cord is involved they have no marked sphincter trouble. Sometimes they develop a bladder trouble in that they are unable to evacuate the bladder contents. These people go on rather comfortably. They are cheerful in disposition, and capable in minor achievements. That is one of the blessings that is given to the handicapped neurologic man.

CASE 3.—It is hardly necessary to go into the analysis of a case like this. Here is a child that was born with a handicap, and the handicap consists largely in a general athetoid condition and general muscular contraction with contractures and deformity of the limbs. You notice that the athetoid movements in the hand are very marked in the effort on her part to release the contracted state. Sometimes during rest hours they are quiet but rigid and never entirely relaxed. This child cannot walk, and if she does her legs become crossed. She has no control of the walking apparatus. I remember when I first came to Minneapolis I was called to see a child of approximately this age with the same general symptoms and deformities and muscular rigidities. I saw this boy grow up to manhood. I saw him when he was thirty-five years old, and he had the same deformities that he had at ten. He loved music, and he knew music. He used to attend the Symphony Orchestra concerts until some person objected to his presence.

It seemed very unfortunate under the circumstances.

There is nothing in these cases that we can ascribe as a cause. These children are born deficient in their motor-convolutional areas. They have a defect which is very well outlined. All the cases I have seen at autopsy have shown marked diminution in the size, contour, and fullness of the convolutions, and that naturally means that all the tracts which arise from the motor areas go down through the brain, stem, and cord. It is purely a motor disability without any sensory involvement. They have a large chain of symptoms often, and they may become more or less important, except that they are important only from a curious point of view. Many of these patients have been operated on for brain expansion, hoping by taking out large areas of the skull that the brain would grow and develop. Large areas of bone are cut out on each side over the convolutions. I have seen a great many of these cases. If you read the literature you will find that all of them have been subjected to innumerable surgical procedures. I have one boy under observation who also has epileptiform attacks. When he gets over his series of twenty or thirty in twenty-four hours he is all right. He was operated on by a New York surgeon with the hope that the brain would grow. We know that a brain that is defective in its fetal development or at birth will always remain defective. Some operators have gone so far as to attempt to ligate or resect some of the sympathetic nerve ganglia in the trunk. They are just experimenting in spastic cases, and, so far as I have been able to learn, the success has not been very tempting. Old cases get temporary relief: that is, they get over the operation and are buoyed up with hope, but the unfortunate part is that they go back to the real state within a few weeks.

DR. ROWE: What is the mentality of this child?

DR. JONES: I do not think we can estimate it, but I think she has fair mentality for a girl fourteen years of age, but she is unable to talk. I think these children do not suffer so much from mental depression as we would expect because this is a motor condition and not an intellectual one. These children never become the Loebes and Leopolds of the present day. They have a mentality that is safe and sane, whereas the mentally defective person is largely affected by his heredity, his environment, and bringing up; if he is brought up badly he becomes a feeble-minded individual; if he is brought up

well and has institutional care he comes out fairly well.

CASE 4.—This man is thirty-two years of age. The only history that we can get is that he was born a healthy child, and when he was one year old he had an attack of fever and convulsions, and after that he had a hemiplegia. That is all the history we need. There is nothing in the family history that is important or has helped us in determining the cause other than that he had an infection. He has a very decided flexor contraction with partial wasting of the hypothenar and interossei muscles. When he walks he lifts up the leg and throws it around as any other hemiplegic is obliged to do. He has not full control of his arm and leg because his motor centers cannot function normally. These cases give a history of an increased temperature for a few days, then a hemiparesis, then the beginning contractions and contractures, and thus halt the development of the individual on the handicapped side. These are probably all hemorrhages into the motor areas in early life. How much he was prepared for this before this attack of fever we do not know.

DR. W. H. BODENSTAB: He has had epileptic attacks within the last ten years.

DR. JONES: That is quite an important feature because it indicates that some part of the brain convolution has been disturbed in its formation and growth. The result is either an irritability of the part that remains intact or a disease. He says he did not have his epileptiform attacks until he was twelve years of age. I do not know why they were delayed. Perhaps the stress had something to do with it. It undoubtedly does with these handicapped individuals. You will find very few of these patients who cannot detail to you instances which account for these attacks, but for all practical purposes this boy had a cerebral hemorrhage in childhood, which was followed by lack of growth and development in the convolution and perhaps in the area formed by the convolution on the motor side. This handicap remains. If he is wise or under the control of parents who are wise they will take care of him and will do the best they can. They will spare him any unusual experiences in the way of therapy. I have no doubt that most of these patients go to all the latest cults, where they are carried on by encouragement until their funds are exhausted or until their family becomes convinced that such treatment is unfit for them. He looks very well and he has nothing to complain of. He has a very philosophical way of looking at it. He has expressed what we all

think, "I have seen lots of people worse off than I am; I will be satisfied with my condition as it is."

There is nothing else to say about these patients. I would like to show you some who have recovered. I have some at home who have re-

covered from serious disorders. There is a great deal in neurologic disabilities that can be overcome. These patients can be restored to proper health, and they are just as good in their recoveries as medical and surgical cases.

VALUABLE MEASURES IN THE PRACTICE OF OBSTETRICS*

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This paper purposes to consider disabling conditions too frequently overlooked in obstetric practice, and to stress appropriate prophylactic measures and treatment that are of great practical importance in everyday obstetric management.

The better education of the profession and the public has increased the demand for early examination in pregnancy and for routine periodic tests of blood pressure and urine throughout pregnancy. This demand has contributed toward an advance in obstetrics, especially in forewarning of possible deformity, and in the early detection of beginning toxemia. In connection with the urine examination, let us dwell on a still too common error, namely, non-insistence upon a routine microscopical examination. This leads, in too many instances, to failures to detect the presence of pyelitis. It is not at all unusual to discover a pyelitis which has escaped detection and early treatment because an albumin test has been negative and the microscopic examination has been dispensed with. Routine microscopic examination of urine will show that pyelitis is more common in pregnant woman than the literature would lead us to believe. Early, careful treatment will frequently relieve the condition rapidly, or at least hold the condition in abeyance. The complaint of painful urination or urgency, and abdominal pain, especially on the right side of the abdomen, should immediately suggest a possible pyelitis and direct one's attention to pus in the urine. In addition to the possible consequences of pyelitis or pyelonephrosis in the non-pregnant, the presence of these conditions in the pregnant should suggest the increased possibility of anemia, abortion, toxemia and infection at childbirth or puerperium. The large majority are colon bacillus infections.

The following treatment has proven efficacious: The patient holds the knee-chest position

for ten minutes every four hours. This throws the uterus forward, tending to relieve pressure on the ureter. In regard to the knee-chest position; it is sometimes easier for the patient to kneel on the edge of the bed, facing the floor, and lower the shoulders to a position below the hips by placing the hands on the floor. This technic allows a more exaggerated and efficacious inverted position. When the pyelitis is on the right side the patient is generally more comfortable at night when sleeping on her left side and well on her abdomen. This seems to relieve pressure on the right ureter and gives more comfort by allowing better drainage. These patients should drink a glass of water every hour as a medication and for one week should take six grains of hexamethylenamine and eighteen grains of acid sodium phosphate every four hours. This prescription is now put up in convenient tablets each containing two grains of hexamethylenamine and six grains of acid sodium phosphate. Three of these tablets should be taken every four hours for a period of one week. The following week the hexamethylenamine and the acid sodium phosphate are discontinued, and one-half teaspoonful of sodium bicarbonate is taken every four hours. Lemonade is substituted for the plain water, and the bowels are regulated, if need be, by citrate of magnesia. In this way the urine is thoroughly alkalinized after a week of acid. This alternation of acids and alkaline urine is continued until a cure is effected. Only a very few cases clear up before delivery. The large intake of fluid and the knee-chest position are the main therapeutic agents. It is only in the rare case that ureteral catheterization is necessary, or advisable during pregnancy.

Many of the distressing symptoms seen in about 10 per cent of women during pregnancy and the puerperium are due to anemia. How the placenta extracts iron from the mother during pregnancy is not known, but it is known that

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at birth the infant has an amount of iron stored up that is proportionately greater than is found in the adult. This fact undoubtedly accounts for the frequency of anemia found in pregnant women. This is of importance, not only from the standpoint of distressing symptoms, but from the standpoint of the connection of anemia with toxemia and diminished resistance to infection at childbirth, with greater likelihood of the breaking down of perineal repairs.

The most frequent symptoms in pregnancy which have manifested themselves coincident with a low hemoglobin and red-cell count have been numbness and tingling of the extremities, especially of the upper extremities, noticed when arranging the hair; increased fatigue on slight exertion; headaches; palpitation; rapid pulse; and, in severe cases, edema. In this section of the country thyroid derangement accounts for similar symptoms, but one should be sure of the hemoglobin. These anemias generally respond promptly to sunlight, a tablet containing five grains of fresh Blaud and one one-hundredth grain each of arsenic trioxide and strychnine, three times a day after meals and a diet high in iron. The following foods, in their order, have the highest iron content: lima beans, peas, whole wheat, beefsteak, spinach, oatmeal, raisins, and eggs. Anemia should lead one to increased care in searching for focal infections.

In the puerperium a large share of the women who drag around under par are the subjects of anemia. One will be surprised at the findings if a routine hemoglobin and red-cell count is taken on the eighth day following delivery. Dr. Carl Anderson, interne at the Abbott Hospital, Minneapolis, reviewed the last 150 cases at this hospital with regard to the blood picture on the eighth day post partum. The average hemoglobin estimation was 71.5 per cent. Ten per cent were below 60 per cent. It was invariably in the low hemoglobin group that low sepsis or giving away of stitches occurred. Many of these cases lost more blood than normal at delivery or were low in hemoglobin at delivery. In some the low-grade sepsis could be laid at the door of necessary operative interference at delivery. With the same aseptic technic it is clear that infection is not so prevalent in those not suffering from anemia. From the standpoint of convalescence, even where infection is not present, the hemoglobin content is of great practical importance, especially in reference to length of sojourn in bed. I believe experience proves that it is ridiculous to say that patients should get up on such and such a day and begin to walk on such and

such a day. The time of sojourn in bed should be determined by the temperature, amount of flowing, rapidity of involution, rapidity of the pulse, and the hemoglobin. It is unwise to allow a woman to exert herself, even to the extent of sitting up, with a pulse above 84 and a hemoglobin below 70. If this rule is followed, barring infection and retained decidua, women will not give a history of months of feebleness after getting about following parturition.

We should exert every care to prevent loss of blood at delivery. To this end, wherever possible, an attendant should place the hand over the uterus after the birth of the child to forewarn of any ballooning of the uterus. Attempts at expressing the uterus should not be made until the descent of the cord shows that the placenta has separated, and the uterus should be held for one hour after the birth of the placenta in addition to the use of pituitrine or ergot. One need only see one fatality, due to the failure of the attendant to properly watch the uterus following delivery of the placenta, to be thoroughly impressed with the importance of the routine procedure.

I believe you will find that the routine treatment of the anus, after delivery, will add greatly to the immediate comfort of the patient and to the diminution of further rectal pathology. Let me add that the rectal examination, following repair of the perineum, is the safest method of testing your repair and the surest method of verifying the integrity of the rectovaginal wall, from the standpoint of asepsis. One will eliminate great discomfort, following delivery, by massaging back all venous pressure protrusions within the external sphincter with zinc oxide ointment, following up the procedure with a rectal suppository containing 1 grain of opium. On the second day following delivery begin giving an ounce of mineral oil or a combination of mineral oil and agar by mouth three times a day. On the second night following delivery inject six ounces of olive oil in the lower bowel, to be retained that night. This procedure, with the possible addition of a small ss. enema on the morning of the third day, makes the first bowel movement very easy and painless and, in my experience, has lessened the prevalence of hemorrhoids and fissures. In the early puerperium enemas are more effective and less troublesome than cathartics. If you give a cathartic it may keep a nurse busy for hours bringing a bedpan for false alarms, whereas enemas are more effective and the result can be more accurately timed, and the patient has less distress. Under adverse conditions

and lack of a nurse at least the massage after delivery and the oil by mouth can be practiced to advantage.

Of all disabling conditions in the puerperium, infection stands preeminent. From the standpoint of mortality it accounts for approximately 50 per cent of all obstetric deaths. Prevention lies first in perfection in abdominal and rectal palpation to the end that invasion of the vagina and cervix may not be necessary for diagnostic purposes and, secondly, in abstention from any operative interference, unless absolutely necessary in the interests of mother or child. Too many men to-day are running riot in their advocacy of operative interference. They fail to recognize the limits of safety of even the best technic. Conservative obstetrics in addition to the best technic possible under every circumstance is the surest safeguard against infection. Where infection does not obtain we are all too familiar with the unnecessary injuries brought about by unindicated and ill-timed intervention.

A final examination should always be made, the time of such examination depending upon the judgment of the physician. In most instances six weeks following delivery is the best time for such an examination, and the patient should be so instructed. If she does not present herself she should be notified. In this final examination the most important point to determine is the involution and the position of the uterus. Subinvolution is seldom found where no infection has obtained and the placenta and membranes have come away intact at labor. It is sometimes due to retroversion, in which case the treatment is obvious, namely, correction of the retroversion. The time to think of preventing retroversion is during labor and in the early puerperium. The management of labor which predisposes to retroversion is that in which we allow the patients to use abdominal muscles for expulsion, before the cervix is dilated, or, where forceps extraction or version and extraction is practiced before the cervix is fully dilated, thus dragging the whole uterus to the introitus with consequent stretching of the sacro-uterine ligaments, which normally help to prevent retroversion by pulling the cervix upward and backward with consequent falling forward of the body of the uterus. Good pelvic-floor repair, after delivery, by the same token, is a large factor in the prevention of a future retroversion. Proper care at delivery and good repair will not prevent retroversion unless attention is given to postural treatment during the early puerperium. Many patients are allowed to get up too soon, or, more important still, are al-

lowed to lie on their backs too much after delivery. To my knowledge the human is the only animal that is allowed to lie on her back or that does lie on her back for long periods following delivery. Every woman should be advised to lie on her abdomen or as nearly prone as the breasts will allow. She should be required to do so for at least one hour three times a day.

Many obstetricians advise against the use of the abdominal binder following delivery, saying that it predisposes to retroversion. This I believe to be an error. It adds much to the comfort of the mother, stimulates the uterus to contraction, and tends to counteract any tendency to bleed into the splanchnics, following sudden loss of abdominal pressure, and certainly could not cause retroversion because it is only worn for the first few days after delivery when the uterus is too large to retrovert into the pelvis. Barring stitches, anemia, and infection the average woman should sit up in bed on the fifth day. Preliminary to each sitting up she should assume the knee-chest position for from five to ten minutes, according to her strength. This throws the uterus forward and out of the pelvis when it is still large and heavy and able to use its weight to advantage. This exercise should be continued thrice daily. When the patient is up and about, the monkey walk is superior to the knee-chest position. This exercise consists of walking on all fours with the legs extended on the thighs.

In regard to getting up; too many are allowed to get up before the sacro-uterine ligaments and the pelvic floor have regained their tone. The ninth day is the average at which the involuting uterus can just be felt at the inlet. If the uterus does not involute to this extent in nine days the patient should not be allowed out of bed. Getting up should depend upon freedom from infection, amount of lochia, involution, pulse, and hemoglobin and should not be a matter of a certain fixed day. Of the two evils, in so far as retroversion is concerned, I believe it is better to allow a patient up too early in the puerperium than to allow her to lie on her back too long. The erect posture is more conducive to anteversion than the dorsal position.

Now we know that one in every five nulliparous women has normally, or congenitally if one would rather term it so, a retroverted uterus. They seldom give trouble and tend to revert to their previous position after delivery. Posture, following delivery, will frequently change this retroversion into the more usual anteversion. If it does not and no discomfort is caused, it is a question whether or not reposition and the use

of a pessary is advisable. Where the uterus is easily replaced I believe it is advisable. If, after five months of the use of the pessary, the uterus goes back to its original position it is best to discontinue the pessary and explain to the patient that her retroversion is as normal for her as the anterior position is to another woman. If you do not so explain to her she will always be the prey of some overzealous physician who, when she is feeling a bit under par from dull care or fatigue, will put two and two together and advise her to have her uterus suspended. No uterus should be suspended which is not giving definite local trouble, which may be eliminated by the use of a pessary, and in which the pessary has not been given at least a six months' trial. Too many women are operated on for retroversion without other pelvic pathology whose backache or other local symptoms are a result only of general fatigue or sacro-iliac disturbance. The rest after the operation does them good, naturally, but it does not prevent the return of the symptoms, and, frequently, the operation adds other more distressing symptoms than were present before. For permanent results these operative cases should be selected with the greatest care.

Before closing I wish to describe a procedure which will be found to be of great value in those cases where perineal stitches slough out, namely, secondary perineal suture. Those who were at the front in the World War will recollect the secondary suture of infected wounds. It is the application of this principle to perineal wounds. This is applicable to those lacerations and episiotomies which become infected and either break down or require the removal of all stitches for drainage, including silk-worm stitches if used. This often leaves a large gaping wound to be

healed by granulation and possibly requiring a late secondary repair. It may take a week or ten days, or even much longer, for the temperature to subside and then, as a general rule, the hemoglobin is so low that a long convalescence in bed is necessary. This long convalescence can be utilized for the better repair of this wound by secondary suture. After the temperature has returned to normal, allow from four days to a week to pass until the base of the wound appears healthy; then, under gas anesthesia, pass two or three silk-worm sutures, starting each suture at least a centimeter from the edge on one side and bring it out the same distance on the other side, at no time allowing it to appear in the depths of the base of the wound. The first should be passed well anteriorly so that when tied it will bring the hymenal ring and the torn edges of the vaginal mucous membrane together. This permits drainage from below and yet necessitates only a slight extension of the vaginal mucous membrane to cover the granulations above the suture. The posterior suture should draw the edges of the wound together loosely so as to necessitate a minimum of granulation, but allowing drainage between the sutures. The principle is the same as that used in diminishing the extent of the granulating area of an infected abdominal wound by adhesive straps. The end-result, both from the standpoint of appearance and function, is amazing. It shortens the time required for healing, if the wound edges are not approximated, by weeks. If any difficulty in drainage occurs the posterior suture or sutures may be removed according to indication. Even in such instances the scar is surprisingly narrow and the end result satisfactory.

THE BACTERIOLOGY AND SEROLOGY OF TUBERCULOSIS

A RÉSUMÉ OF SOME OF THE CURRENT LITERATURE*

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This brief review is confined mainly to the diagnosis of tuberculosis. First, the bacteriological phase will be considered and, secondly, sero-diagnosis.

BACTERIOLOGICAL DIAGNOSIS

The literature reveals a great number of methods for the staining of tubercle bacilli.

Most of these are modifications of the Ziehl-Neilson staining method.

Hyman Shoub¹ found the Schulte-Tiggs method of staining tubercle bacilli an improvement over the Ziehl-Neilson method. He found that it was less difficult and that it gave about 33 per cent more positives, exposed 5 times as many organisms, and did away with the use of alcohol.

In this method the preparation is steamed with carbol-fuchsin one minute, decolorized with sodi-

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um sulphite and counter stained with picric acid.

Edward Schoenheit,² of Ashville, N. C., uses the dark field for the demonstration of stained tubercle bacilli. He used this method for examining specimens of sputum and urine sediment, and he found that he could see the tubercle bacilli more quickly, in greater numbers, and with greater ease than with the light field. In examining 20 fields in a specimen he found 120 with the dark field as against 74 with the light field.

From experimental evidence Corper, Simmons, and Reed³ conclude that it may be desirable in suspected cases of tuberculosis to examine the bile by animal inoculation for the presence of tubercle bacilli.

1. They found tubercle bacilli in the bile post mortem, by guinea-pig inoculation, in 4 of 18 cases of far-advanced ulcerative pulmonary tuberculosis, in 1 case of moderately advanced tuberculosis complicated by aortic aneurysm.

2. The bile, post mortem, from 1 case of incipient tuberculosis, 1 of pulmonary gangrene, 2 of streptococcus pneumonia and pulmonary abscess.

Nussel⁴ believes if no sputum is available from tuberculous patients, the stools should be examined. He found that patients who had tubercle bacilli in the sputum also had them in the stools.

Sergeant and Durand⁵ also urge the importance of examining the stools in cases of pulmonary tuberculosis when sputum is not available. In the stools of 13 non-tuberculous patients, they found no acid-fast bacilli, while they were constantly present in 8 sputum-swallowing patients. They find these tubercle bacilli as virulent as those in the sputum.

Raymond Schulz⁶ has a rapid method for the recovery of tubercle bacilli from guinea-pigs injected with fluid suspected of being tuberculous which does not require killing the animal.

Two c.c. of the fluid is drawn into a syringe with a small needle. The injection is made intracutaneously about the middle portion of the thigh so as to produce a bleb about the size of a lima bean, and, if any fluid is left in the syringe, it may be injected subcutaneously.

After six days the induration at the site of injection subsides, and only a minute nodule remains. After that, if tubercle bacilli are present a small tubercle develops at the site of injection, which becomes inflamed and shows evidence of lymphatic dissemination. By about the thirteenth or fourteenth day, the nodule may be about 3 m.m. in size and slightly elongated. It may be

incised under ether anesthesia, and smears made direct from the material in the center.

Recently some work has been done in the demonstration of tubercle bacilli in the circulating blood.

Morin and Sondag⁷ took 5 c.c. of blood from each of 10 negro soldiers with fever and tuberculosis and injected into 10 guinea-pigs. The virulence of tuberculosis in the negro made it especially probable that the blood might be highly infective. Only one guinea-pig developed tuberculosis; the 9 others were killed between forty-five and fifty days after inoculation and showed no tuberculous lesions.

Köster⁸ found no tubercle bacilli in 5 c.c. of blood in each of 14 cases of tuberculosis. Among these cases were those of tuberculous meningitis, intestinal tuberculosis, mesenterial tuberculosis, laryngitis, and tuberculosis of the spleen and liver.

A Japanese, Ishiwara,⁹ reports that from 46 cases preparations from blood were positive in 6 cases, the experiments on guinea-pigs in 9 cases.

Another Japanese, Igakuzasshi,¹⁰ has a similar report. He finds that in the guinea-pig, human, and bovine types did not always appear in the circulating blood although a few cases revealed them. The bacilli found in the blood were not always living.

Agassig and Gloyne¹¹ have undertaken to determine the occurrence of tubercle bacilli in the blood of children.

They investigated two groups of children: (1) those in whom there were signs of lymph node involvement (of either the mesenteric or the cervical nodes); (2) cases in which the clinical signs were those of pulmonary tuberculosis (diagnosis established by positive sputum).

A total of 43 cases of tuberculosis in children under fifteen years of age was examined. In no case were tubercle bacilli shown to be present in quantities of blood varying from 1.5 to 10 c.c. Blood was taken both during periods of fever and no fever.

They conclude that (a) the number of bacilli circulating in the blood is too small to be detected by the withdrawal of amounts of blood up to 10 c.c.; (b) that the bacilli are only discharged into the blood at intervals, that is, it is embolic rather than an elimination process as in renal infection; and (c) that extension of the disease takes place by some other route such as the lymphatic system.

SERODIAGNOSIS OF TUBERCULOSIS

Most of the serological diagnostic work in tuberculosis seems to be that of the complement fixation reaction.

Punch and Goose,¹² English workers, have for the last two years been investigating the reliability of their complement fixation test for tuberculosis as a means of diagnosis and exclusion of pulmonary tuberculosis. They believe that "a positive result is an indication of an active tuberculous lesion in the body, and that a negative result is a reliable indication, with a few rare exceptions, of the absence of such lesions." They base this opinion on the results obtained in over 2,500 cases, both pulmonary cases and controls. For antigen they used a dilute emulsion of living tubercle bacilli. They believe that in the use of a tuberculin type of antigen, such as Besredka's antigen, complement fixation may occur in syphilitic serums because of the presence of a large amount of lipoidal substance.

Takenomata,¹³ experimenting with serum from 45 tuberculous and suspect patients and 48 controls, has shown the complement-fixation reaction to be of positive assistance in diagnosis. He finds that in pulmonary tuberculosis, tuberculous pleuritis, and also in other tuberculous affections, the complement-fixation reaction is quite constantly positive, though in the early stages the reaction may be uncertain. For antigen he used a bacillary emulsion of human types.

Sellers¹⁴ used the complement-fixation test in the examination of 57 cases of bone and joint tuberculosis in children and 17 cases of tuberculous meningitis. He used both Wang's and Besredka's antigens. From the results of the investigation the author concludes that the complement-fixation tests do not afford a reliable means of clinical diagnosis in bone and joint tuberculosis.

Wassermann¹⁵ concludes from his serological diagnosis of active tuberculosis that—

1. The serum of the tuberculous is distinctly lipophilic.

2. It requires, therefore, in its antigen the presence of a definite amount of phosphatides. This characteristic places it, in a serodiagnostic sense, in a group with the serum of the luetic patient.

3. The serum of tuberculous subjects differs, however, from syphilitic serum in that it does not react with the lipoid alone, but, besides the lipoids, requires still another component in the antigen, a component which is contained in the protoplasm of the tubercle bacillus.

4. The serum of the tuberculous patient differs from the serum of the healthy individual who has received injections of the tubercle bacillus or their derivatives in that it requires more lipoids in the antigen to effect a positive serodiagnostic reaction.

5. Wassermann believes it is possible, therefore, to make an antigen by previous defatting of the tubercle bacilli with tetrahydronaphthalene and subsequent addition of phosphatides, which antigens will, in tests on the human being, give positive serodiagnostic reactions only with serums which come from individuals who have tuberculous tissue.

6. He believes a positive serological reaction means a definite diagnosis of active tuberculosis.

Klopstock¹⁶ supports Wassermann in this view. He found that Wassermann antigen prepared from tubercle bacilli and lecithin absorbs all the reacting substance from the serum. Antigens prepared in a similar way from typhoid and colon bacilli did not change the reaction. An antigen from diphtheria bacilli absorbed only a small quantity of the tuberculous antibodies. He concluded that the reaction is specific and that lecithin makes it only more sensitive.

Recently there has been some evidence of a partial agglutination of typhoid organisms with tubercular serum. Hull and Henkes¹⁷ have investigated this subject. They found that the tuberculosis-fixation test and the microscopic Widal test correspond in 62 per cent of the cases (100 cases). The only other number of the typhoid-colon group of bacteria that was agglutinated by tuberculous serums was *B. dysenteriae* Flexner. The microscopic agglutination test, with both Flexner and typhoid bacilli, gave negative agglutination reactions.

Upon making further investigations Hull and Henkes come to the conclusions that—

1. Persons in the incipient stage of tuberculosis apparently carry in the blood a substance capable of agglutinating the Flexner dysentery bacillus.

2. Persons in the advanced stages of tuberculosis, as well as normal persons, as a rule, do not react to this.

3. Dilution of the blood serum apparently affects the results, normal persons reacting in some cases with a dilution of less than 1 to 40.

Recently some interesting diagnostic tests have been made on tuberculous serum in which chemical reagents were used.

Matefy¹⁸ mixes 0.2 c.c. of serum with 1 c.c. of a 0.05 per cent solution of aluminum sulphate. He found that much larger flakes of globulin form in the serum from patients with severe tuberculosis than in other serums.

Duzar¹⁹ reports colloid flocculation tests made on tuberculous blood according to the method of Daranyi. He found—

Nineteen healthy children were constantly negative.

Twenty-six tuberculous children were constantly positive.

The intensity of the reaction increased with the pathologic process.

The Daranyi test is made with 0.2 c.c. of the serum added to 1.1 c.c. of 96 per cent alcohol diluted with 2 per cent sod. chloride solution. (+1 c.c. of the saline sol. to each 1 c.c. of the alcohol.) The mixture is well shaken and heated in the water bath at 60° C. for twenty minutes. The tubes are then kept slanted at room temperature against a dark background, and are inspected without disturbing. When flocculation occurs at the half or first hour, this is a four plus reaction. The negative reaction is recorded at the end of twenty-four hours if no flocculation has occurred. (It is important to titrate the alcohol dilution each time with control serums.)

Duzar recommends the test as a useful aid in diagnosis when the tuberculosis reaction and other tests give doubtful results.

In continuing the investigations on the precipitin reaction in tuberculosis begun by Larson, Montank, and Nelson,²⁰ it was found that certain non-specific substances would serve as "antigenes."²¹

If a serum from a tuberculous patient is covered with dilute solution of thymol, toluene, phenol, or tricresol a cloud is formed at the interface of the two fluids. The reaction occurred with such regularity in the tests on tuberculous serum that it was considered worthy of further investigation. Tricresol was selected as the reagent to be used and made up to a concentration of 0.2 of one per cent in physiologic saline solution. The serums to be tested were covered with the reagent and incubated at 37° C. for a period up to two hours. The positive reactions often appeared in the first few minutes. In the far-advanced cases the reaction developed more slowly, and in some cases, a week or more before death ensued, a negative result was obtained. Normal guinea-pig, sheep, and rabbit blood serums gave negative results when tested with the reagent. Serum from guinea-pigs with moderately advanced tuberculosis gave positive reactions, while those in the last stages of the disease usually gave negative tests.

Thus far the blood serum of 3,030 human cases has been examined. Of these, 2,286 were students entering the University. Four hundred and eighty-eight were patients in the University Hospital and Dispensary, but not in the tuberculosis

clinic. Two hundred and fifty-six cases, representing all stages of tuberculosis, were from local sanatoriums. From the 2,286 students seven positive reactions were obtained. Two of these have since been found to have tuberculosis, although at the time of the test there were no other symptoms of tuberculosis to be found. Of the 488 cases not suspected of having tuberculosis, 61 gave positive reactions. Eleven of this group were found to be definitely tuberculous. In 22 cases the symptoms recorded were of such a nature as to be suggestive of tuberculosis. In the remaining 28 cases the charts revealed nothing suggestive of tuberculosis. Of the 256 known tubercular sanatorium cases, 238 were positive and 18 negative. Eleven of the negative cases were either cured or arrested. In the 7 remaining cases, 1 was far advanced, 4 were cases of bone, and 2 of pulmonary tuberculosis.

Rabbits immunized against typhoid bacilli, staphylococcus, human blood serum, and a polyvalent vaccine containing the organism of *streptococcus*, *staphylococcus*, *pneumococcus*, *micrococcus tetragenis*, and the *pneumobacillus*—all gave negative reactions with the reagent, although in each of the immune serums a high value of specific antibody contents was demonstrated by the use of the agglutination, precipitin, and complement-fixation tests. Antipneumococcus horse serums also gave negative reactions with the reagent. On the other hand the serum of a rabbit immunized with tubercle bacilli gave a very heavy ring when treated with the reagent.

It was also found that serums from apparently normal persons suffering from acute colds gave positive reactions for a few days when the cold was at its height.

In a few incipient cases of tuberculosis the reaction was not as pronounced as in the moderately advanced cases, nevertheless, it was usually very definite. In one instance the serum from a definitely exposed case gave a positive reaction with the tricresol reagent two months in advance of any tuberculous symptoms or positive sputum findings.

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STUDIES ON THE RESPIRATORY ORGANS IN HEALTH AND DISEASE, XVII. THE VITAL CAPACITY IN 347 CASES OF DISEASE OF THE BRONCHI*

From the Department of Preventive Medicine and Public Health, University of Minnesota, and the Minneapolis General Hospital

By J. A. MYERS, PH.D., M.D., AND L. H. CADY, M.D.

MINNEAPOLIS, MINNESOTA

In earlier studies^{1,2} it was observed that the average vital lung capacity of a group of patients suffering from bronchitis did not differ much from that of persons presenting no evidence of bronchitis. This was found to be true also in persons whose stereoscopic *x*-ray plates presented evidence of peribronchial infiltration. Since that time considerable data have accrued, which we desire to present, together with those previously reported. In each case, the percentage of vital lung capacity was read from tables previously published.^{3,4}

Table I shows 101 negative cases with an average vital capacity of 103.7 per cent of the theoretical normal. In a larger group of negative cases now ready to report,⁵ the average vital capacity closely approximates the figure presented here. The 12 cases in Table I, suffering from acute bronchitis, presented an average vital capacity of 100 per cent of the normal, while 156 cases with chronic bronchitis gave an average of 101.1 per cent of the theoretical normal. In a very few cases low vital capacities were observed. These cases complained of profuse expectoration, and at times found it difficult to inhale deeply without cough. The presence of considerable mucus resulting in obstruction of some of the bronchial tubes seemed sufficient to account for the reduction in vital capacity. However, it has been observed that in a small percentage of apparently healthy persons, the vital capacity is considerably below the theoretical normal.

When unilateral peribronchial infiltration was revealed by the *x*-ray in 34 cases the vital capacity was found to average 101.1 per cent of the normal, while bilateral peribronchial infiltration in 128 cases gave an average capacity of

101.0 per cent. Obviously peribronchial infiltration whether unilateral or bilateral had in these cases very slight or no effect upon the normal vital capacity. Many of these cases were diagnosed definitely as peribronchial tuberculosis by the röntgenologist. Their subsequent history is being studied at the present time, and it is our hope to keep many of them under observation over a long period of time to determine something of the outcome of this condition.

Our 17 cases suffering from bronchial asthma presented an average vital lung capacity of 87 per cent of the normal. In one case the capacity was as low as 23 per cent when the reading was made. This was during an acute attack. In others the vital capacity was considerably above 100 per cent of the normal. In a group of 20 cases previously reported⁶ it was stated that the vital capacity is greatly reduced during acute attacks of bronchial asthma—in some cases being as low as 18 to 20 per cent of the normal. Between the acute attacks vital capacity is unaffected. This for the most part confirms the observations of Peabody and Wentworth,⁷ Staehelin and Schütze,⁸ and Plesch.⁹

From Table I it is obvious that vital capacity readings give us little or no help in the detection of bronchitis and peribronchial infiltration. The test is well worth doing, however, inasmuch as in some conditions, particularly bronchitis, one may suspect the presence of pulmonary pathology, such as that produced by pneumonia and tuberculosis. It is well known that pulmonary disease of clinical significance nearly always decreases the vital lung capacity. Therefore, if, in the presence of suspicious symptoms, one finds the capacity well within normal limits, one may feel reasonably sure that no serious pulmonary involvement is present. This does not account for the cases who have highly over-developed lung

*Presented before the Medical Staffs of the Lymanhurst School for Tuberculous Children and the Parkview Sanatorium, June 24, 1924.

capacities. For them one is compelled, at the present time, to depend entirely upon other aids unless one be fortunate enough to have on record readings previously taken when there was no evidence of disease.

This study was carried out with the aid of a grant from the Research Fund of the University of Minnesota.

TABLE I

| | Number of Cases | Vital Capacity Per Cent |
|---|-----------------|-------------------------|
| Negative Cases | 101 | 103.7 |
| X-ray and physical signs and symptoms.) | | |
| Acute Bronchitis | 156 | 101.0 |
| (Physical signs and symptoms.) | | |
| Chronic Bronchitis | 156 | 101.1 |
| (X-ray or physical signs and symptoms.) | | |
| Peribronchial Infiltration | 34 | 101.1 |
| Unilateral (X-ray) | | |
| Peribronchial Infiltration | 128 | 101.0 |
| Bilateral (X-ray) | | |
| Bronchial Asthma | 17 | 87.0 |
| Total | 448 | |

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country in time of national stress, and for the remarkable courage and cheerful spirit which he revealed during his last illness, even though he was fully aware of its hopelessness.

3. That we express to the bereaved family our condolence and sympathy.

4. That a copy of these resolutions be spread upon the minutes of our society, that a copy be sent to the family and one to each of the state medical journals.

—J. W. ANDREWS, M.D.
H. J. LLOYD, M.D.
A. V. DENMAN, M.D.

CORRESPONDENCE

THE CHRISTIAN SCIENTISTS' ATTITUDE TOWARD VACCINATION

The following letter comes to us from an attorney at law who is the "Christian Science Committee on Publication for the State of Minnesota":

January 8, 1925

TO THE EDITOR:

The statement that appears in the editorial column in your issue of January 1, 1925, with reference to the willingness of Christian Scientists to be vaccinated, must have been made from a misapprehension of the facts. It is true that Christian Scientists are taught to "obey the law." Therefore, under specific conditions where it would seem that a failure on their part to become vaccinated would be an evasion of the law or lawful regulations, they comply. This is not, however, of their own choice, but rather in compliance with their desire to be law-abiding and apply the principle of the Golden Rule. Vaccination, nevertheless, is an interference with their religious belief and practice which finds the power of God sufficient to protect them against the contagion of disease as well as to heal them.

HENRY DEUTSCH,
Christian Science Committee on Publication.

ANSWER

It was stated in our editorial that "large numbers of Christian Scientists are perfectly willing to be vaccinated." This is absolutely true, as every physician knows; and it is positively silly to set up a denial as to their "willingness" when they are vaccinated in large numbers without any "law or lawful regulations," at least in the State of Minnesota, compelling vaccination.

If Christian Scientists "find the power of God sufficient to protect them against the contagion of disease, as well as to heal them," why are they not told by their teachers not to be vaccinated where there is no law requiring it?

Many unvaccinated Christian Scientists have died of black smallpox in spite of their "protection."

MISCELLANY

RESOLUTION OF RESPECT FOR

DR. CHELSEA C. PRATT

We bow in humble submission to the will of the Divine Creator in removing from us by death our esteemed friend and fellow-worker, Dr. Chelsea C. Pratt; yet we mourn the fact that he was stricken down in the zenith of a life of activity and usefulness. Therefore, be it resolved by Blue Earth County Medical Society in regular session assembled:

1. That we deeply regret his demise, and shall miss his genial fellowship, his efficient work amongst us, his ethical character and untiring zeal for the good of the profession.

2. That we extol and honor his memory for his unflinching devotion to duty in the service of his



W. A. JONES, M. D., *Editor*

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FEBRUARY 1, 1925

CHOOSING A SITE FOR A TUBERCULOSIS SANATORIUM FOR THE VETERANS OF THE TENTH DISTRICT

If an angel or a group of angels were appointed to select a site for a million-dollar sanatorium for war veterans, their selection would meet with caustic criticism—from men and newspapers, which is the same thing. Such a selection, by a group of mere men, has just been made in the Tenth United States District, composed of the States of Minnesota, Montana, North Dakota, and South Dakota. Criticism, and plenty of it, followed, but an answer to it is not the object of this editorial. The manner of the appointment of this committee, its membership, and its work are so heartening in these days of radical, rabid, and raucous criticism of everything and everybody, that we want to point out what problems arose and how they were solved.

General Frank T. Hines, Director of the United States Veterans' Bureau, Washington, appointed a special committee to recommend a suitable hospital site in the Tenth District for tuberculous beneficiaries of the United States Veterans' Bureau. This committee was composed of the following: Dr. G. E. Seaman, Milwaukee, Chairman, Mr. William Stern, Fargo, North Dakota, Colonel Boyd Wales, Pierre, South Dakota, Mr. Byrl J. Osborn, Minneapolis, Dr. Walter J. Marcle, Minneapolis, and Dr. E. B. Daugherty, St.

Paul, the two last named being tuberculosis specialists of the highest possible standing in the medical profession.

Dr. Seaman had the rank of Colonel in the World War, and at the time of his appointment on this committee he was president of the Association of Military Surgeons of the United States. He is a very broad-minded gentleman, of large experience, a member of the Board of Regents of the University of Wisconsin, and a practicing physician who has been for some years interested in tuberculosis.

This committee considered the problem before them with great care. The Tenth District is composed of Montana, North and South Dakota, and Minnesota. As Montana is provided with a sanatorium under charge of the United States Veterans' Bureau near Helena, that state was excluded in the present consideration.

Upon investigation the Committee found that South Dakota presented a peculiar situation because of conditions there: first, at the South Dakota State Sanatorium, at Custer, in the Black Hills, a delightful location, there is a very well-constructed and well-operated State Sanatorium. Recently the Women's Auxiliary of the American Legion of South Dakota had secured funds and had erected on the grounds of the State Sanatorium a building to accommodate about forty-five men. The architecture and plans of this building are in harmony with the other buildings on the grounds erected by the State, and they are to be furnished completely by the Women's Auxiliary. This was built expressly for the purpose of caring for the ex-service tuberculous men in South Dakota. It is practically ready now to be furnished and is to be occupied as soon as necessary connections are made with the heating plant, etc., of the State Sanatorium. Secondly, at Hot Springs, South Dakota, there is a fine hospital built by the Government for the hospitalization of veterans of all wars, a very complete and attractive institution, known as the Battle Mountain Sanatorium. A few years ago there was erected on the grounds of that institution a special pavilion for the tuberculous. It has about fifty beds. It is being conducted very satisfactorily as part of the Government institution.

This situation in South Dakota was very carefully considered, and it seemed to the Committee that it would be wise for the Government to utilize this situation, for it offered an unusual and economical opportunity to solve the problem for South Dakota. The Committee, therefore, recommended in their report that the Veterans'

Bureau at once arrange with the State of South Dakota to utilize the Women's Auxiliary building at Custer, and also recommended that other units, such as now exist at the Battle Mountain Sanatorium, but probably of more permanent construction, be provided to accommodate other patients. All of the conditions at Custer and Hot Springs are ideal for the treatment of the tuberculous. Although the distance of the Black Hills from remote parts of South Dakota is considerable, the Committee believed this solution for South Dakota was advisable.

Having settled South Dakota in this way, it seemed best to plan to take care of North Dakota separately, and, therefore, the Committee recommended that a small sanatorium be erected on a site near Fargo to take care of the ex-service men in North Dakota.

This left Minnesota to be provided for separately.

The original instructions from General Hines were to the effect that the Committee should recommend a site for a three-hundred-bed hospital or sanatorium. It has been said that \$1,500,000 probably would be provided for this purpose, which would, perhaps, leave sufficient funds to provide for Minnesota a sanatorium of three hundred beds, provided the proper plans for buildings were carried out. For a site the Committee recommended two locations on the bluffs of the Minnesota River about fifteen miles from Minneapolis and not far from the Automobile Club. One is known as the Bloomington Ferry site and the other is known as the Wales site. There has already arisen some misunderstanding with reference to the Wales site because there were two sites offered by Mr. Wales, one including buildings of considerable extent and cost, the other without buildings of any kind. The latter site was recommended.

It was necessary to take several factors into consideration in selecting a site, and the Committee inspected sites in North and South Dakota, and in Northern Minnesota, a number of sites around the Twin Cities, and also sites at Northfield, Faribault, Owatonna, Rochester, and Red Wing. By far the larger percentage of the ex-service men who will go to this sanatorium live in or near the Twin Cities (Minnesota only being considered). As a matter of comfort in transporting very sick patients to the institution, as a matter of convenience for friends, the less difficulty in obtaining and securing capable employees, the nearness to the medical center (University and the Twin Cities), which proximity the Committee thought would be beneficial to the

medical spirit of the sanatorium—these were the factors which practically determined the selection of a site near the Twin Cities rather than a more remote site, for example, in the pine regions of Northern Minnesota.

This report was submitted to General Hines on the 15th of January.

Could angels have done any better?

THE MINNESOTA STATE MEDICAL ASSOCIATION

The annual meeting of the Minnesota State Medical Association will be held in April, beginning on Monday afternoon, the twenty-seventh, at which time the House of Delegates will meet. The regular sessions will begin on the morning of the twenty-eighth and will continue over the twenty-ninth; and on the thirtieth Minneapolis Clinic Week will hold an entire day of clinics, thus consolidating, as it were, the State meeting and Minneapolis Clinic Week. These arrangements were arrived at at a meeting held in Minneapolis by the state committee appointed by Dr. Burnap, the president of the state organization, the executive committee of the Clinical Section of the Hennepin County Medical Society, and other officers from various parts of the state. The same plan which has been followed for years was again followed in appointing chairmen, as follows: Dr. L. G. Rowntree, of Rochester, and Dr. F. J. Hirschboeck, of Duluth, secretaries for the medical side; Dr. H. P. Ritchie, of St. Paul, and Dr. O. J. Hagen, of Moorhead, secretaries on the surgical side. The whole object of the meeting, however, was to determine the advisability of holding a continuous joint session so that both surgeons and medical men could be brought together and thus secure a larger attendance at the section meetings.

The mornings of Tuesday and Wednesday will be devoted to clinics from both the medical and the surgical aspect; and the afternoons are to be devoted to demonstrations, lantern slides, and probably some papers. But the committee expect to scrutinize the program very carefully before it is finally made up, and it looks very much as if the meeting would be a very successful one. The meeting-place is to be in one of the University buildings and in one room, following out the plan of the Tri-State District meeting and the Sioux Valley meeting. Everyone who is requested to prepare a paper is supposed to have it ready for the printer after it has been read. It is to be turned in to the secretary and published in full, even if he reads it

only in abstract, in the official journal. A preliminary program is in the process of formation at the present time, although the details are not yet at hand, but they will be given out in THE JOURNAL-LANCET semimonthly.

It is also proposed that on Tuesday evening, April twenty-eighth, the annual banquet will be given at one of the hotels, and speakers from the East will be invited to participate, and already progress has been made in securing men for the occasion. Then it is proposed that on Wednesday evening some sort of an informal riot or jollification meeting will be held to round out the state program and to anticipate the Clinic day which follows. Every man in the Northwest, including the Dakotas, Nebraska, northern Iowa, and western Wisconsin, should be put in close touch with the state meeting, so that he may either acquire information or give information as to the best way to conduct a state association group.

THE SIOUX VALLEY MEDICAL ASSOCIATION

The Sioux Valley Medical Association's winter meeting took place at Sioux City, Iowa, on January twentieth and twenty-first. The registration showed approximately 240 men in attendance, an usually large number for a Valley Association meeting; but considering that its membership is made up of the western part of South Dakota, eastern part of Nebraska, the northern part of Iowa, and the southern part of Minnesota, it is not to be wondered at that the attendance was good. Looking over this body of men one is not surprised to see an eager and interested audience. They were there for a definite purpose, to hear what they could, to learn what they could, and to meet their fellow-men in a social as well as a professional way.

The meeting-room was an ideal place for such a meeting, the ball-room of the Hotel Martin. It could easily seat 400 people, and on one side of the room were a series of alcoves which furnished resting-places and disrobing-places for patients who were to appear at the clinics; consequently there was no confusion, and the clinics went off with remarkable celerity. All the clinics were under the direction of Dr. Wm. E. Jepson, one of the well-known men of Sioux City, and he gathered together a huge lot of material for all the clinics.

One feature of the meeting was the absence of papers, except one given by Dr. A. H. Andrews, of Chicago, on "Fifth Nerve Manifestations," and even this was illustrated by lantern-

slides, showing the course, construction, and extent of the fifth nerve. The first clinics were given by Dr. W. A. Jones, editor of THE JOURNAL-LANCET, showing neurosyphilis in children and in adults with varying nervous symptoms which were interesting and instructive. A case of what might have been called infantile syphilis safely was demonstrated, and the question of congenital and hereditary syphilis of the nervous system was discussed. There were two cases of muscular dystrophy in children, and two cases of the Parkinsonian syndrome, in which rigidity, tremor, and minor paralyzes were exhibited in each case. Another case was of cerebral arteriosclerosis with a history of hemiplegia and a gradual nerve deterioration. Two or three cases of defect in the development of the brain were demonstrated,—a rather amazing mass of clinical material for one man to demonstrate.

The address in the afternoon was given by the editor on "Heredity and the Psychopath," in which he quoted very largely from Buckley's "Basis of Psychiatry," Morgan's "Physical Basis of Heredity," and from the two works of A. E. Wiggam, the biologist: "The New Decalogue of Science:" and "The Fruit of the Family Tree." The idea was to discuss the origin of the psychopath, why he was a psychopath and why, on account of his heredity and environment, he developed a neuropsychiatric chain of symptoms.

A most interesting feature of the program were two demonstrations given by Dr. Reginald Fitz, of Boston, Mass., and Dr. H. E. Robertson, Pathologist, of Rochester, Minn. A slide was thrown on the screen giving the history of a case with the physical findings as demonstrated by the clinics; and Dr. Fitz undertook to discuss the history and make a probable diagnosis. After each case was so presented, Dr. Robertson presented the post-mortem findings showing how difficult it was for any clinician to determine all the disorders and diseases which might be found at post mortem. And it is a pleasure to say that Dr. Fitz' analysis of the history was remarkably clear even though he did not always determine the extent of the pathological findings. In these demonstrations the following diseases were discussed: Splenomyelogenous Leukemia, Pernicious Anemia, Chronic Nephritis, Diabetes, and Gastric Ulcer. This form of demonstration from the clinical and from the autopsy aspect is something that has been recently developed, and we understand that Dr. Fitz and Dr. Cabot have been working on the same line with exceptional success. It at least gives a man time to think and to use his reasoning powers; and then to

hear the literal aftermath of a conclusion described by the pathologist makes very interesting work. If more of us were accustomed to this sort of thing there would be more equitable adjustments between the clinician and the post-mortem table. Both men are known for their skill and their keenness of observation.

On Wednesday the clinics were conducted by Dr. I. Abt, Dr. Joseph Miller, and Dr. Dean Lewis, all of Chicago. These three men conducted all the clinics and demonstrations for the entire day. Dr. Abt discussed in his clinics Asthenia, Rickets and Tetany, Post Encephalitis, Habit Spasm, and Cervical Adenitis, and incidentally showed children born of consanguineous parents (brother and sister); and the exhibition of these children was incidentally referable to the paper on heredity, growth, and development, because these two children, born of these close blood relations, turned out to be the best children of the entire family. Dr. Abt's next demonstration was on "Toxin-Antitoxin and the Treatment of Diphtheria and Scarlet Fever." Dr. Miller had many cases, among them Arteriosclerosis, Asthma, Diseases of the Heart, and Angina Pectoris, and in the afternoon he talked on and demonstrated "Some Probable Sensitization Diseases and their Treatment by Non-Specific Means." Dr. Miller is known as a very ready and clear teacher, and his clinics and the demonstrations were exceptionally interesting. Dr. Dean Lewis, the Chicago surgeon, gave clinics on the following subjects: Chronic Osteomyelitis, Multiple Fractures with Tetanus and Recovery, Bowel Resection Following Obstruction, Stomach Resection for Ulcer, and Splenic Abscess, and in the afternoon his demonstrations were on the field of infections. Both his clinics and demonstrations were very effectively handled, and, as usual, he was a favorite with his medical audience.

The banquet, which was a feature of the meeting, was held Tuesday evening at the Martin Hotel, and, if the banquet is a sample of what the hotel can do, it is a good hotel to stop at.

Dr. Cottam, who seems to be "some man" in the Sioux Valley Medical Association, presided as toastmaster, and he did his work well. The entertainment consisted largely of music, both vocal and instrumental, and a few more or less incoherent speeches that were made by visiting members and members of the Association.

The officers of the Association deserve great credit for the program and the way in which they put it over, and much praise must be given to Dr. C. E. McCauley, of Aberdeen, S. D., the

presiding officer, Dr. R. F. Bellaire, of Sioux City, Iowa, the secretary, and Dr. W. R. Brock, of Sheldon, Iowa, the treasurer. All these men and Dr. S. E. Sibley, Dr. R. E. Nervig, Dr. W. G. Rowley, and Dr. C. P. McHugh, all of Sioux City, making up the local committee on arrangements are to be complimented on their efforts.

As everything was done at the Hotel, from clinics to soup and nuts, there was no confusion in the attendance and everything went off in clockwork order. We wish some of our larger societies could see these smaller organizations at work, copy their methods of conducting a meeting, avoiding as much as possible the tiresome introduction of papers. The time is rapidly coming when papers will be read only in abstract, for the man who gets up and talks about what he knows is the man who puts it over.

THE JOURNAL-LANCET is proud to be the official organ of such an association.

BOOK NOTICES

LIFE INSURANCE EXAMINATION. Edited by Frank W. Foxworthy, Ph.B., M.D., on the Staff of the Methodist Episcopal and City Hospitals. Cloth. Price, \$9; pp. 738, with 156 illustrations. St. Louis: The C. V. Mosby Company, 1924.

This is not so much a new and up-to-date text or reference work on the subject, which the profession for a long time has wanted.

It is a symposium consisting of forty-eight related essays, contributed by forty-nine different collaborators, compiled by the editor and bound in cloth.

Overlapping is bound to creep into works of this kind and in itself is not a great fault, but we miss the orderly sequence and correlation of a one-author book. Each chapter is a splendid dissertation, however, and should be read repeatedly, just as we believe the instructions sent out by medical directors should be.

—A. E. HEDBACK, M.D.

MEDICAL GYNECOLOGY. By S. Wyllis Bandler, M.D., Professor of Gynecology, New York Post-Graduate Medical School and Hospital. Fourth Edition, thoroughly revised. Octavo of 930 pages, with 157 original illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$8.00 net.

This latest edition of a well-known book has been brought up to date and covers the field of medical gynecology quite fully. It is well arranged and readable. There are numerous illustrations in the sections describing methods of examination and methods of treatment. There is an excellent chapter dealing with the important subject of history-taking. Over one hundred pages are devoted to the discussion of endocrine glands. The chapter on carcinoma follows Winter very closely in classification and description. Gonorrhoea in women is thoroughly considered.

While some subjects are treated briefly, such as

sterility, fibromyomata, and diseases of the ovaries, there is considerable space devoted to discussion of certain factors in diseases of women which are usually given scant consideration, such as associated nervous conditions, constipation, and the endocrine glands.

Pathology is not especially stressed, but receives consideration under each subject.

There is a short chapter dealing with urological examination of the female, and another takes up certain urological problems usually found on gynecological examination of the patient.

This is a valuable book for the practitioner. Many good points in diagnosis and treatment will be found. There are a considerable number of prescriptions which the author has found valuable in the years of his practice.

It is well to have the medical side of gynecology brought before the student and practitioner, as most of our profession have text-books on gynecology which are largely filled with the surgical problems and the technic of major operations but with very brief consideration of the numerous and most trying types of female disease.

—H. M. WYNNE, M.D.

NEWS ITEMS

Dr. E. H. Field has moved from New Effington, S. D., to Wibaux, Mont.

Dr. C. E. Sherwood has moved from Watertown, S. D., to Madison, S. D.

Dr. William Black, of Mankato, has been elected county physician of Blue Earth County.

Dr. P. A. Schulberg, who has practiced for some time at Montevideo, has moved to Osakis.

The Community Club of Belle Plaine has under consideration a plan to establish a public hospital in that city.

Dr. J. A. Lepak, of St. Paul, was elected chief of the staff of Ancker Hospital, of St. Paul, last month.

Dr. R. C. Lowe, who practiced at Fairmont for a number of years, is now located at Stevens Point, Wis.

The Lutherans of South Dakota announce that they will build a hospital at Sioux Falls to cost about \$150,000.

Dr. W. J. Dailey, who sold his practice at Blooming Prairie, last year, will locate in San Francisco, Calif.

Dr. J. J. Heimark, of the Fargo Clinic, Fargo, N. D., is spending a year in neurological work in the Mayo Clinic.

Dr. Julius Buscher, a graduate of the University of Kiel, Germany, who practiced in Germany for ten years, has located at Albany.

Dr. P. B. Carter, who has practiced in Parshall, N. D., since the town was started, has moved to his former home in Macy, Ind., leaving Parshall without a physician.

Mr. Edward J. Kimball, of Minneapolis, a dealer in medical books and well known to many of our readers for his wide knowledge of both old and new books, died last month.

The Gold Medal Radio Station (WCCO), of Minneapolis and St. Paul, is broadcasting medical talks under the auspices of the Hennepin and Ramsey County Medical Societies.

Dr. C. H. McDonell was elected county physician of Winona County last month. The retiring physician, Dr. W. B. Lindsay, twice held the position covering a period of eleven years.

The Hennepin County Medical Society passed an unanimous resolution last week favoring the removal of the General Hospital of Minneapolis to a site on or adjoining the University Campus.

The Winona County Medical Society, at a recent meeting, enthusiastically endorsed Dr. W. V. Lindsay, ex-county physician, for his efforts to get support from the County for a State tuberculosis sanatorium.

The American Society for the Control of Cancer (370 Seventh Ave., N. Y. City) have issued a small 16-page pamphlet on Cancer Cures, which they will send, in any quantities desired, to physicians for distribution to laymen.

Dr. J. A. Myers, medical director of Lymanhurst, of Minneapolis, has been appointed chairman of the Clinical Section of the twenty-first annual meeting of the National Tuberculosis Association to be held in June in Minneapolis.

The Visiting Nurses of Minneapolis made 48,625 calls in 1924. The 32 nurses of the group assisted 7,506 patients in need of their services. The cost (over \$50,000) of this splendid charity is borne by the Community Fund.

The Sioux Valley Medical Association held its annual meeting in Sioux City, Iowa, last month, with a large attendance and a fine program, which was published in our last issue. An editorial notice of the meeting appears on another page.

Dr. Wm. David Haggard, President of the American Medical Association, and Drs. Frank Billings and W. C. Woodward, of Chicago, have been invited as speakers and guests for the annual meeting of the Minnesota State Medical Association.

The Northwestern Baptist Hospital Association, with headquarters in St. Paul, will ask at once bids for the new Midway Hospital building that the Association is to erect at once. Dr. Robert Earl, of St. Paul, is on the executive committee.

When the Red Cross funds would no longer support a nurse in Martin County the County Commissioners voted \$2,500 a year toward her maintenance. Petitions from 37 clubs and societies favored public support, while only one club opposed it.

Dr. Evelyn Marynia Foot, of Red Wing, was married last month to John H. Farnham, of St. Paul. Dr. Farnham was graduated in medicine from the University of Minnesota in December, and she will take a year's internship in the University Hospital.

In the essay contest of *The Modern Hospital*, of Chicago, on "The Interrelationships of Hospital and Community," the first prize (\$350) was awarded to Mr. Edward A. Fitzpatrick, education director of the Hospital College of Marquette University, Milwaukee.

The Southwestern District Medical Society of North Dakota elected the following officers at its annual meeting at Hettinger, January 10: President, Dr. Carl Voss, Hettinger; vice-president, Dr. Simon W. Hill, Regent; secretary-treasurer, Dr. J. L. Dach, Reeder.

Dr. Carl L. Brimi, of Cooperstown, N. D., died on January 19 at the age of 49. Dr. Brimi was a graduate of Rush, class of '76, and was a member of the Shyenney Valley Medical Society and of the N. D. State Medical Association and of the American Medical Association.

Dr. Angus L. Cameron, who has been for some time Assistant Professor in the Department of Surgery of the Medical School of the University of Minnesota, has taken up private practice in general surgery at Minot, N. D. He is on the staff of the Trinity Hospital of that city.

The next annual meeting of the North Dakota State Medical Association will be held in Fargo May 25 and 26. The program committee con-

sists of Drs. P. H. Burton, (Chairman), Kent Darrow, and John Rindlaub. This committee promises one of the best meetings ever held in North Dakota.

At the annual meeting of the Tri-County Medical Society of North Dakota, held last month at Carrington, N. D., the following officers were elected: President, Dr. R. M. Meadows, Sheyenne; vice-president, Dr. C. R. Tompkins, Oberon; secretary-treasurer, Dr. H. Van de Erve, Carrington; delegate, Dr. D. W. Matthaei, Fessenden.

The Grand Forks (N. D.) District Medical Society held its annual meeting last month at Grand Forks. Officers for the current year were elected as follows: President, Dr. J. P. Miller; vice-president, Dr. Thomas Mulligan; treasurer, Dr. W. F. Law; secretary, Dr. H. D. Benwell; delegates, Drs. G. J. Gislason and H. W. Withersone, all of Grand Forks.

The first meeting for 1925 of the Cass County (N. D.) Medical Society was held in Fargo on January 14. An excellent program was presented in the form of a Symposium on X-ray. Dr. Frank Darrow discussed technic; Dr. A. J. Clay, treatment; and Dr. T. P. Rothnem, diagnosis. There was an attendance of thirty-eight; and one new member, Dr. Hugo Rostel, of Fargo, was voted into the Society.

Dr. V. S. Gupte, an East Indian student who graduated from the Medical School of the University of Minnesota a year ago, finished his year's internship in St. Mary's Hospital of Duluth and received his M. D. degree in December, has gone to Europe for a year's study. He will specialize in tropical medicine in London, in obstetrics and gynecology in Dublin, and in general subjects in Vienna. He will join five other Indian medical students who have studied abroad, to form a clinic in Bombay.

The Whetstone Valley District Medical Society of South Dakota met last month at Webster, S. D., in the Peabody Hospital. Papers were presented by Dr. Paul R. Scanlan, of Peabody; Dr. H. G. Lowthian, of Milbank; and Dr. C. O. Maland, of Minneapolis. The following officers were elected for the current year: President, Dr. A. L. Severide; vice-president, Dr. J. A. Jacotel, Milbank; secretary-treasurer, Dr. G. W. Lothian, Milbank; censor, Dr. F. N. Cliff, Milbank; delegate, Dr. Lowthian; alternate, Dr. B. A. Adams, Bristol.

The annual meeting of the Hemmepin County Medical Society was held last month. The report of the treasurer showed that the receipts of the Society for the year were over \$9,000, while the cost of conducting the Society was a little less than \$8,000. Dr. Emil S. Geist was elected president; Dr. F. A. Erb, first vice-president; and Dr. S. H. Baxter, second vice-president. Dr. LaVake, the secretary, and Dr. Peppard, the librarian, hold over. All the committees have not been appointed. The following are the delegates for this year, five hold-overs and four newly elected: Drs. F. L. Adair, J. W. Bell, J. F. Corbett, J. G. Cross (hold-overs), and Drs. A. S. Hamilton, W. A. Jones, Douglas F. Wood, and C. B. Wright (new members).

ANNUAL MEETING OF THE HURON (S. D.)

MEDICAL SOCIETY

The annual meeting of the Huron Medical Society, was held on January 15, at the Marvin Hughitt Hotel, Huron. A fine supper was served at 6:15 p. m., after which Dr. R. A. Buchanan, of Wessington, reported an interesting case of sebaceous cyst in the parotid region. The cyst was opened and found to be a dense fibrous mass, an inch and a half in diameter and filled with blood. Closer examination disclosed three small arteries spurting blood into a venous capsule, proving it to be an arteriovenous aneurysm.

Dr. L. N. Grosvenor presented an abstract of a paper in the December number of the *American Journal of Ophthalmology* on the "Rôle of the Epithelial Cell in Conjunctival Infections," by Harvey J. Howard of Peking, China. It shows how the gonococci are parasites on the epithelia. Spread over the surface of the epithelia the endotoxins dissolve the cement, and the gonococci crawl over the edge of the cells and cover the under surface. When the cells are well loosened up they are exfoliated in layers, and the new epithelia are phagocytes that gather in the gonococci and digest them.

The election of officers for 1925 resulted as follows: President, Dr. T. J. Wood, Huron; vice-president, Dr. R. A. Buchanan, Wessington; secretary-treasurer, Dr. L. N. Grosvenor, Huron; delegate to State Association, Dr. O. R. Wright, Huron; censor for three years, Dr. W. H. Saxton.

L. N. GROSVENOR, M.D.
Secretary.

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THE JOURNAL LANCET

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BIRTH INJURIES AND THEIR REPAIR*

By R. L. MURDY, M.D.

ABERDEEN, SOUTH DAKOTA

A frank discussion of obstetric injuries, with the participation of the general practitioner, the obstetrician, and the surgeon, seems timely to me, as much of their practice does not conform to uniform methods; therefore a plan of procedure in this respect may be established which will reconcile the divergent views of the various groups. More benefit to the patients and material scientific progress could be advanced by uniformity in methods and a tendency to undertreatment by certain members of the group and overtreatment by others could be eliminated. Much of the undertreatment comes from lack of surgical experience, indifference or neglect of slight injuries, or failure properly to examine the parturient canal after birth, also from timidity superinduced by false pride and fear of criticism for a condition which may not be under their control.

Lacerations and other injuries are inevitable, but their mitigation and scientific treatment create a responsibility which must be assumed by the attending physician. Let it be said to the credit of the general practitioner that as a rule he is a fair, if not a skillful, obstetrician and has developed wonderful adaptability and tact in handling these cases, many times under adverse circumstances so bad that it would deter the courageous gynecologist working under modern conditions.

On the other hand, we have a species of practitioners who identify themselves as gynecologists who see more of the later stages of these cases and where secondary changes have arisen

and at a time when too much surgery may be done for the good of the patient. However, many of these late cases require extraordinary operative skill and mature judgment to select and adapt the right procedure for a given condition.

The importance of immediate repair in recent lacerations can hardly be overstated or urged too strongly. Its neglect is fraught with far-reaching consequences, some of which are obvious, such as the small tears that open avenues for infections, which, if they were of the same degree placed externally would receive prompt and vigorous treatment; also lacerations of the second and third degree which lead to weakness of the supporting structures of the perineum, uterus, rectum, and bladder. Other injuries have possibilities for serious consequences cast largely into the future. All neglected tears of the cervix and perineum sufficient to produce retraction to a degree that good spontaneous healing is not to be expected, are forerunners of morbidity and may furnish a background for mortality, such, for instance, is the literal picture of old lacerations of the cervix, followed by retraction, eversion, and erosion of the cervical mucosa, subsequent implantation of carcinoma, and death.

It is obvious, therefore, that a working plan must be outlined by the holy trinity referred to in the beginning of this discussion, if our results are to be improved or unanimity of practice established. I would suggest in this connection as uniform measures to be adopted a painstaking examination of all parts of the parturient canal subjected to injury during the delivery, a careful

*Presented at the Thirty-seventh Annual Meeting of the North Dakota State Medical Association, at Bismarck, N. D., September 10 and 11, 1924.

repair of all vaginal and perineal lacerations immediately in most cases. At the end of the usual lochial period I would suggest a subsequent examination for the determination of cervical lacerations and submucous separation of muscles and fascia and injuries to the uterine supports and pelvic diaphragm. Certain tests should be instituted for the determination of these injuries, for a casual or superficial examination may not disclose the seriousness of the injury sustained by the patient. For instance, it is not uncommon to find an intact or almost intact vaginal mucosa upon examination, but underneath this delicate and elastic structure extensive and serious separation of the floor muscles and fascia has occurred at or beyond the median raphæ. Wide gaps in the levator perinei and transversus perinei muscles may ensue. Failure to recognize and correct this condition may lead to serious relaxation of the pelvic outlet. A procedure which may obviate or lessen many of these submucous and other injuries is a simple episiotomy practiced more now than in my day as an obstetrician. This procedure in properly selected cases and at the right stage is very valuable as it substitutes what might be a serious and difficult injury to repair for one of simplicity and ease of correction.

Second and third degree lacerations in the perineum and vagina should be repaired as soon as the condition of the patient will permit after the delivery. A consideration of this subject would not be complete without a discussion of some of the prevailing conditions which predispose to lacerations and other obstetric injuries. In this connection we might mention lack of elasticity in certain tissues; rushed deliveries before time enough has ensued to prepare and properly dilate the parts, such as early forceps and administration of pituitrin in heroic doses; in and out of time rough handling of the parts; disparity in the relationship between the passenger and the passageway—these, together with a large number of anomalies and uncontrollable conditions, make up a list of predisposing or contributing factors almost beyond comprehension.

Many of the predisposing and contributing factors which are operative in mild lacerations and injuries of the second and third degree, just considered, are operative in the injuries manifest at a date later than normal post-partem period, such as rectocele, cystocele, and prolapsus, and have their pernicious influence and deleterious effect cast into the future.

Some men are temperamentally unfitted to practice the obstetric art, for it requires great patience

in addition to technical knowledge and manual dexterity to carry these women through labor slowly and continuously when time is the better policy to adopt.

Speed and rush orders have been powerful contributing factors to obstetric injuries in the past, as it has been my misfortune to follow some of these temperamentally disqualified obstetricians who used the forceps on every case they were called upon to treat, if they could hold off spontaneous delivery long enough to make the application, and, I take it, in this day of high-powered automobiles and speed craze, the administration of pituitrin for the sake of speed may be abused as much as instruments in the past, to the great detriment of the patient and no contributing gain to the obstetrician, but plenty of exercise for the surgeon.

A combination of these injuries or a number of them may eventuate in pelvic relaxation. Pelvic relaxation is the most important background for rectocele, cystocele, prolapsus, and a few other pelvic conditions in our experience. Any one of the conditions, if considered in its fullest aspect, would make a paper too voluminous for presentation at a meeting of this character. It is not the object of the writer to do more than sketch the relationship of these conditions to obstetric injuries and to add a few suggestions for their mitigation and proper treatment.

In connection with cystocele as a remote effect of obstetric injuries I may state that the failure to empty the bladder before delivery is a powerful contributing factor in the production of this condition. A full bladder pushed ahead of the presenting parts in the edematous and relaxed condition of the tissues at this time so loosens the bladder attachments to the uterus that a cystocele will ensue or follow as a natural sequence of events.

Cystocele initiated after the manner described and brought to maturity as a remote effect of these injuries, has furnished one of the most troublesome conditions for the patient noted in gynecological practice, as well as one of the most lucrative fields of endeavor for the repair man.

The usual train of symptoms, cystitis with frequency, tenesmus, soreness, and pain, is a condition that has made many of these women very miserable until proper surgical corrections have been made.

There are a few good operations for the corrections of these conditions which have been evolved at the expense of much time, disappointment, and labor. Those that have stood the test of time are based on natural anatomical correc-

tion of the condition. The one I personally developed was nearly enough correct so that it has not been necessary to make any changes in principles, but a few minor changes in detail; and it has stood the test of time, subsequent confinements and age.

I am not urging this particular method, for any good method will do, but this method has the advantage of simplicity, anatomical correction, and ease of execution, and it can be adopted to splendid advantage in connection with other operations in this region.

The remote effect of neglected cervical injuries is a theme for serious consideration, one of which I mentioned above in this paper, that is, cancer of the cervix, but it should be discussed more in detail in this connection.

Like cancer developing in other parts of the body, it often follows a long-standing irritation, and the background in this respect is unrepaired lacerations, evasions, and erosions of the mucosa produced by respiratory excursions and movement of the pelvic diaphragm, synchronized with respiration, also standing, lifting, relaxation, and infection. This established an almost "perfect crime." The frightful mortality of cervical cancer, as compared to cancer in other accessible organs and parts, is an eloquent and indisputable argument for early and careful repair of cervical injuries and other contributing conditions.

Other remote effects of cervical injuries which may receive our serious consideration are endocervicitis and hyperplasia, if not frank fibrosis.

Early repair may be accomplished without loss of tissue, but late repair should comprehend removal of as much diseased tissue as is practicable in a given case.

Some splendid methods have been devised for cervical amputation, and that is the operation of choice in late cases. I wish to call your attention to a serious defect in the technic of the Stern-dorff method, which is admirable for the removal of diseased tissue, but which is frequently followed by serious, if not alarming, hemorrhage, as no provision is made in the operation for hemostasis. This danger is entirely eliminated by the two running suture method used in our service.

In conclusion I wish to state that I have not anything new or original to offer for the relief of pelvic relaxation or rectocele, as I have found the methods in use for their correction so satisfactory that I have not considered any new method, but have been satisfied to concentrate on the methods above suggested for cystocele and neglected cervical injuries.

DISCUSSION

DR. W. C. WOLVERTON (Linton): This is a very practical paper, and Dr. Murdy has left very little for me to say, but I would like to emphasize a few points on the prevention of these injuries.

There is a growing unwillingness on the part of women to endure the pain incident to labor and also on the part of physicians to give the necessary time to safe obstetric work to insure good results. I think these two things taken together too often lead to the reckless administration of pituitary extract. It seems to me that there is no drug quite so dangerous in unskilled hands as pituitary extract. It certainly should never be given in the first stage of labor and in the second stage only in very small doses. I heard Dr. Brandt quoted as having made the statement at a State Association meeting a few years ago that any man who would administer pituitrin in doses of more than 0.2 c.c. should have his license revoked. I do not know whether Dr. Brandt made the statement in just that way, but I am inclined to feel very much that way. The drug should never be used before the os uteri is fully dilated, or very nearly dilated, or where there is any disproportion between the fetal head and the maternal pelvis. The use of pituitrin in primiparæ is especially apt to result in the injuries Dr. Murdy spoke of, due to the greater rigidity of the birth canal in the primipara than in the multipara.

The use of an abdominal binder, instead of pituitrin, was dwelt on in a paper by Dr. A. C. Beck in the Journal of the American Medical Association of September 6th. I have had no personal experience in the use of the abdominal binder in this connection, but it seems to me that it would be a very practical measure and would be especially efficient in diastasis of the abdominal recti muscles.

As to the necessity for immediate repair of lacerations of the perineum: I believe that every laceration, no matter how small, should be repaired immediately; and in doing such repair one should be extremely careful to get an accurate muscular apposition. Too many times, following these injuries where repair has been attempted, upon examination we find that the rectovaginal septum consists merely of the rectal and vaginal mucosa. There is no muscular union.

DR. EDGAR A. PRAY (Valley City): Dr. Murdy's reference to the high-powered automobile perhaps being an objection in obstetrical cases recalls one case that occurred early in my practice. A family living a distance in the country had two children, and each time I arrived too late to officiate. When it was time for the third baby to arrive I had purchased a curved dash lever-steer Oldsmobile. There was a slight fall of snow on the ground, but I decided I would endeavor to go with the machine in the hope that I would get there on time. The weather was cold, and the radiator froze up, but I was there in ample time. In the fall when the man came in to pay his bill he said, "That darned old devil-wagon of yours cost me ten dollars extra."

I recall one of my early cases that has stood out in my memory all these years. A woman was brought to the Insanity Board, of which I was a member, with the belief that she was insane, and our consideration was requested. I had opportunity

to make a further examination and found a very badly lacerated cervix. I repaired that, and her mental condition improved rapidly.

Another case: A woman with a perfectly normal labor, one of the easiest cases I have ever seen and with absolutely no tear or injury and with the uterus in good position upon subsequent examination, had a complete prolapse after she had been up for some time. That was the only case of the kind I ever had, and it required operative procedure to rem-

edy it.

Still another patient was very ill at the time the baby came, with a severe intestinal condition with high temperature. The head tore the bowel for a distance of three inches. She was a multipara. With the repair of the injury convalescence progressed well. When her next child came the delivery was normal without complication.

Each of us, in his practice, can recall odd cases but these have seemed to me to be different.

GOITER*

BY ALBERT EDWIN BOOTH, M.D., F.A.C.S.

MINNEAPOLIS, MINNESOTA

Among the various causes of goiter suggested by various writers and research workers we find the following:

- I. Lack of iodine.
- II. Faulty diet with especial reference to fats.
- III. Infection, focal and general.
- IV. Overwork. Crowded conditions.
- V. Worry and nerve strain.
- VI. Mental and physical shock.
- VII. Pregnancy.
- VIII. Heredity and temperament.

I. *Lack of Iodine*.—With a few discordant notes we find the profession pretty well agreed that insufficient iodine may cause goiter. Experimentation, the geochemic survey of the distribution of iodine, the coincident goiter districts, the hairless pigs of the Bitter Root Valley, the U. S. statistics concerning goiter among soldiers, etc., all fit in with the original proposition.

Concerning a factor in which there is so nearly a general agreement of opinion it is unnecessary to make further discussion. Our only concern will be to discuss somewhat the various factors which make for the availability or the reverse of the iodine supply.

II. *Faulty Diet*.—McCarrison after intensive experiment and study in 1922 felt that he had proved—

1. "The potency of the conditions of close confinement, want of exercise, overfeeding, and fecal contamination of the food in causing goiter.
2. "The completeness of protection against goiter afforded by cod-liver oil.
3. "The influence of butter in favoring the development of thyroid swelling and the still greater influence of free oleic acid in so favoring it."

Quoting further; McCarrison states that "the results of the experiments indicate that there is such

a thing as a fat-thyroid-iodine balance, and that this balance may be disturbed either by an intake of iodine insufficient for the needs of the body in the particular circumstances in which it finds itself, or by the presence in the digestive tract of fat, and more especially of an excess of free unsaturated oleic acid."

Thus it would seem that McCarrison has shown not only that lack of iodine is the cause of goiter, but also that even though there is a normal intake of iodine it may be made unavailable to the system by an excess of fat or free oleic acid derivative of butter fat in the digestive tract.

The work of McCarrison also bolsters up the seeming fact that cod liver oil furnishes some real protection against goiter. In my own work I am making careful inquiries concerning the diet in every case of goiter, but as yet have nothing definite.

III. *Infection*.—It is not the intent in this paper to contend that goiter is the direct result of some specific infection—water or otherwise borne—but rather the indirect result of focal or general infection, for example, mouth, sinuses, tonsils, gall-bladder, appendix, or excess of abnormal flora in the intestine, may so disturb the metabolism that the iodine intake, though normally sufficient in amount, is made unavailable to the system.

To illustrate, mention need only be made of the frequent improvement in cases of adolescent goiter after cleaning up the mouth, throat, and sinuses of frank infection. It is true many of these cases make spontaneous improvement with two or three years growth, but there is little doubt such cases are hastened to a marked improvement by the cleaning-up process. The same seems to be true to a lesser degree in young adults. Just how this action takes place is a moot question. It may be the action of the bacteria or their toxin, or both, upon a thyroid

*Presented at the Sixteenth annual meeting of Minneapolis, St. Paul, and Sault Ste. Marie Railway Surgical Association, Minneapolis, Minnesota, December 11 and 12, 1923.

hormone making it less potent; or it may be the action of these elements upon the intestinal contents, especially the fat content rendering the iodine less available.

D. J. Harries believes that thyroid toxemia is caused by absorption of toxic material from the intestine "due to the absence of indol producers in the intestine."

IV—V. *Overwork, Worry*.—It is not infrequently that we see a young, conscientious woman start teaching in a difficult school. After a few months she becomes nervous, has a fine tremor, loses flesh, lives at higher tension than is necessary, and often has some increase in the size of the thyroid. These conditions are much more apt to follow if eye-strain is added to the worry. It would seem that there is plenty of evidence at hand at the present time to force recognition of eye-strain as a real factor in causing or aggravating goitrous conditions. This feature has been abused in some instances by institutions which advertise the cure of goiter by treating the eyes. It is not alone in teaching that we find instances as above, but in all high tension business life. The citation of one case will illustrate:

Miss S., a stenographer doing good work, in 1918 was given a better position with an increase of salary. The added responsibility meant more work, worry, and loss of sleep. In three months she became nervous, with fine tremor, tachycardia, and had lost twenty-five pounds in weight. The thyroid increased in size. Complete rest and ligation of one superior pole gave relief. In six weeks she was back at work, soon regained normal weight of 150 lbs. She remained well until the spring of 1923, when added office responsibilities plus illness in the home brought more worry and loss of sleep. Loss of weight and typical thyrotoxicosis followed. Subtotal thyroidectomy was done, and in two months she again returned to work apparently well.

VI. *Mental and Physical Shock*.—This is the phase of the subject particularly interesting to us as railroad surgeons.

Bram, speaking in 1920, says: "There is a remarkably clear indication that traumatic shock or fright is capable of bringing on Graves' disease in persons previously possessing perfect health. He mentions one of his own cases in which hyperthyroidism appeared in a man two months after someone had unexpectedly poured ice-water down his back. In another case, a woman aged 50, the symptoms gradually appeared after a *train accident*."

Sajous reports a case due to an accident and rapidly proceeding to recovery under medical treatment, which promptly recurred after a sec-

ond accident, although the patient did not suffer traumatism.

Beebe cites cases of severe hyperthyroidism developing in men during their experience in the army. I think we have all seen some of these. He also cites cases in patients "who had been subject to the horrors of the Kishiney massacre, the San Francisco earthquake, and the Triangle Shirt Waist Co. fire."

Shell shock probably has in it a large element of endocrine unbalance.

I shall cite briefly four cases of my own:

1. Man, aged 55, in good health, while learning to drive a new automobile accidentally ran over and killed a young woman. In less than two months he presented an outstanding case of hyperthyroidism.

2. A young mother in good health nursed her two-months-old infant and put it to bed. A half hour later she found it dead, drowned in its own vomitus. In six weeks she was in marked hyperthyroidism.

3. A young married woman in good general health was operated on for pelvic infection. She made a good surgical recovery, but before the end of the first week showed signs of hyperthyroidism, which steadily increased to a marked case. (These three cases required surgery for cure.)

4. A young mother in perfect health found her child dying from an accident that had occurred in the neighborhood. Within a month she had a very definite toxic goiter.

These citations simply serve to illustrate what may and often does happen to people subjected to shock, either mental or physical. True it is, that in railroad employes as a whole we are dealing with healthy, vigorous men not easily jarred by shock of any kind. Perhaps that accounts for so few toxic goiter cases developing among railroad men.

With the traveling public, however, we are dealing with the average individual, and among these following accident we should be on constant lookout for developing endocrine unbalance. Early recognition and appropriate treatment may prevent what would otherwise be prolonged invalidism under the names nervous prostration, neurasthenia, and what-not.

VII. *Pregnancy*.—The thyroid often increases in size during gestation and delivery. This may be due to the extra toxic material in the system incident to the condition or to an insufficient supply of iodine or some other cause. Personal observation prior to 1914, when I gave up obstetric work, and since lead me to believe that lack of iodine is the largest single factor.

VIII. *Heredity and Temperament*.—Heredity and temperament are also possible factors in the

incidence. One may not inherit goiter, but a physical unfitness which is more susceptible to goiter than normal may be passed on from generation to generation.

The negro race is a little less afflicted with goiter than the white; while in many of the more primitive, placid races goiter is almost unknown.

A person of high tension and sensitive nervous system is more apt to be afflicted than is the opposite, and this is especially true of exophthalmic goiter.

SUMMARY

Analyzing my own work with the last 6,000 cases passing through our office I found 6 per cent to have been those of goiter. The relative number of females to males is 6 to 1. The number going to operation was 134. The total mortality was two cases, the 1st and the 130th. The first was in extremis when undertaken and should not have been operated on. The second died from anesthesia before the gland was exposed.

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DISCUSSION

DR. HALLWARD M. BLEGEN (Warren, Minn.): I desire to ask the essayist a question: In these four cases of goiter that developed following shock, was there nothing in the history or in the examination which might suggest that the condition may have existed prior to the mental shock?

DR. JOHN STEELE BARNES (Milwaukee, Wis.): Dr. Booth stated that there are places where goiter is treated by eliminating the cause; for instance, that correcting eye-strain has relieved goiter. I know there are people who are carrying out this line of treatment, but I think they are drawing wrong conclusions. We know that by relieving eye-strain we relieve nervous symptoms, and we thereby help alleviate the nervous condition due to thyroid trouble. In other cases, treating the goiter relieves the eye symptoms. Many cases of goiter do not have eye symptoms, and a great many patients with goiter do not have exophthalmos. Therefore it would seem that treatment of the eye has no direct effect on the goiter itself, but treating the goiter really does relieve the eye symptoms. Therefore I think the conclusions should be reversed.

Years ago, before it was suspected that lack of iodine caused goiter, I observed in children with inherited syphilis and who had interstitial keratitis that, in a certain percentage of them, there was a tendency for the thyroid gland to become enlarged.

After treating the interstitial keratitis I observed that the gland stopped enlarging, and the tendency towards enlargement ceased. In those cases I drew wrong conclusions: I thought the gland condition was due to the specific trouble, not recognizing that the amelioration of thyroid symptoms was due to the iodine therapy used in treating the keratitis. So, reviewing those cases in retrospect, I now realize that if only I had reasoned from cause to effect and thus arrived at the proper conclusion, I should have found out at that time one of the causes of goiter.

DR. ARTHUR N. COLLINS (Duluth, Minn.): I am tremendously interested in the subject of goiter because in the Great Lakes region we have a large amount of goiter, and in Duluth we are just beginning to wake up to our responsibilities along this line. Within the last three months a survey has been started in St. Louis County, taking in the surrounding districts first. At the present time we are negotiating for a survey in the Duluth schools. In the outlying districts and up along the north shore, especially in the schools at Grand Marais, they have found as high as 80 per cent of school children with goiter. On the Iron Range the survey was made under the direction of the Surgeon-General's staff of the Health Service, Dr. Clark. They found that about 50 per cent of the children were affected with goiter. At Duluth, judging from the statistics so far gathered from our schools, we are going to find about 50 per cent incidence of the disease. Just what the ultimate findings will be I cannot state, but up to this time the survey at least shows that we have a large percentage of goiter among our school children. In Rochester, N. Y. they found a high percentage among the school children, and in several of the cities of Ohio they have found a large amount of goiter. When we compare the figures obtained in this country with the statistics gathered in Switzerland, we find that we are much better off in this respect. In some districts over there they have as high as 100 per cent of goiter,—in other words the entire population is affected. In one district they found 87 per cent of goiter among the school children. Due to the suggestions of Maries and Kimball relative to treating the water supply over there, they reduced the incidence of goiter from 87 to approximately 13 per cent.

If there is an etiological factor in goiter other than the lack of iodine it should show up in those districts in which the incidence of goiter is high. It seems that the weight of evidence as shown by the statistics should strengthen the opinion that the lack of iodine in the water or in the food, is primarily, even if it is not solely, responsible for goiter. We do not so often find it in the early ages as later. For instance, we expect to find a larger percentage of goiter in the eighth grade and in the high school than in the lower grades. However, we do find it among the smaller children. In my district I have been collecting a considerable amount of picture data bearing on the subject of goiter. I had a picture taken of a child the day after birth showing a well-developed goiter, and in talking with some of my confrères in Duluth I learned of two or three other such cases and very likely there have been more. One child of six years had a well-developed toxic goiter, which was operated on by one of my

confrères and with a perfectly good result. I have seen patients anywhere from six to sixteen years of age operated on for toxic goiter.

When an individual has developed goiter in childhood, and it persists up to the age of twenty or twenty-four years and is well established, the feeding of iodine does not do so much good. In some of these patients under twenty years of age iodine fed in minute quantities will reduce the goiter to almost nothing, while in other cases it will have little or no effect.

To be remembered and guarded against is the feeding of iodine in too large doses. The thyroid gland has a peculiar and vital affinity for iodine. If we administer it in very minute doses in the drinking water, for example, it will be taken up by the organism and absorbed without any ill effect, whereas if fed in larger quantities a mild goiter may go on to a toxic one.

The essayist referred to goiter in pregnant women. We know that a large number of women when they become pregnant have enlargement of the thyroid gland. In those cases the patient should be fed minute quantities of iodine. Marie and Kimball, as a result of studies along this line, inform us that when a boy is born of a goiterous mother the tendency to goiter is liable to persist in the child. So if we feed iodine to a goiterous woman during the period of gestation, if the child is a boy he will not develop goiter. It is well to give it to all the pregnant women with goiter, in fact. If the family history shows goiter in the grandmother or mother, iodine should be given.

In listening to papers on the subject of goiter, presented before various societies, I have been quite impressed by the fact that, while there may be a mixture of physical injury and nervous shock due to bodily accident, the physical injury does not have as much to do with the development of goiter in those cases, considered from an etiological standpoint, as do the emotional states accompanying the physical injury. In all of these cases we may have physical injury, but I think the emotional state following the shock to the nervous system itself is really what we may find is the essential stimulus to the development of hyperthyroidism.

DR. DANIEL D. MURRAY (Duluth, Minn.): During the past five years I have treated many cases of goiter, every physician in Duluth treats more or less every day, and I have found that the best possible treatment I have known anything about is sodium iodide given intravenously. From 5 to 20 c.c. of a 10 per cent sterile solution injected every other day will work wonders in goiter cases. Time and again I have seen goiters melt away like snow on a hot day. In some the goiter is more persistent. I have found this treatment more successful than anything else I have done along that line.

As to the amount used: I generally start with a 5 c.c. injection, and from this time on the size of the dose depends altogether on the effect the drug has upon the patient; that is, in the way of tasting it, etc. I do not question the patient on this point, but if at the next visit nothing is said I give 10 c.c., and if the patient says nothing about it the next time I give 15 to 20 c.c., but I do not at any time give more. Some patients complain bitterly that they taste the drug all the time.

DR. JOHN V. R. LYMAN: How many injections are required to cure the patient?

DR. MURRAY: The enlargement commences to disappear after five or six injections, but, often, at the time it begins to soften, the patient will say I believe it is growing larger. However, this is not really so. It simply looks more prominent, this effect being produced by its melting away at the edges, and most patients will be satisfied with this explanation. I have found that this treatment is extremely effective in girls or young women. In those cases, when there is a tendency for the thyroid gland to enlarge, I have found that this treatment is almost specific; in fact, I do not recall a case that has not yielded to this treatment. Usually when patient is discharged I prescribe iodine in some form internally to prevent a possible recurrence.

DR. JOHN J. MCGOVERN (Milwaukee, Wis.): The contention by different writers that goiter is produced by an infection of some sort is not sustained by facts or determined by experimentation. The five rules laid down by Crile appear to me as being very conclusive, that it is a deficiency disease:

"1. Iodine is essential to the normal thyroid activity.

2. From a purely biochemical standpoint any substitution for iodine destroys the physiologic activity of the thyroid hormone.

3. From the histologic point of view glandular hyperplasia of the thyroid is due to a deficiency of iodine.

4. The physiologic action produced by thyroid extract is always proportional to the iodine content.

5. In animal experimentation, if the iodine content is maintained at or above 1/10 of 1 per cent, no anatomic changes toward goiter formation can take place."

The different experiments carried on in various cities for the cure and prevention of goiter by the administration of iodine, corroborates the five rules quoted. The only objection to the wholesale use of iodine is, that it is unscientific and it is not attacking the subject at the proper time.

The periods when thyroid enlargement most commonly occur are:

1. The fetal period.
2. Adolescence.
3. Pregnancy.

The systematic use of iodine during pregnancy will control the thyroid enlargement during two of these periods and will undoubtedly lessen the number of cases during adolescence.

The quantity of iodine needed is small. It is estimated that twenty-five to thirty milligrams is the storage capacity of the thyroid.

As to the method of administering: experiments in the laboratories of the University of Michigan demonstrate beyond a doubt that it is immaterial whether the drug is given by the mouth or in any other way—the effect is just the same. The amount of iodine in the blood is just as much when given through the mouth as when given subcutaneously or intravenously and the amount eliminated shortly after the administration is just as great regardless of what mode of administration is employed. There is no advantage in giving iodine in any way except by the mouth and in small doses.

DR. WILLIAM A. FULTON (Burlington, Wis.): There is such a thing as iodine idiosyncrasy. I have had the experience of running into two terrific cases of iodine poisoning. One was produced by the administration of 5 gr. of potassium iodide, and the other was from the application of iodine to a sore thumb. I have often wondered what would happen to a patient with such an idiosyncrasy if that amount of iodine were given intravenously.

DR. VICTOR A. MASON (Marshfield, Wis.): So far we have almost entirely confined our treatment to surgical intervention. There is one thing in connection with this subject that we wish to bring out. This applies not only to Dr. Booth's paper, but also to the address of President Lyman, who spoke upon the relationship between thyrotoxicosis and traumatic neuroses. In the former there was nothing stated on metabolism in relation to goiter, while in the latter paper there was nothing mentioned as to the value of the differential diagnosis between the two conditions by the estimation of the metabolic rate.

During the past four years we have endeavored to take the metabolic rate in all cases of goiter. According to our understanding of the literature we are of the opinion that the metabolic rate is one of the chief points of distinction between a neurosis and a true toxic goiter, or between an early tuberculosis and a toxic goiter. However we do not think we all have a clear conception as to the metabolic rate in its relationship to a neurosis or a general nervous state. We mean by this that we should be most careful in estimating the toxicity of any goiter by one estimation of the metabolic rate, as we are sure that a general nervous state does cause a temporary increase in the metabolic rate during the time that this is being taken.

In a given case of toxic goiter upon the first reading of the metabolic rate we may find that we have a plus 50, 60, or 80, and that if we put this patient at rest with no medication whatever, and take another test in a day or two, we may find that our reading is only plus 20 or 30, while again upon a third reading we may find the figures the same or a trifle lower. Now considering that a plus 10 is within the limits of normal, and we took the first reading of plus 80, we would be under the impression that we were dealing with a severe case of toxic goiter, but if we waited and took a second or third reading as our basis of estimation of toxicity, and found a plus 20, we would be much nearer correct as to how toxic this particular case happens to be.

We, therefore, must be on our guard in reading statistics, or in making our own statistics upon the toxicity of goiters by being careful to see that the metabolic rate is correct, and not influenced by any temporary nervous state. We do not think this fact is generally understood. It is this plus metabolic rate that is one of the greatest factors in distinguishing a traumatic neurosis or an early tuberculosis from a real hyperthyroidism.

Another thing which we are not altogether in accord with is the public inspection of school children and the recommending of the giving of iodine in a wholesale manner by the laity to all those children who are thought to be developing a goiter, or might develop the same. Things have gone so far that many public schools are having the teachers ad-

minister sodium iodide to all children. We recently attended a medical meeting where this practice was strongly condemned, yet because the literature is full of articles recommending it, and the laity in some places are even demanding it, we still think this phase of the subject demands more consideration from the physicians at large. No doubt the men who condemn it have some legitimate reason for so doing. We do not believe one can give every child, or adult for that matter, an indefinite amount of iodine and have this work wonders in every case. There is no more sense in this treatment than to think that because a mother is constipated and has to take a laxative, that all the rest of the family must likewise be given laxatives. There is no doubt that a given amount of iodine may be the proper dose in some cases, but that does not say that this dose is the correct one for every individual, and that it should be given to all children, or especially those who show a slight enlargement of thyroid gland. Many of these enlargements are purely physiological and need no iodine whatever. We believe that the indiscriminate use of iodine for all school children probably does more harm than good.

Dr. Murray, in his discussion, stated that he started a patient, with hyperthyroidism, out by giving 5 c.c. of a 10 per cent solution of sodium iodide intravenously and that at the next visit, if there were no contra-indications, he gave 10 c.c. We believe that these figures should not be taken as absolute for we are certain that 10 c.c. of a 10 per cent solution injection intravenously in some people would be far too much. We should judge our cases and probably test them out the same way as has been suggested in connection with the use of serums. There probably are many people who possess an idiosyncrasy for iodine or any of its various salts. It would be much more advantageous if children in the public schools who are told that they need iodine should be sent to a competent physician for examination and that the laity should be informed that the iodine if considered necessary should be administered under a physician's supervision.

DR. F. GREGORY CONNELL (Oshkosh, Wis.): I have personally seen bad results following the indiscriminate use of iodine by the laity. We are not fulfilling our duty if we advocate the indiscriminate use of iodine in cases of goiter or in the attempt to prevent goiter. The chemical balance in the human economy that metabolizes iodine is so delicate that it should be interfered with only under intelligent medical supervision. The cause of the change from a simple goiter to exophthalmic goiter or hyperthyroidism we know nothing of, and while these theories are very interesting the answer is, we do not know.

DR. HENRY E. COMBACKER (Osceola, Wis.): I have had personal experience with goiter, as I have had a thyroidectomy. Prior to 1918 I noticed that I had what I supposed was a simple goiter, and I took iodine in about 10-gr. doses for awhile, but, believing it was slightly affecting my heart, I gave it up. In the early part of September, 1918, I had a mild case of the "flu," but we were very busy at the time, and I kept on working till the 28th of September. I had been out on a pleasure trip and on going to bed noticed that I had an auricular fibrillation, my heart was going like a steam-engine, pumping at the rate of about 160 and skipping every third or fourth beat.

The next morning I took some digitalis and drove fifty miles to my home, remained in bed three days, and finally felt much better and went to work again. On November 2 I was out on a country trip and returned home completely exhausted.

The following morning I went to Rochester. For two weeks I had not been eating much except milk and soup, and was weak and nervous and could not sleep. They examined my teeth and extracted them, then operated on a sinus, and I went through part of the Clinic. The first man who examined me said I had aortic disease, and I told him that in that case I might as well go home. He called Dr. Graham in consultation, and Dr. Graham did not uphold him. Another man said that from a study of an x-ray plate he believed I had tuberculosis. I told him I did not believe it. Later he said it was inactive. I was nervous and did not want to die with aortic disease. I stayed at the hospital, and they fed me up for six weeks. I drank six quarts of milk a day. Finally, I said to one of the doctors: "Do you notice that I have a goiter?" "Yes," he replied, "but it is simple." I asked for Dr. Plummer, as I believed my goiter had become toxic. Dr. Plummer diagnosed toxic goiter. They fed me up on digitalis for about ten days; then Dr. Judd operated on the goiter. The third day after operation my heart came down to 70 beats, and it is there now, I can run a race. The Mayo Clinical staff restored me to health. The only thing that bothers me is that I have developed an arthritis of the spine, but I presume that is from infection.

DR. BOOTH (closing): Replying to Dr. Blegen, who asked about the predisposing cause in the cases reported; I think that is the kernel of the problem. Undoubtedly, most of the cases that start suddenly have a small adenoma or a small gland that has entirely escaped notice. I want to say in regard to the cases cited that I could find nothing, and if the lesion was there it had entirely escaped my notice.

With reference to eyestrain: I do not think eyestrain will cause goiter. I feel that is one of the factors, if you please, in stirring up a sensitive nervous system that makes the thyroid more susceptible.

A word as to the incidence of goiter: The high percentage of incidence has been referred to and we recall that in this country there are some highly saturated districts in which the percentage runs close

to 95, as in certain parts of Utah, where nearly all children have goiters. Any of us who have been in the Bitter Root Valley, Idaho, saw, as I did, that most of the animals have goiter. Therefore the people who settled there soon found that often litters of pigs were born hairless or weaklings and soon died. These troubles cleared up promptly with the proper use of iodine.

As to the dosage of iodine: We are on thin ice when we talk of large doses of iodine in goiter cases because many people are sensitive to it, and, therefore, we may do a great deal of damage by the indiscriminate use of large doses. Judging from my own work, I should caution very definitely against beginning with a large dose. My custom has been to begin with 1/100 gr. of sodium iodide, giving it t. i. d. for two weeks.

Go home and study each case, as Dr. Mason has said, because every case of goiter is a problem in itself. I sincerely believe that we should not turn these cases over to a "hit or miss" treatment by the laity, because while the saturated districts might be benefited, in others we would stimulate the process and do a great deal of damage with an over-dosage of iodine.

As to the metabolic test: We use it in all cases of goiter that are toxic, and we have adopted this precautionary plan: We go through the motions once or twice of taking the metabolism. Frequently the first test is so erroneous that it is not worth considering, yet, if that same patient be kept under further observation and one or two pretended tests gone through, we shall then be able to get a rather accurate test. This test not only affords valuable aid in diagnosis, but serves as a real guide in dividing the so-called "nervous" cases from those of true thyroid toxemia.

In regard to the thyroids that become toxic: The later in life a goiter becomes slightly toxic, say after 20, the less apt we are to get results from the exhibition of iodine. Take the case of colloid adenomatous goiter in a patient, say, between 20 and 35, and we may not get any result at all. This emphasizes the need of separately studying many of these cases. If we get no result from the small doses of iodine, and give a very small dose of thyroid and repeat it if necessary, often a start in the road to recovery will be made. Then go on with the usual treatment and results will be obtained.

SOME MEDICOLEGAL ASPECTS OF THE PRACTICE OF MEDICINE*

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In an earlier day anyone who desired to do so had a right to engage in the practice of medicine. But there has been a marked change in social thought as to the freedom with which the individual may engage in the occupation of his

choice. The right to practice medicine is a valuable property right, and one is entitled to protection in its exercise. It is circumscribed and limited, however, by the obligation of the State to protect the health and to promote the welfare of its people. The medical profession has to deal with the subtle and mysterious in-

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fluences upon which health and life depend. Everyone may have occasion to consult the physician, but comparatively few can judge of the qualifications of learning and skill which he possesses. The State, in furtherance of its protective obligation, has prescribed restrictions and regulations to safeguard the public against the ignorance, incapacity, or fraud of those who would practice the profession. The license issued by an authority competent to judge in that respect, is calculated, therefore, as the State's assurance to the patient that the practitioner possesses the requisite qualifications.

Since the fundamental consideration of the State is the welfare of its people, it may not only determine who shall be licensed to practice, but may regulate the practice of those who are licensed, and, for abuse of the granted privilege, may revoke the same after proper hearing. These regulatory provisions of the law are an exercise of the police power of the State, which may be exerted whenever necessary to secure the peace, good order, health, morals, and the general welfare of the community.

Since the physician is presumed to have the skill requisite to engage in practice, and since the ordinary layman who employs him is without technical knowledge of the matters relating to his health, it follows that in the relation of physician and patient, the latter is often so dependent upon the former, so much under his direction and control, that the law naturally should, and does, extend its protection and help. So there has grown up a body of remedial law whereunder restitution may be made to those unfortunate individuals who have suffered the consequences of the unwise and negligent practices of those who have been duly licensed.

It no doubt seems at times to those engaged in the profession that it is really a hazardous undertaking, and that, however great the opportunities for rendering constructive service to mankind, the potential liability for the slightest misstep is awe-inspiring and forbidding. Whatever may be the rule as to a king, it is certain that there is no "divinity which doth hedge" a physician or surgeon. But back of all the law which has developed with respect to the liability of practitioners is the primary and necessary consideration of the public good. I am sure that not a single rule of law to which I shall advert has received judicial sanction until the rights of the profession had been conscientiously weighed and balanced against the well-being of society.

Briefly, I desire to call attention to a few of the situations in which danger lurks. One of these is at the very threshold of the relation between the physician and his patient. This relation does not necessarily rest upon contract, though it may rest there. The patient, indeed, need not even have the capacity to contract. The relation exists when the patient entrusts himself to the care of the physician and the physician accepts the case; and the obligations of the physician flow from the relation so created. The relation is not created, however, unless the patient, or someone acting in authority over him, consents to it, and a surgical operation upon the body of a patient is wrongful and unlawful where performed without consent. In such case the surgeon is guilty of a battery and is liable in damages therefor. The consent, however, may be implied from the circumstances.

By putting himself in the general care of a surgeon a patient gives a general consent to such operation as may be reasonably necessary to his welfare. The parents or guardian must speak for the minor of tender years. To avoid misunderstanding as to an operation upon a married woman, or a minor who can appreciate its seriousness, I may say that ordinarily the consent of the husband or father, as the case may be, should be given in addition to that of the patient, to afford protection against any right of action for injury to his interest in the wife or child. The consent of the husband or father alone hardly suffices for a husband has no inherent authority to consent to a dangerous operation on his wife and thereby to relieve the surgeon from liability to her for an operation without her consent, and the same is true as to the father or guardian in the case of a minor who has passed the tender years. If the child has reached an age where the nature of the proposed act can be understood, his consent should be obtained, and under certain circumstances may be sufficient in itself.

It is clear that where a patient desires or consents that an operation be performed and unexpected conditions develop, or are discovered in the course of the operation, it is the duty of the surgeon in dealing with these conditions to use his own discretion and to exercise his best skill and ability to meet the emergencies which confront him, and in the nature of things he must frequently do this without consultation or conference with anyone, except perhaps other members of his profession who are assisting him. Emergencies arise, and when a surgeon is

called it is sometimes found that action must be taken immediately for the preservation of the life or health of the patient. Where it is impractical to obtain the consent of the ailing or injured one, or anyone authorized to speak for him,—and this rule applies in the case of the minor of tender years and of the wife and of a person who is incompetent,—it is, in such event, not only the right, but the duty, of the surgeon to perform such operation as good surgery demands, without the usual consent, and granting that he has acted skillfully the emergency will serve to protect against liability.

The relation of trust and confidence which springs into being between the physician and patient is the frequent source of difficulty. The physician is in a position of advantage with respect to all his dealings with the patient. Since mental vigor depends upon the state of health, the patient often is in such condition that he will readily yield to the domination and undue influence of another. At such a time all transactions with those in fiduciary relations with him will be very closely scrutinized. A gift from the patient, or a contract with him, at once places upon the physician the burden of showing that the act was free and voluntary. The safe course is to avoid such transactions, especially where there is the slightest possibility of later inquiry into their good faith, and there is no guaranty that such inquiry will not follow in any case.

Then too the physician must be cautious regarding his promises or assurances to the patient. It is a dangerous thing to say that a cure will be effected. Such a statement may amount to a misrepresentation of fact, creating liability for damages in an action for deceit. Where the physician is in possession of the true history of a case of long standing, and out of the superior knowledge which he is presumed to possess, assures an ignorant patient that he will be restored to health, and in reliance upon the assurance the patient pays the fee demanded, and the cure is not effected, there is liability for the deceit in the amount paid. In such a case the court took the view that the physician should have been able to speak with certainty and that if he could not speak with certainty he should have expressed doubt, and if he did not know whereof he spoke it must be inferred that he intended to deceive.

Another interesting aspect of the relation is that growing out of the communications of the patient to the physician. These frequently are of such character that their disclosure would be most embarrassing and harmful, and under the

laws of this State they are made confidential. A physician is answerable in damages for a wrongful divulgence of such information. This being so, it is legitimate to ask when divulgence is rightful. The patient may waive his privilege, and when he brings an action against the physician for malpractice and testifies with reference to the treatment, he does waive it as to all matters connected with the treatment of the disease or injury in which the physician participated, and this waiver is as to the whole transaction. And there are many other circumstances which constitute a waiver.

To give rise to the privilege it is not necessary that the physician treat the patient; it is enough that he makes an examination with the patient's knowledge and consent, or, in other words, that he has acted in a professional capacity, regardless of who employed him or how he came into the case.

The confidential information so acquired may be disclosed on the witness stand if the testimony is admissible in the case in which it is given, and is relevant and pertinent to the issues, or if it is admitted by the court over objections made to its admissibility. It would appear from one case which has found its way into the books that there might be disclosure of such information on the witness stand under such circumstances as to create a liability. It seems scarcely necessary to consider such a contingency for it would be an unusual case, indeed, if the testimony were not admitted in the face of objections of counsel. The safe practice for the profession to follow is to refuse disclosure in all cases of doubt. If called to testify the witness, where counsel does not object on the ground of the privilege, may direct the attention of the court to the nature of the communication and ask for instructions with reference to disclosure, and may safely act upon the ruling of the court. There are many situations in which the information acquired does not fall within the protection of the privilege. These are such as do not constitute, within the meaning of the law, the relation of physician and patient.

Considerations of public welfare lie again at the base of the rule that those practicing medicine and surgery shall exercise proper care in the performance of their professional duties. Otherwise the health and lives of those constituting the public, and particularly of the weak, credulous, and unwary would constantly be imperiled by the ignorance, lack of skill, or negligence of practitioners. The protection which the rule affords is a civil liability of the practitioner

to the patient in the nature of damages for failure to exercise the requisite care and skill. To escape the danger of such liability the physician must possess that reasonable degree of learning, skill, and experience which ordinarily is possessed by others of the profession, and these must be exercised with reasonable and ordinary care and diligence. It is not necessary that one possess or exercise the utmost degree of care or skill attainable or known to the profession. The law does not contemplate the average merit among all known physicians, but the reasonable average merit among ordinarily good physicians. In applying the rule to a given case certain factors must be taken into account.

The practitioner is entitled to have the treatment administered tested by the rules and principles of the school of medicine to which he belongs, and not by those of some other school. One engaged in the practice of one system of medicine cannot rightly have his work measured by the standards of another system. And if the treatment is prescribed and administered by him with ordinary care and skill, and in accordance with his own system, he is not answerable for bad results therefrom. The system to which he resorts for protection, however, must be one recognized and of good standing, and one which has rules and principles for the guidance of its practitioners as regards diagnosis and treatment which each member is supposed to observe in any given case.

Again, the state of advancement of the profession at the time of the treatment must be taken into account, for the skill and care required are to be judged in the light of modern learning and enlightenment on the subject. One cannot safely anticipate developments in the profession and run the risk of making experiments on patients in the absence of their express consent. One must keep abreast of the times and, yet, if he departs from the approved methods and injures the patient, he is liable, however good his intentions may be. He must sail between the Scylla of experimentation and the Charybdis of professional obsolescence. Where the school to which a practitioner belongs recognizes only one course of treatment of a given case, the adoption by him of any other course is evidence of want of ordinary knowledge, skill, or care. Though a method of treatment is not generally used, it may be adopted if it is known and approved by the profession, whether it is new or not. But an experiment upon a patient without his consent is made at the financial risk of the physician.

From the scientific point of view, this may at times impose a hardship upon the patient, but I think it requires no argument to convince that in the judicial view no other rule could be adopted.

Another factor to be considered is the character of the locality or neighborhood in which the physician or surgeon practices. The law considers it manifestly unfair to require a physician practicing in a small rural community to exercise the same degree of skill that is required of one practicing in a large city. The centers of population naturally afford the better fields for the acquisition of experience and skill. Experience there will be most varied. Since the sparsely settled community does not afford like opportunities those practicing there, in the eyes of the law, do not have, and are not held to, the same high degree of knowledge or education or skill that may be found in the profession in the more populous communities. A physician, therefore, engages, when he accepts a patient, to bring to bear upon the case only such skill and care as are ordinarily practiced by others of the profession in a like situation; that is, he is held to the degree of diligence, learning, and skill generally exercised by physicians in like communities.

He who fails to measure up to these standards in his practice incurs a potential liability and may be made to respond in damages where it can be shown that injury has resulted from his failure to exercise the requisite degree of care or skill. In the theory of the law there is no liability for damages except for injury. It does not matter in what the negligence consists, and failure to measure up to the requisite degree of proficiency constitutes negligence. The error may lie in the diagnosis or the treatment. If by the exercise of reasonable care the practitioner ought to discover that the ailment is incurable, or will not yield to the usual treatment, and fails to do so, or, making the discovery, he fails to advise the patient, he is guilty of negligence. Again, for abandonment or neglect of the case, or for failure to attend upon it with sufficient frequency, there is liability, if in consequence thereof the pain and suffering of the patient are increased. Or the negligent act may consist of failure to give proper instructions to the patient, or his attendants, or in communicating to the patient a contagious or infectious disease, or in a mistake in a prescription. For any want of ordinary care and skill, measured by the standards which have been mentioned, resulting in pain, suffering, or injury to the patient, there is at least in theory

a liability. Experience shows, however, that it is seldom that the practitioner is called to account for acts or omissions which he, better than the patient, knows to be a technical overstepping of the limits of the care required.

All of this does not mean that a practitioner may not make an honest mistake or err in his judgment without subjecting himself to a mulcting in damages. He does not insure the correctness of his judgment. The degree of skill which he must bring to a case is clearly defined, and he is held to the exercise of the utmost good faith toward the patient. But, strict as the rules of law prescribing his liability seem, it is not forgotten that he is human. He is not held to infallibility. In undertaking the treatment of the case he does not guarantee relief. Of course, if he contracts to cure, he is liable on his contract if he fails. But in the absence of such a contract, the fact that the treatment has resulted unfavorably does not even raise a presumption that he has not exercised the proper care or diligence.

His liability extends, of course, to his partner or assistant, but not to a substitute. A large proportion of the cases of malpractice coming into the courts involve the failure to remove all of the sponges used in an operation before the incision is closed. Though it is the duty of the attending nurse to remove these, that fact does not exonerate the surgeon from liability. He has obligated himself to perform all that the operation entails in accordance with the standard of skill which the law exacts. Where a patient suffers injury through negligent hospital attention there is no liability on the part of the physician or surgeon unless the attendant, at the time of the injury, was discharging a duty of the physician or surgeon, or, of course, unless the phy-

sician or surgeon also is proprietor of the hospital.

But I cannot give, and have not tried to give, a complete catalogue of the acts or omissions which in any given situation may give rise to a liability for negligence. I have sought in this discussion to touch only upon general principles and not to place within your grasp a set of legal rules which will enable you to act as your own counsel. A rule of law is only an approximation after all, and it seldom has an unqualified application. It is applied in any given case always with respect to all of the facts and circumstances of that case. You, perhaps, are sufficiently aware that the profession must be practiced with extreme caution and circumspection if liability is to be avoided. For the most part your knowledge of medical jurisprudence, general as it may be, and your experience, and your common sense, will dictate to you when you are approaching the danger line in a case. Without seeking patronage for my own profession, I suggest that whenever you encounter doubt responsible counsel be consulted. If that cannot be done, then every doubt should be resolved in your own favor. In doing that, however, you must remember that the usual rules do not apply in cases of emergency where the life of a human being is at stake, and in those cases you may, within such reasonable limitations as the emergency will suggest, dispense with your usual solicitude. The rules of liability are stringent, but as you move about in your practice within the seemingly narrow confines which they prescribe, I trust you will ever bear in mind that they have been developed out of centuries of judicial experience with a view to protecting the health of the public and to safeguarding and furthering the welfare of all.

PERSONAL IMPRESSIONS OF GONORRHEA*

By W. J. KREMER, M.D.

MINNEAPOLIS, MINNESOTA

In recent years a great deal has been written about genito-urinary diseases. Cystoscopy has come to the fore, and with it a great many urological problems have been solved. Not only in diagnosis, but also as a method of treatment in certain instances, and as a means of determining the functions of urological organs, has cystoscopy been an invaluable aid. Pyelitis is no longer the

enigma to treatment that it was, and it does not escape detection as formerly. Renal tuberculosis may be ascertained long before the fearful vesical symptoms appear. Tumors of the bladder are readily pointed out, and the number of instances in which the appendix is removed, in order to alleviate the pain of renal colic, is becoming less and less. But there is one disease of the genito-urinary tract which, seemingly, has not kept pace with the general advance of urology. This

*Presented as an inaugural thesis upon admission to the Clinical Club of Minneapolis, April 17, 1924.

disease is one of the oldest known diseases, gonorrhœa. Its spread continues apparently without obstruction, and its complications and its sequelæ are as common and as serious as ever.

What is there about this disease that seems to defy all the efforts to stop its progress? Surely, it has been known long enough. Both Luys and Finger, who have made a life study of this disease, state that gonorrhœa is as old as mankind and that, no doubt, urethral discharges have been known at all times, and that in the primitive ages, long before medical science originated, the wise legislator gave legal sanction to suitable hygienic measures, and thus we find Moses laying down laws for the conduct of those who suffered with gonorrhœa. Moses was perfectly aware of the contagious nature of gonorrhœa, and he desired that the patient should allow a full week to elapse after his cure before he attended to his sacrifice of atonement and resumed his social functions.

Hippocrates made an exhaustive study of gonorrhœa, and the writings which he has handed down show that he made an heroic effort to solve its mysteries. The same may be said of many other investigators, and thus, as we trace its course down through the centuries, we find that all the great medical men of their time allude to gonorrhœa in their writings. Their ideas as to the cause of the malady were many and varied. The treatment advocated was just as varied; but before the days of bacterial discovery any real scientific article relating to this disease was hardly to be expected.

In 1879, when Neisser discovered the gonococcus, a new page was turned in the history of gonorrhœa. With this new discovery, establishing, as it did, the etiological factor of gonorrhœa, a new hope was held forth, and great was the expectation that the world would finally rid itself of a scourge that had ravaged mankind from the very beginning. It is now forty-five years since Neisser discovered the gonococcus. Whether or not the great expectation of ridding the world of this malady has been realized, you all know.

A short time after the discovery of the gonococcus by Neisser, Ernest Finger, of Vienna, made a very thorough and scientific study of this disease. He pointed out its characteristics, its complications, and its sequelæ. He showed, in a very able manner, its pathology and the methods of treatment to be employed. So thorough was Finger in his work that practically nothing new has been added since. That was nearly forty

years ago, and yet gonorrhœa flourishes and continues to wreak its havoc upon the unfortunate who come in contact with it.

When a patient acquires an attack of gonorrhœa, the sensations of pain and burning in his urethra and the appearance of pus at the meatus, soon acquaint him with his misfortune. He goes to his physician. The physician is not particularly interested in gonorrhœa and never has been, but he deals with the case, for some reason or other, perhaps with an air of contempt, or, if he is so inclined, he may pass a few jocular remarks. In either case the impression gained by the patient is wrong. He becomes more depressed as he silently broods over his misfortune, or he makes light of his illness. That mutual interest between the doctor and his patient, which makes for better results, is lacking, so when the acute stage has passed off, the doctor and the patient are both satisfied. The doctor pats himself on the back for having established a speedy cure; the patient does not know, and he naturally underestimates the importance of his misfortune. He forgets that he is contagious, neglects his treatments, and finally fails to be cured. He is then a fit subject to spread the disease elsewhere.

But not all patients who acquire gonorrhœa go to a physician. There are friends and acquaintances who have had the disease and who are looked upon as a source of first-hand information. To these the patient goes for advice, and he gets it—all kinds of it. The more he hears the more he gets. There is also the native healer. Every community seems to have one. The local advisor on matters pertaining to gonorrhœa is the alley sheik of the neighborhood. He has had gonorrhœa so often he has actually lost count of the number of times; but the last medicine which he used stopped his discharge with a few injections. It was just the thing he has been looking for all these years. It is knowledge gained by long experience. He has found it at last, so he volunteers this information freely.

Then, too, not all druggists conform to the laws of the State Board of Health. To them the treatment of gonorrhœa is merely a matter of writing prescriptions. They know what the doctor usually writes, so they do likewise. Physicians, also, are sometimes too ultrascientific. Even the patients are beginning to learn of the urethroscope and the doctor is not to be caught napping. So he treats acute gonorrhœa through the urethroscope, and he hastens the very complication which he should try to avoid. Not a very plausible procedure to be sure, but then

the doctor must keep abreast of the times. Is it any wonder that gonorrhœa continues to flourish?

It is not necessary to say much about the treatment of acute gonorrhœa. We all know that. There are some things, however, which may have an important bearing on the outcome of the disease and which are commonly underestimated. When a patient acquires gonorrhœa, we know, especially when we stop to consider the pathology, that the gonococci are deposited at the meatus and on the pavement epithelium immediately back of it, a form of epithelium which the gonococci do not readily penetrate. Hence the theory of prophylaxis. If a prophylactic measure is used immediately after exposure the chances are favorable that the organisms will be destroyed and the disease aborted. But by the time the patient presents himself for treatment the abortive treatment is useless, for the gonococci have already reached and penetrated the high cylindrical cells of the urethra, phagocytosis takes place, and the age old battle is on, the gonococci digging themselves into the tissues, the phagocytes carrying them out. The leucocytes usually win this first attack, so that in cases which run a normal course the gonococci have been almost entirely removed from the submucous connective tissues and deeper layers of the mucous membrane by the end of the second or third week.

The epithelial erosions on the surface of the mucous membrane, occasioned by the inflammatory process, now begin to undergo repair and are covered by squamous epithelium in many layers; the gonococci, which have been removed from the deeper tissues, begin to grow on the free surface of the mucous membrane; the upper layer of the newly formed squamous epithelium desquamates, and with it are carried the attached colonies of gonococci. Thus we note two distinct processes by which the gonococci are removed from the tissues. In the first stage by a process of phagocytosis, in the second stage by a desquamation of epithelial cells.

Has it not often occurred to you what might be the logical thing to do in order to aid these two processes in ridding the urethra of gonococci? Can you suggest a better plan than flushing the urinary canal as often as possible? So we advise a copious intake of water. Large amounts of water cause a harmless diuresis, and when the bladder is emptied at frequent intervals the infective material is not only washed away, but the pus is kept from accumu-

lating and extending back in the urinary canal, thereby infecting new areas. The importance of this suggestion in the treatment of acute gonorrhœa, is usually underestimated; but you may say, that you have told your patient to drink a great deal of water, just as you have told him about all the other rules which he is to follow, yet the results which you obtain are unsatisfactory. Have you not often observed that a highly intelligent patient recovers from an attack of acute gonorrhœa in less time and with less trouble, and gonorrhœa attacks the intelligent with the same relentlessness that it does the ignorant. The intelligent patient recognizes the importance of the rules which are laid down to him, and he observes them.

The most important factor in the treatment of acute gonorrhœa is to make sure that the rules which you lay down are obeyed. To do this the physician must take enough time to tell his patient something about gonorrhœa. He must acquaint him with the seriousness of his illness. He must tell him of its complications, its sequelæ.

It is the most formidable whip that the physician holds over his patient, for no patient, whether intelligent or ignorant, desires to run the risk of a complication which may result in sterility.

Fortunately for the gonococcus, it does not always meet with the resistance that I have just alluded to. Careless ways of living on the part of the patient; irritating beverages and a stimulating diet; sexual intercourse or erotic excitement; undue physical exertion—all these things tend to prevent the natural healing of the disease. The gonococci remain in the urethra, a state of tolerance of the tissues is established, and with each successive relapse the inflammatory reaction becomes less and less until, with the recurring relapses, the energy of reaction is not enough to bring the gonococci out of the submucous tissues. As a consequence the gonococci remain and give rise to a permanent irritation of the submucous connective tissue, an infiltration of small round cells occurs, and the gonorrhœa becomes chronic. The condition now is entirely different from the acute stage, and the treatment also necessarily differs. While the rules, as laid down in the acute stage, are still effective, especially those pertaining to clean habits of living, there is something more to be done than merely laying down a rule and using an injection. The heart-to-heart talk with your patient is just as necessary, for he comes to you most probably in a state of mental depression. If not

absolutely despondent, he is, nevertheless, nervous and low-spirited, for he has brooded and worried over his affliction for a long time.

In this frame of mind he has fallen an easy prey to all kinds of advice. He has gone from one physician to another always seeking that something which is going to cure him. A little of the right kind of conversation at this time; a little explanation; a little manifestation of interest and of ability, if you please, will do a great deal to enkindle a new ray of hope in his rapidly sagging mind. But the physician must be able to back up what he says and promises, for chronic gonorrhoea is a very obstinate and difficult affection to cure.

I shall not say much about the treatment of chronic gonorrhoea. The subject is too large for the time allotted to this paper. It is sufficient merely to say that, as chronic gonorrhoea is a disease of localized inflammatory areas, the guiding principle of the treatment consists in applying a local therapy to the localized lesion present. When the lesions are diagnosed correctly and

treated correctly a cure necessarily follows. It takes time and patience to accomplish this; however, these are only secondary considerations when compared with the results obtained. Your patient is in a happier frame of mind because he sees himself improving. He has at last found that something which is going to cure him, and he does not care how long it takes. Gradually but surely you overcome all the lesions present, and finally you find, with the aid of the urethroscope, that the whole mucous membrane is healthy and clean, and the glands connected with it show no pathological secretions. Your patient goes out to begin life anew. You have cured him of his gonorrhoea. You have done more than that, you have given him a different, a better understanding of the rôle which he is to play in this life. You have lifted him up on a higher plane of morality and by so doing you have added something to the welfare and the happiness of the universe, and you have helped to make the world a better place to live in.

CLINICAL DEMONSTRATION: AFFECTIONS OF THE COLON AND URINARY TRACT*

By E. STARR JUDD, M.D.

Mayo Clinic

ROCHESTER, MINNESOTA

We have had several cases of infected hydronephrosis in children. The whole problem of hydronephrosis is not very well understood. There has been a great deal of experimental work on it. Dr. Vernon David, at the Presbyterian Hospital of Chicago, has been working on it for years. David believes that an obstruction of the ureter is the cause of the hydronephrosis. I think his work is accurate, but at the same time I have seen a number of cases in adults in which I have been unable to make out any obstruction in the ureter with a dilatation of the pelvis and calices. Many times in taking out hydronephrotic kidneys we take out dilated ureters. So obstruction may be, and probably is, a factor in the production of hydronephrosis, yet it is often difficult to demonstrate it.

Here is another point in regard to obstruction: If one ligates the ureter of a normal kidney in a human being a demonstrable hydronephrosis

will not develop, and the kidney will not become large enough for one to feel. In some of our cases of resection of the urinary bladder, in which it was necessary to take out the lower end of the ureter and then ligate it, hydronephrosis may develop, but usually it does not do so. Mere ligation of the ureter in a human being does not result in hydronephrosis.

Attempts to reproduce this condition in animals have been unsuccessful in the Clinic. In dogs hydronephrosis always results from ligation of the ureter. Thinking that the circulation might be a factor, another series of experiments was undertaken, the ureter ligated after the capsule was stripped, and hydronephrosis was still obtained. It seems to me that the whole problem of obstruction as an etiologic factor in hydronephrosis is not as yet worked out.

One type of hydronephrosis, Dietl's crisis, the floating kidney, is better left alone. On the other hand, if the hydronephrosis has developed as a result of Dietl's crisis, malposition of the kidney, anomalous blood vessels, or something of

*Presented at the Thirty-seventh Annual Meeting of the North Dakota State Medical Association, at Bismarck, N. D., September 10 and 11, 1924.

that kind, so that it can be demonstrated by injecting fluid into the pelvis of the kidney that a hydronephrosis is present, it is in all probability operable. True hydronephrosis is divided into two distinct types: (a) hydronephrosis of the pelvis of the kidney, and (b) the so-called internal hydronephrosis in which the dilatation is confined to the calices of the kidney. This particular type cannot be due to obstruction. The kidney is just a big sac, and some condition other than obstruction must be the cause. In cases of intermittent hydronephrosis, implantation has been tried; probes are passed down through the cortex to the pelvis of the kidney and to the ureter to straighten the latter. A reconstruction operation in these hydronephrotic conditions might be satisfactory if it was not for a normal functioning kidney on the other side. If the intermittent hydronephrosis is producing severe symptoms, it is better to take the kidney out. Hinman has shown that, if hypertrophy in one kidney has occurred as a result of damage to the other, it is questionable whether a normal condition can ever be re-established so that each kidney is performing a like function. Hinman has rather definitely demonstrated that we cannot re-establish function in a badly damaged kidney so long as the opposite one remains normal. If one kidney is still working, but doing only one-tenth of the work while the other is doing nine-tenths of it, one can make the weak kidney work by taking the strong one out. That is the only way one can force a kidney that is going to pieces to function again. The hypertrophy of the kidney will persist until it is doing all the work. The same principle holds good in renal lithiasis. If there is pyonephrosis with stones and one kidney is doing almost all the work, we have always tried to save all the renal tissue possible because we know the frequency with which stones recur. We know that this experimental work is right, that if one kidney is doing the greater part of the work the other kidney must be badly damaged. It is better to take out the stones from the good kidney first and get that one into shape, and then remove the bad kidney.

BOOK NOTICES

THE NATIONAL HEALTH SERIES OF MONOGRAPHS. By T. Stuart Hart, M.D.; *The Young Child's Health*, by Henry L. K. Shaw, M.D.; *Food for Health's Sake—What to Eat*, by Lucy H. Gillett, M.A.

These books from Funk and Wagnalls are valuable, handy, and attractive. With their content pur-

pose and execution they are entitled to commendation.

One exception is taken to Stuart's repeated affirmation that alcoholics, tobacco, tea, and coffee are not injurious to all and, therefore, should be used in moderation and stopped if injury results. His stopping point is not feasible. The entire statement should be deleted; for, with the best intent, it is untrue. It were better to do as the others have done, leave off all reference to beverages.

With very little to criticise besides this, full endorsement of the books above should be given by the medical man.

—GEO. D. HAGGARD, M.D.

INTERNATIONAL CLINICS. A Quarterly. Edited by Henry W. Cattell, A.M., M.D. Philadelphia, with the collaboration of Charles H. Mayo, M.D., and others. Vol. 3, thirty-fourth series, September, 1924. Philadelphia and London: J. B. Lippincott Co. 1924.

This volume contains a series of very good articles in the following branches of medicine: (1) The public Health and Hygiene; (2) Diagnosis and Treatment; (3) Medicine; (4) Pediatrics; (5) Surgery.

Of special interest is an extensive article by Abraham Zingher on "The Dick Test and Active Immunization with Scarlet Fever Toxin." This article goes into detail about all phases of the test and also includes statistics of results obtained. These results compare favorably with results obtained with the Schick test and toxin antitoxin immunization in diphtheria. The article contains very good colored photographs showing the various reactions to the Dick test.

An article on "The Use of Diathermy in Pneumonia" by Harry Eaton Stewart brings out the value of this form of treatment. His statistics show very favorable results.

"A Clinical Consideration of the Management of Peptic Ulcer" by Frank Smithies is very instructing and interesting. He emphasizes the necessity of selecting cases for nonsurgical treatment and also of trying to determine the etiology and removing it if possible.

—I. M. GOLDBERG, M.D.

FERTILITY AND STERILITY IN HUMAN MARRIAGES. By Edward Reynolds, M.D., Boston, Mass. and Donald Macomber, M.D., Boston, Mass. With a section on the Determining Causes of Male Sterility, by Edward L. Young, Jr., M.D., Boston, Mass. Octavo volume of 285 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$5.00 net.

These authors have produced for the educated public a very useful monograph. In simple language the writers deal with the various physiological factors involved.

While written with the object in mind that patients suffering from any disturbances in reproduction should be given certain information about their condition, this book also forms an excellent guide to the conduct of the case-study from the physician's point of view, with directions for the appropriate therapy based upon the clinical and laboratory findings. The plan pursued is to stress the physiology and to show just how and why things happen as they do. Considerable detail is given the effects of

the various secretions of the genital tract in each sex. The greatest emphasis is laid upon thorough, complete examination, and a period of careful observation before destructive surgery is undertaken. My first impression of the book was very unfavorable. I thought the subject matter too simple, and I felt that so much repetition was unnecessary. As I got a little farther along in the book I became more interested in the subject, and I could see that many useful points were made by the authors, but still I resented the repetition. Only after half finishing the book did I appreciate how important this was in bringing out the data from which their conclusions were drawn.

—J. WARREN BELL, M.D.

MODERN METHODS OF TREATMENT. By Logan Clendenning and Collaborators. Cloth, pages 700. 1924. Press of C. B. Mosby, St. Louis, Mo.

This book, true to the title and fulfilling the worthy objective of the author as set forth in the preface, is attractive reading. It is useful and usable. In many things concise; in many prolix. The philosophical parts are properly defended by the author.

There is a list of illustrations 77; and the illustrative method of presenting the régime of treatment, as in the chart for gastric ulcer, is effective and unusual.

In classification of disease conditions some omissions appear, such as the omission of uratic concretions when treating ureteral colic; also the type of intestinal obstruction occurring in pneumonia. More to be noted is the omission of that syndrome of gastric behaviour in nephritis from the 100 per cent list of dyspepsias.

The exactions of the diet in ulcer of the stomach are rigid, but in some other diets a very usual formula prevails, namely, "Over-indulgence (sic) in alcohol, tobacco, and spices is prohibited."

The need for instant "tracheotomy with any knife" when met by the attendant should not require the advice then to "wait for other greater skill," although one might wait for other needed instruments.

When a cast is used to immobilize a fracture or an injured part it should not be said to be mobilized. When the lumen of the trachea is reduced by pressure to the thickness of a silver dollar it is not "the diameter of that dollar."

The author brings us back to terra firma in the etiology of cirrhosis of the liver, regardless of the later dictum from Boston and the latest from dissection of the mummies of Egypt.

There are some misprints and errors in the book.

It is with the greater interest one reads this work because of the notations one makes as above and for the great worthiness of the book.

—GEO. D. HAGGARD, M.D.



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MEDICAL EDUCATION AND THE RURAL PHYSICIAN

This editorial is suggested by a letter from Dr. J. E. Brosseau, of Frankfort, South Dakota, addressed to the editor of the *Journal of the American Medical Association*, and in which he commented upon the editorials which have appeared in that journal on medical education and the supply of rural physicians. In reference to the summary by the G.E.B., the Doctor refers to the fact that he has been in the country for sixteen years, and he went to the country because he liked country life. He is located in a town of about 450 population and a rural population of 900. And he finds that there are many poor people who cannot pay a physician for his services. The result is that the few pay-patients alone do not make his practice at all remunerative.

The Doctor is well supplied with degrees, and he cannot see any reason why a shorter course in medical education would have benefited him. He thinks, very rightly, that the country people as well as those in larger places, are entitled to good physicians and to shorten the curriculum of our medical schools would not alter the financial or economic conditions one iota, and he urged that we stand by the high standards of medical education. He gives some of the reasons why men do not go into the country to practice, and his reasons are sensible and just. The lack of physicians in the rural districts is

not due to any defects in our medical curriculums, but to the inadequate financial returns received by the country physician. That, he thinks, is the principal reason why these smaller towns are without doctors. In some of the rural villages the doctors are absolutely starved out. They cannot make a living for their families, and they are deprived of any possible privilege or diversion that they should have in order to make life endurable. Consequently, the Doctor cannot advise physicians to locate in a rural community unless guaranteed a stipulated sum per year, as is done in many of our Middle-West states and occasionally in the East. At the same time they should have an opportunity to house their patients in a community hospital, and if this matter is properly presented to the people there are very few towns of reasonable size but what would build a hospital for the benefit of the sick in the rural districts.

Dr. Brosseau is very sure that we do not want state medicine, but if the condition of affairs keeps up as it is now he thinks it will be very difficult to prevent it. That has been the tendency for some time past, and it is shown in the larger cities, and even in the cities of under 100,000 inhabitants where they have so many free clinics, so many welfare workers, so many social workers, and other methods of taking care of the sick, looking after them, advising them, and directing them without price or pay. In some of the cities this is beginning to be a very serious problem, for it is the tendency of the average man and woman to seek free medical advice and service. That is why there has been so much abuse in our general hospitals. That is why many of the physicians have complained that the larger city hospitals take away from them the very people that should be made to support, in part at least, the medical profession. Then, too, the State Industrial Commission is adding to the doctor's hardships by directing all city employees, or at least permitting them, to go to the City General Hospital for service, advice and treatment when they ought, by all ethical rights, to be turned over to the practicing physician. This works a very great hardship on the young man who is starting out in medicine because, at every turn, he finds there is a clinic ready to treat the people of small means. And yet these same people have more respect for the medical profession than they have for themselves if they are able to conduct their own business on a paying basis.

The writer of the above letter thinks there are several causes for the lack of financial returns:

First, the farmers have been hard up, and the price of farm products does not keep up with the high cost of living. Then, too, the farmers have had some bad advice about selling their products, the grains particularly, and after they had sold out what they had for a moderate or small sum the prices of all grains went up 100 per cent or more. If these same farmers had waited for a time or had advised with some competent authority on the subject they would have been in better condition than they have been for years. He thinks the farmers, too, have invested in high-priced lands, automobiles, trucks, tractors, and other things that have brought small financial returns. Their money has been taken out of their community and probably out of the state in many instances, and they have failed to learn the necessity of keeping their own money at home. People on the Continent of Europe, who are still a little behind the times and perhaps a little bit old-fashioned, still cultivate their farms by hard manual labor. They live simply, they have plenty of food products, they feed themselves, and they grow up in the communities and become in time as great citizens as our spending farmers do in this country. Another fault he finds with them is that good roads and automobiles take the country people to the cities, and thus the physician loses that part of his practice. The third reason is that ordinary business is run on a cash basis, or, at least, on a basis where definite returns are expected, promised, and collected; but the physician is left until the last, and by the time the ordinary bills are paid for the comfort of the community there is nothing left for the doctor. That is partly his fault; it is partly his lack of business ability and partly his sentiment and his failure to collect what is rightfully due him. There should be more business and more commercialism in the medical profession when it comes to the rural physician.

HOMICIDES, SUICIDES, AND INSANITY

In our present state of civilization, if it may be so termed, the world has suffered from a fracture of many of its ideals. Everything seems to have come in at the wrong time, and we are going through a period of disillusionment. Formerly we were inclined to be optimistic, boastful, and flamboyant, but within the last few years we have almost collapsed into a state of pessimism, due partly to economic situations, but largely to a change in the race. That, we believe, is the common history of civilization, and

its forward and backward movements. About once in so many hundred years we have a period of depression, which is not necessarily financial, but which is usually accompanied by financial disorders, although chiefly a period of unrest. The whole thing seems to depend upon the state of one's nerves, and when one says "nerves" one means mental disorders, which are the chief promoters of nervous troubles. There is no question but what most of the nations are on edge for one reason or other.

In an article in the February *Century* (1925), Dr. Robert L. Duffus sums up the "Twenty-fifth Birthday of the Twentieth Century" in a very readable article, but the chief extracts which we are making will be appreciated, we think, by all our readers. Mr. Duffus says: "Between 1880 and 1920, while the population was going up 111 per cent the number of patients in insane asylums increased 469 per cent. The number of known cases of insanity to each 10,000 of population was 170 in 1890, 204 in 1910, and 220 in 1920. In New York State, in 1920, 374 out of every 10,000 were in institutions for the insane. If epileptics and feeble-minded are added, we must multiply these figures by three. Allowance must be made for improved diagnostic methods, yet the fact of an enormous increase in mental disorders cannot be evaded."

All this has occurred in spite of the fact that such wonderful progress has been made in medical science. We certainly understand mental disorders much better than we did twenty years ago; we are better able to classify them because we get more of the family history, as well as the individual's history, and we have better opportunities for discovering behavior acts. But in spite of this the increase goes on with our civilization. "The increase of suicides and homicides, the spread of quack philosophies and religions, the evolution of jazz, the passion for censorship and suppression, may all be regarded as signs of nervous instability."

" 'The industrialized countries are, with an enthusiasm reminiscent of an insane asylum,' declares Professor Frederick Soddy, turning out an ever-increasing plethora of mere factory products, and sending them forth to compete in ever-shrinking markets in exchange for food, and are pouring forth an ever-increasing stream of armaments to fight among themselves for markets. The only goal in sight is war and yet war, the blowing up of the plethora and the permanent devitiation of the stock of the white race.' To William McDougall the danger lies in the possible inability of mankind to maintain a civiliza-

tion 'demanding the exercise of a wisdom, a self-control and a degree of devotion to a moral ideal such as no previous civilization has required.' Gilbert Murray, writing in 1920, gave the name of Satanism to a 'spirit of unmixed hatred toward the existing world order which * * * is perhaps more rife today than it has been for over a thousand years.' To H. G. Wells the prospect of a decline into 'brigandage pure and simple' is fairly bright. G. Stanley Hall thought that 'the forces that make for human degeneration were never so many, so active or so ominous, and nothing less than civilization itself is at stake.'

"Such is the summing up of a period of unparalleled intellectual and material splendor. Never has man reached so far toward the stars. Never have so many ugly idols been smashed. Never have man's delusions about himself been so thoroughly exposed. Freud, following in the footsteps of Charcot and Janet, vivisected human personality itself. The dethronement of an arbitrary and unjust God, accomplished, so far as science was concerned, during the latter half of the nineteenth century, seemed to have opened the way for a new and dazzling freedom.

"But the net result has been a spread of pessimism and obscurantism. The springs of human action have dried up. There is no longer any dominating philosophy except the Bourbon one of letting well enough alone. Whim is the god of art, force the god of industry and politics. Western civilization presents the spectacle of a vessel whose crew refuses to pay attention to the pilot, and which is drifting, broadside on, into an uncharted sea."

The newspapers contain daily accounts of suicides and homicides, and in the majority of instances the claim of insanity has either been advanced or justified by an inquiry into the facts. But what of it? The people pay but little attention to it. The suicide does not know the suffering that he leaves behind him, and very often the family become wholly indifferent to the situation. The homicidal man, however, is the man who deserves closer scrutiny, for he is commonly a brute and he allows himself to be dominated by his passion, and it is an easy matter for his friends and well-wishers to charge him with insanity, and the jury is prompt in accepting it merely as an excuse to prevent him from being submitted to penitentiary residence. Jurors do not draw a very fine line of distinction between that and a residence in a hospital for the insane for criminals. It is appalling sometimes to note the diminished spiritual condition of a nation or race, or in a community. They are evidently so

excited about things that nothing counts with them. It does not necessarily mean that they have a loss of faith in God, but they have a loss of faith in men. "A new reformation, a new revival of learning, a new Age of Pericles—these things are possible. And darkness is also possible. This is the challenge of our time, the supreme adventure of a thousand years. The twentieth century has made the issue plain; that is its redeeming achievement."

MEDICAL LEGISLATION

The Committee on Public Policy and Legislation of the Minnesota Medical Association, headed by Dr. H. M. Johnson, of Dawson, has been doing some wonderfully good work in St. Paul, and we understand that Dr. Johnson has untiringly devoted himself to the Committee and particularly in its effort to direct legislation for the benefit of the medical profession; that he has not only spent his own money but given a great deal of time to seeing that things are put over right.

The principal bill, the substance of which he has made known to the secretaries of the component societies, is about to be introduced in the Legislature, and it is sponsored by the State Association. It is to change the statute of limitations for the beginning of malpractice suits against physicians, dentists, hospitals, and sanitariums from six years to two years. At the present time there are nine states in which the statute of limitations for such suits runs only one year, twenty-one states in which it runs for two years, eight states in which it runs for three years, four states in which it runs for four years, and five states in which it runs for six years, and Minnesota belongs to the last group.

This is a very important modification of the present bill, and it deserves the support of the entire medical profession and of all hospital associations, as well. It is a very difficult proposition for a man who is subjected to a malpractice suit to wait for six years. In the meantime he has forgotten a good many of the essential points relative to the situation; and also the party who brings the suit remembers a great many points that were never in the case at all. This bill has been very carefully scrutinized, and it was finally introduced to the Judiciary Committee of both the Senate and the House, and there was no dissenting voice. The Committee all agreed that it was a good bill and that it would receive their endorsement. An amendment was tacked on, however, by one of the Committee, who stated

that in the event that a suit was brought for malpractice because of the pressing of a suit for the doctor's settlement then the bill would not hold, that is, they would make an exception in such an instance, and this, in the minds of the Committee, would make no essential difference in the substance of the bill which they desire to change and probably will only apply in very rare instances. Minnesota has been looked upon as a feeding-ground for malpractice suits, and already a large number are in process of adjustment or will come to trial; and as a result, four of the insurance companies have withdrawn from the state, that is, they refuse to insure doctors under the law as it is at present on the statute books. Even the Medical Protective Association has said that it could not continue to do business on the present basis, for damage suits were increasing to an alarming degree.

In order to make the matter a little more easily understood we are appending the reasons why the statute of limitations as to malpractice suits should be two years instead of six:

SOME REASONS WHY THE STATUTE OF LIMITATIONS AS TO MALPRACTICE CASES SHOULD BE TWO YEARS INSTEAD OF SIX

1. In the ordinary negligence or tort action, as distinguished from an action based upon contract, the person who is sued knows exactly when the cause of action accrued, that is, the ordinary negligence case arises as a result of an automobile accident, a railroad accident or collision, an accident in a factory, etc.; and in every one of these cases the operator of the automobile, the railroad company or the employer is informed immediately of the fact that he may be called upon to defend a claim for damages. This is not true with respect to malpractice cases. In ninety-nine out of a hundred malpractice cases the doctor never knows of the likelihood that a claim for malpractice will be made until the institution of the action. The result is that in almost every form of negligence actions the person against whom the claim is or will be made has an opportunity to prepare his defense and protect himself, which is not afforded a doctor. These claims can only be properly defended and the defendant's interests protected if he is given an opportunity to interview witnesses, secure records and so on, within a reasonable period after the happening of the events upon which the claim or action is founded.

In malpractice cases the doctor's conduct can ordinarily only be proved by his own testimony, which is not particularly satisfactory in view of his interest, and the testimony of the nurses and assistants who worked with him upon the case. As the situation is to-day, with a six-year limitation, in many cases the doctor, when first advised of the possibility of a claim, finds that the nurses are not available or within ready reach, his assistants are in the same situation, and his record of office calls, etc., may have been destroyed.

2. A malpractice case depends upon narrow facts and upon exactly what was done or said at particular times and occasions. It is desirable that the action be tried while the particular facts are fresh in the minds, not only of the parties, but of other witnesses. This desirability arises, not only because of the necessity of giving the defendant an opportunity to defend upon the actual facts, but also from the public interest in seeing that in these as in other actions the truth be brought out.

3. Again: the damages in malpractice cases depend upon changes in the human body due to the negligence. Such changes also occur in the course of nature upon the mere passage of time. The longer the passage of time between the act of negligence and the judicial determination of the changes due to it, the more difficult it is to ascertain the nature or extent of the injury from disinterested witnesses.

4. Anybody can come back within six years and bring a suit.

5. The unsatisfactory nature of proof in malpractice cases is generally recognized. The longer the time elapsing between the acts complained of and the day of trial, the greater the dissatisfaction with the proof. The Minnesota Supreme Court has said:

"The basis of the proof of negligence and of the hypothetical questions to plaintiff's experts is naturally the narrative of the family or friends of the patient. Their testimony must ordinarily be unsatisfactory because of the presence of natural bias, the absence of technical knowledge essential to proper observation and often the want of opportunity for actual perception."—Staloch vs. Holm, 100 Minn., 276.

6. That there are sound reasons for placing a different limitation upon malpractice actions than upon other actions based upon negligence has been recognized by the legislatures of forty-two states. In Alabama, California, Delaware, Louisiana, Mississippi, Kentucky, Ohio, Virginia, and West Virginia the statutory limitation upon such action is one year.

In Arizona, Colorado, Georgia, Illinois, Indiana, Iowa, Kansas, Massachusetts, Michigan, Missouri, New Hampshire, New Jersey, New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, Texas, and Wisconsin the statutory limitation upon these actions is two years.

In Arkansas, District of Columbia, Florida, Maryland, Montana, North Carolina, Vermont, and Washington the statutory limitation is three years.

In Nebraska, Nevada, New Mexico, and Utah the statutory limitation is four years.

NEWS ITEMS

Dr. Julius Jensen, a graduate of the University of Copenhagen, has located at Kensington.

The Wesley Hospital, of Wadena, after undergoing extensive repairs, was opened last month.

All patients in Minnesota with trachoma will be sent to the U. S. Government hospital at Eveleth.

Architect's plans for the new Miller Hospital of Duluth will soon be called for, and work on the building should begin by midsummer.

Dr. Loyal S. Gray, a recent graduate of the Medical School of the University of Minnesota, is assisting, temporarily, Dr. C. I. Oliver, of Graceville.

Dr. C. D. Harrington and his wife, of Minneapolis, will leave next week to take the Mediterranean trip. They will return to Minneapolis in May.

Because of a lack of sufficient clerical force the Department of Public Health of North Dakota will not be able to report its vital statistics for some time.

Dr. Henry L. Halvorson, of DesLacs, N. D., who has been seriously ill for six weeks in Trinity Hospital, Minot, has so far recovered as to be able to return home.

A bill to provide for compulsory vaccination has been introduced in the Senate of North Dakota. It is known as Senate Bill No. 81. There will be strong opposition to it.

South Dakota and North Dakota seem well pleased with the report of the committee appointed to recommend sites for a U. S. Veterans' Hospital for the Tenth District.

Dr. Charles W. Rucker, of Minneapolis, has gone to California to take a course of training in the Medical Officers' Reserve Corps in the army hospital in San Francisco.

The Minnesota State Dental Association was held in Minneapolis this week. Several of our leading physicians presented papers at the meeting and took part in discussions.

At the January monthly meeting of the Hennepin County Medical Society papers were presented by Dr. J. P. Schneider, Dr. H. M. N. Wynne, and Dr. C. A. McKinlay.

Dr. H. F. Kohl, of Minneapolis, who graduated in medicine at the University of Minnesota in December, will take his internship at the Walter Reed Hospital, Washington, D. C.

Dr. Empie, school physician of Virginia (Minn.) has been using the new scarlet fever serum discovered by Dr. Francis B. Blake, of the Yale Medical School, in an experimental manner and with good success.

The order for compulsory vaccination in the public, private, and parochial schools of St. Paul, has stood its first test in the courts, an order for an injunction to prevent the law's enforcement

having been denied by Judge O'Brien, of St. Paul.

The new St. Luke's Hospital building of Duluth, which was first occupied on Feb. 2, is one of the handsomest and finest hospital buildings in the Northwest. The whole hospital, when the old part is remodelled, will accommodate 250 patients.

The Minnesota State Hospital for Crippled Children, located at Phalen Park, is to be renamed the "Gillette State Hospital for Crippled Children" in honor of the late Dr. Arthur J. Gillette, who founded the hospital and gave to it his services for over twenty years.

The Program Committee of the Minnesota State Medical Association announces that all meetings, except the banquet, will be held on the University Campus; but this does not apply to the clinics of Clinic Week of the Hennepin County Medical Society. The dates of the State Association meeting are April 27, 28 and 29.

The smallpox situation in Minneapolis is much improved at this time (Feb. 10). The number of persons in quarantine is now 150 as against 300 at one time in December, and the same percentage holds in other statistics. A singular fact is found in the matter of ages. Of the 205 deaths from smallpox in the city to date only 10 school children, or 5 per cent died of this disease.

The Women's Auxiliary of the Hennepin County Medical Society elected the following officers last week for the current year: President, Mrs. J. D. Lyon; first vice-president, Mrs. E. S. Strout; corresponding secretary, Mrs. C. A. Boreen; recording secretary, Mrs. H. W. North; treasurer, Mrs. Martin Aune; auditor, Mrs. J. M. Hall; federation secretary, Mrs. A. E. Benjamin.

Northwestern physicians are having two opportunities in February to take special courses in physiotherapy: one conducted at the University by Dr. Frank B. Granger, of the Harvard Medical School, and one by Dr. C. M. Sampson, formerly of the Army and Public Health Service Reconstruction Hospitals. The former course covered last week; and the latter covers the week of February 23 and 28 at the Curtis Hotel, Minneapolis.

Dr. Joseph D. Lewis, of Minneapolis, who has been in California since September, announces his permanent removal to Santa Barbara, with offices in the San Marcos Building, Suite 412, of

that city. Dr. Lewis is a specialist in eye, ear, nose, and throat work, and was Surgeon-in-Chief of the Department of Eye, Ear, Nose and Throat of the Minneapolis General Hospital for a dozen or more years, and had practiced for a score or more of years in Minneapolis and St. Paul.

The annual meeting of the N. W. District Medical Society of North Dakota was held at Minot last month, when officers for 1925 were elected as follows: President, Dr. J. R. Pence, Minot; vice-president, Dr. H. L. Halverson, Des-Lacs; secretary-treasurer, Dr. M. J. Fardy, Minot; censor, Dr. L. H. Kermott, Minot. After the business meeting and dinner the annual frolic took place. The wives of the physicians and the dentists and their wives joined in this game and the dancing.

The Upper Mississippi Medical Society met at Brainerd on Jan. 31. A half dozen papers were presented by Minneapolis, St. Paul, and Duluth men; and the following officers were elected: President, Dr. Thomas L. Davis, Wadena; first vice-president, Dr. J. B. Holst, Little Falls; second vice-president, Dr. B. J. Derauf, Brainerd; third vice-president, Dr. O. B. Johnson, Sebeka; secretary-treasurer, Dr. G. I. Badeaux, Brainerd; delegates, Dr. J. A. Thabes, Brainerd, and Dr. W. W. Wills, Bertha.

AS THE JOURNAL-LANCET goes to press word comes to us of the death of Dr. David Owen Thomas, of Minneapolis, at the age of 53. Dr. Thomas was a graduate of the Medical College of Indiana, class of '84, and he also took degrees from Columbia, and he took special work in Europe. He was an ex-president of the Hennepin County Medical Society and a member of other medical organizations. At the time of his death he was planning to visit Europe. Dr. Thomas was a highly respected man and was beloved by many intimate friends.

At the monthly meeting of the Consulting Medical Staff of the Lymanhurst School for Tuberculous Children, to be held at the Lymanhurst School in Minneapolis on February 24, at 7 p. m., three papers of unusual interest will be presented, as follows: "Types of Tuberculosis Causing Death in Minnesota Children," by Dr. Ruth Boynton; "Genital Tuberculosis," by Dr. F. L. Adair; "Further Studies on the Height, Weight, and Ponderal Index in Suspected Tuberculous Children," by Dr. R. E. Scammon. A cordial invitation is given to all physicians to attend these meetings.

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Position as technician in doctor's office or assistant technician in hospital laboratory wanted. Address 168, care of this office.

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At big reduction; ultra violet, water-cooled lamp with transformer, in perfect condition and very little used. Address 177, care of this office.

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With physician or dentist by a young woman with some office experience. Can do typing and take care of books. Will work for moderate salary and give the best service possible. Age 26; best of references. Address 179, care of this office.

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A graduate of the University of Pennsylvania with three years internship in Philadelphia and New York. Has specialized in gynecology and obstetrics. Highest of references. Address 171, care of this office.

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Complete X-ray Equipment consisting of Meyer New Model Transformer; Meyer A Combination; Stereo-Radiographic Table; Stereo-Radiographic Tube Stand with lead glass shield and lead lined compression cone; Wheatstone Stereoscope; Transformer for Coolidge Filament and Single Contact Foot Switch. Address, Hot Springs Clinic, Hot Springs, S. D.

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TREATMENT OF INFECTIONS OF THE URINARY TRACT*

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By far the most common infections of the urinary tract are cystitis and pyelitis or pyelonephritis, which are characterized by pyuria. Colon bacilli in pure culture are found in more than 90 per cent of cases. Patients give a history of intermittent attacks of frequent and painful micturition, and slight chills and fever. Occasionally there may be associated lumbar pain, and, if the infection is particularly severe, there will be hematuria.

In order to treat successfully such a syndrome, the pathologic condition and the cause must be understood. The presence of the colon bacillus in the urine in a large percentage of cases leads to the conclusion that it is the causative organism. This is probably true in certain cases, and, as the habitat of the bacillus is the bowel, care must be taken to see that stasis in the form of chronic constipation is at once overcome. When correction of this most common disease results in cure it may mean that renal infection has indeed originated in the bowel, but in the majority of cases I believe the beneficial results are due rather to the increased resistance produced as a result of more nearly normal functioning of the alimentary tract. It has been noted clinically that equal benefit may be attained by the elimination of distant foci. It hardly need be emphasized that the majority of such foci are located in the buccal cavity. How such foci, which seldom harbor colon bacilli, could produce disease of the urinary tract remained unexplained for

a long time. Experimental work demonstrated that organisms obtained from the teeth or tonsils of patients suffering with urinary infections and injected into the blood stream of laboratory animals showed an unmistakable elective selection for the urinary tract. It therefore seemed reasonable to assume that these organisms, which were usually green-producing streptococci, entered the blood stream in the neighborhood of devitalized teeth or septic tonsils, and, having found lodgment in the renal parenchyma, produced inflammatory processes, which when well established led to secondary infection by the colon organism.

LeFur, many years ago, attempted to produce urinary infection by the intravenous injection of ten different strains of bacteria. Infection of the urinary tract occurred but seldom. Being unsuccessful in this attempt he next tried injecting directly into the bladder suprapubically various strains of bacteria, such as the pneumococcus, lactic acid bacillus, staphylococcus, streptococcus, and colon bacillus. He found that when the colon bacillus was injected, it was recovered in pure culture. When other organisms were injected the colon bacillus was frequently recovered with the injected organism. In three cases the colon bacillus alone was recovered even though a different organism had been injected in pure culture. This is certainly suggestive evidence that the colon bacillus may be a secondary invader, and, considered with the well-known fact that any disturbance in the urinary tract, such as a stone, a stricture or prostatic obstruction, is

*Read before the Sioux Falls District Medical Society, Sioux Falls, South Dakota, December 9, 1924.

generally followed by a colon-bacillus infection, makes the possibility of its playing a similar secondary part in cases of pyelonephritis seem credible.

When the parenchyma of the kidney has become infected, the colon bacillus, by its rapid growth in an agreeable medium, replaces the original organism to a large extent. Inflammation of the calices and pelvis develops, and the normal mucosa of the pelvis and calices becomes thickened, edematous, and may even ulcerate, ultimately giving place to scar tissue and fibrous formation that distort the minor calices, giving them the characteristic club shape seen in pyelograms of kidneys so infected. These changes are usually slow, and may require many years to develop, for, although the disease soon becomes chronic, it is not until very late in its course that extensive areas of parenchyma are destroyed by the low-grade infection. In such terminal conditions the calices become much enlarged and entirely lose their characteristic outlines. The secreting portion of the kidney being extensively involved, its function is almost entirely destroyed.

As the disease progresses, it extends down the ureter. The walls undergo pathologic changes similar to those in the pelvis and calices. With only loose connective tissue surrounding the ureter, it becomes tortuous and dilated, the dilatation probably resulting from the accumulation of urine due to interference with normal peristalsis. When the wall of the bladder is reached, the dilatation is not proportional, owing to the musculature, and a lumen of normal size for conveying urine with an active peristalsis now acts as a stricture. Thus a vicious cycle is developed, interfering with satisfactory urinary drainage and increasing the dilatation of the ureter. Strictures may conceivably occur where the ureter passes through denser tissue, as in the broad ligament, and with actual ulceration a narrowing may develop at any point. This probably explains many of the strictures mentioned by Hunner, and which are at present so much discussed.

The degree of inflammation of the bladder naturally depends on the virulence of the prevailing organisms, and fluctuates with the patient's general resistance. In the acute and subacute cases there is usually much congestion and edema of the mucosa. In the more chronic cases this gives place to scarring and the formation of multiple small cystitis cystica cysts, which may contain much purulent urine, with but little, if any, acute inflammatory reaction.

It becomes apparent that to correct successfully such pathologic changes the initial procedure must be to eradicate the original focus. At this point, unfortunately, the grossest errors in treatment usually occur, due, I believe, to certain commonly misunderstood aspects of focal infection. The use of the Roentgen ray by the dentist has become general, but films are frequently misinterpreted, and like all aids to diagnosis the x-ray findings are now often regarded, not as an aid, but as the diagnosis itself. In other cases the disease process may be so located as to be undiscernible in the film; and, while a full-mouth röntgenogram is essential to accurate diagnosis, it should be associated with a most painstaking physical examination of each tooth. There is no diversity of opinion concerning the advisability of removing a tooth that shows a definite apical abscess with considerable destruction of bone, but the fact seems to be overlooked that before such destruction occurs myriads of bacteria must have existed around the root of the tooth, and that not until the process is far advanced will destruction be sufficient to be demonstrable by the Roentgen ray.

The microscope and culture mediums are the instruments with which to demonstrate the presence or absence of bacteria. The Roentgen ray merely demonstrates the results of their presence, and usually only after they have been long active. Experimentally it has been demonstrated that bacteria exist around roentgenographically negative teeth, and that such bacteria have elective localizing power quite equal to those from frank apical abscesses. On careful consideration this is only what one would expect. Yet often I send patients to their home dentists for the removal of all abscessed pulpless teeth revealed by the Roentgen ray, the dentist readily agrees to remove the abscessed teeth, but, if a pulpless tooth is all that remains to which to attach a bridge, and alone stands between the patient and an artificial denture, the dentist demurs. In fact he often shows the patient the roentgenogram, points out the benefit from the removal of teeth with large periapical abscesses clearly discernible, shows that the osseous tissue around the pulpless tooth appears excellent, obtains the patient's consent to the retention of the tooth in the interest of reconstruction, and thus discredits the previous advice. He does not inform the patient that no Roentgen-ray machine has yet been constructed that will make a single bacterium or even several thousand bacteria cast a shadow, and that not until millions of bacteria have lived

and died will there be sufficient periapical necrosis to be demonstrated. He probably misunderstands this aspect of focal infection. While in the type of case just discussed, error occurs through misinterpretation of Roentgen-ray findings, in another type its neglect is responsible for error. The patient may be questioned regarding his teeth only to reply with a smile that they have all been removed years ago, and the physician at once searches elsewhere for a focus. Eusterman, in a study of 290 edentulous or partially edentulous mouths, found 129 roots or other evidence of residual areas of infection. Because the old methods for removing teeth without the aid of the Roentgen-ray examination did not guarantee the elimination of the whole tooth and associated lesions, he believes that 37 per cent of the areas to which plates are adapted will be found to harbor infection. The granuloma resulting from periapical infection is frequently regarded as Nature's method of protection and rightly, except that the method in this case is far from perfect. Sections of granuloma show that they contain countless numbers of bacteria close to the area of new blood-vessel formation, the most satisfactory association for rapid and constant systemic infection. The blood vessels immediately adjacent to clumps of bacteria are often found to be filled with them.

The tonsils are another source of infection concerning which error is common. At the Mayo Clinic, the grading of pathologic processes, or the size of organs on a basis of 1 to 4 has been found to be of considerable aid. The tonsil, size 1 or 2, on superficial examination appears harmless, while size 3 or 4, because of its size and projection into the throat, is often recommended for removal. From the standpoint of focal infection, the small tonsil is probably more dangerous, because it is usually buried deep in the tissues, so that infection is difficult or impossible to demonstrate, and absorption from its crypts is made easy. The large tonsil, being pendant, tends to drain into the throat, and the noxious exudates and bacteria are rendered harmless on being swallowed. However, this simple truism seems completely lost sight of by many. The patient is found to have a disease referable to focal infection, but is assured that the tonsils are not the focus because they are small, they are not inflamed and no exudate can be expressed. However, it is impossible to rule out the tonsils as a focus of infection by any present means, and only a positive finding of expressible pus is of value. The smaller the

tonsil the more likely it is to conceal deep in its substance an unsuspected pus pocket.

Another aspect of focal infection apparently generally misunderstood is that benefit will not result from the removal of part of the foci. Physicians have frequently said to me, "The experimental work appears sound and the theory is excellent, but in practice it simply doesn't work. I have removed the tonsils in many cases with no improvement in the disease." On questioning, it will be found that the tonsils were the only focus removed, the teeth being neglected, or vice versa. So prevalent is this practice of removing only a portion of multiple foci that in a series of eighty cases of arthritis, Brock found that in forty-two, possible foci had been removed, and in all demonstrable foci were still present. Twenty-five of the patients had had their tonsils removed, but twenty-two of them still had infected teeth. Partial removal of foci will not bring even partial relief from symptoms; only complete removal, the most painstaking care being exercised to prevent any tonsillar remnant, can accomplish relief. The importance of complete removal is shown by the following case:

CASE 1.—A woman, aged thirty-six years, registered at the Clinic February 5, 1921. For a number of years she had had frequent attacks of grippe and tonsillitis, for relief of which tonsillectomy had been performed in 1916. In 1912 the round ligaments had been shortened and the appendix removed. Following this operation the patient had developed increasing frequency, which persisted without relief. It was not associated with burning, but before and after micturition there was a dull ache throughout the bladder. Nocturia had increased to five or six times. On two occasions during the last two or three months, there had been slight gross hematuria.

On physical examination the bladder was found to be tender. Urinalysis revealed an occasional erythrocyte and a few pus cells. The roentgenogram of the teeth was negative. Examination of the nose and throat was at first reported negative. The patient, however, insisted that tonsillar tissue was still present, and at her urgent request a second examination was made, which revealed that the tonsils had been removed cleanly except for a slight remnant on the lower pole of the right side. On cystoscopic examination an area of hyperemia, surrounded by edema, was found on the posterior wall of the bladder near the dome. A diagnosis of submucous ulcer of the bladder was made. February 15, 1921, the involved portion of the bladder was resected. The pathologist reported a submucous ulcer 7 m.m. in diameter.

Cultures were made from the remnant of the right tonsil before removal, and many green-producing streptococci and staphylococci were found. With these cultures two animals were injected; one died soon afterward, and the other developed

innumerable small hemorrhagic lesions in the bladder, but apparently none in other organs.

Cultures were also made from the emulsion of the remnant of the tonsil after removal. Again the green-producing streptococcus was the predominant organism. Two of three rabbits injected with these cultures developed innumerable hemorrhagic lesions in the urinary bladder. The third developed a few hemorrhagic lesions in the bladder, and some pronounced lesions in the medulla of the kidney. Such an area of infection was overlooked in our routine examination, and yet, if it had not been ultimately discovered resection of the ulcer-bearing portion of the bladder would have been of little permanent benefit. The disease, of necessity, must have recurred if the focus had persisted after operation.

Thus does focal infection enter the field of preventive medicine. Yet the surgeon has not done his duty if he has merely relieved the patient temporarily of a pathologic lesion, the cause of which is retained. Eusterman, in a recent paper, "Recurrent ulcers of the stomach and duodenum," says, "The theory that infection is the cause of ulcer is admittedly the only tenable one at this stage of medical progress," and "the radical removal of all possible foci has repeatedly caused subsidence of gastric intestinal disturbance and evidence of increased healing of otherwise refractory ulcers." In a series of thirty-two patients with recurring gastric or duodenal ulcer studied by him, twenty-nine harbored extensive foci, especially in the teeth or tonsils, or both, a fact which he considers more than coincidental. I believe this justifies that somewhat dogmatic clinical teaching that all patients with a disease referable to foci of infection should have all such foci removed. The following is an illustrative case:

CASE 2.—A woman, aged forty-five years, came to the Clinic complaining of bladder trouble. Three weeks before, at the onset of the menses, she had noticed a slight irritation of the neck of the bladder and burning at the end of urination. Two or three days before this, she had stayed up all night with a daughter suffering with tonsillitis. She became chilled and had a sore throat for the next few days. The bladder trouble grew gradually worse, and she called the local physician who attended her for the next two weeks, during which time her temperature ranged from 99° to 104.5°. She complained very little of pain except at the end of urination; she felt a slight soreness around the crest of the right ilium. Cystoscopic examination had been made two days before she came to the Clinic, and inflammation was found around the right ureteral orifice. Colon bacilli were recovered from the urine. A diagnosis was made of mild cystitis.

Examination revealed slight tenderness in the

right abdomen and over the crest of the right ilium. The temperature was 101°. Roentgenograms revealed evidence of periapical infection in four teeth. In one that was devitalized, the roentgenogram was negative; and pulp was exposed in two teeth. From the tonsils, which were not greatly enlarged, fluid pus was expressed.

An occasional erythrocyte and a large amount of pus were found in the urine. Stained specimens were negative for tuberculosis bacilli. Roentgenograms of the urinary tract were negative. Two cystoscopic examinations, made before the suspected foci were found, also proved negative, except that urine recovered from the kidneys contained pus, and gave a pure culture of Gram-negative bacilli. Three rabbits injected with cultures of these bacilli did not give evidence of lesions. The day after the second cystoscopic examination two of the teeth with apical abscesses were removed, and cultures were made on blood agar plates, and in glucose-brain broth. In both, green-producing streptococci were isolated on the plates. Three rabbits were injected; all developed lesions in the kidney, and one multiple minute hemorrhages in the right ureter near the pelvis of the kidney, from which streptococci in pure culture were recovered. The patient experienced no immediate reaction, as often occurs following extraction of infected teeth, although for the next few days her temperature reached 101°.

Six days later three other teeth were removed, one of which did not show evidence of apical infection in the roentgenogram, but which had been devitalized and the root canal filled. All gave pure cultures of green-producing streptococci. These were injected into three rabbits, resulting in renal lesions in two, one of which had been injected with bacteria from the devitalized tooth. The third rabbit did not have lesions. The day after removal of the teeth, the patient had a severe chill, then a rise of temperature of 106° with profuse sweating, and finally a fall in temperature. During this reaction a blood culture was taken and large numbers of green-producing streptococci were removed. Two rabbits injected intravenously with samples from this culture developed lesions in the kidneys, and cultures made from these lesions yielded green-producing streptococci, while cultures from the gall-bladder, blood, spleen, liver, and so forth, were negative.

The febrile attack was so acute and severe that doubt was expressed with regard to its renal origin. The possibility of its being a respiratory infection was suggested, although there were no pulmonary symptoms. In order to decide this point, cultures were injected directly into the trachea of five guinea-pigs. At necropsy no pulmonary lesions were found, but in one animal the kidneys and ureter were markedly affected.

Urine obtained from the bladder the day of the chill, the day following, and the fourth day, contained only colon bacilli. The fifth day, however, the patient had recovered sufficiently to permit cystoscopy; and urine obtained from the kidney and bladder contained occasional streptococci, but far more colon bacilli. Samples of the mixed cultures were injected into five rabbits; three developed lesions of the kidneys. Streptococci and colon bacilli were recovered from the lesions in two rabbits; the three remaining had lesions in the intestines.

In order to study the relative ability of the two

organisms to grow in urine, a twenty-four-hour sample of the patient's urine was autoclaved on three occasions, and after being proved sterile, samples were inoculated and incubated with colon bacilli, some with streptococci and some with both. The colon bacilli multiplied readily, whereas only a few more streptococci than were planted could be recovered. I believe this explains the usual absence of the etiologic organism in the urine of patients with pyelonephritis. Occasionally, as in a case reported by Kretschmer, secondary colon-bacillus infection does not occur, and streptococci are found in pure culture.

Eighteen days after the second extractions, the patient's remaining infected teeth were removed without incident. Pure cultures of streptococci were recovered. Four animals were injected; two developed lesions of the kidney, very pronounced in one; and one developed lesions of the joints.

During the intervals between the extraction of her teeth the patient was cytoscoped four times; at each examination pus cells were found in the urine from the kidney, and cultures therefrom contained colon bacilli; a few streptococci were also found after the second extraction. After all of the infected teeth had been removed six cystoscopic examinations were made. The specimens of urine from the kidneys were free from pus, and on culture a Gram-negative bacillus was the only organism. Cultures made at each successive cystoscopic examination yielded fewer organisms; the last one, which was taken at the time of the patient's dismissal, one month after the last of the septic teeth had been removed, contained only fifteen colonies on a blood agar plate from the urine from the right kidney; cultures from the left kidney were negative.

As long as there was pus in the urine from the kidneys, the pelvis was lavaged with 1 per cent solution of silver nitrate, but after the disappearance of the pus following the extraction of the last teeth, boric acid only was employed. A specimen of the patient's voided urine was brought to the Clinic one month after her dismissal. The findings were negative except for three pus cells to the microscopic field. Her physician said that she was free from symptoms and had had no fever.

This case also illustrates a situation that is common during the eradication of foci of infection, but which is wrongly interpreted. I refer to the extreme reaction following the second extraction of teeth. I believe the reaction following the removal of a chronic focus indicates that the offending focus has been found and should, therefore, be regarded favorably. Many physicians, however, on finding the symptoms worse immediately after removal of foci, consider it as derogatory evidence in respect to this type of treatment.

After elimination of the foci, the treatment in chronic cases depends on the pathologic condition. The dilated and tortuous ureter, with its narrow opening into the bladder and poor peristalsis, has produced a tendency toward retention

of the inflammatory exudate and infected urine. This defect is overcome by the passage, at one time, of several ureteral catheters of increasing caliber. When the ureter has been dilated adequately, the renal pelvis should be lavaged with 1 or 2 per cent silver nitrate, at intervals of three or four days, unless the condition is very acute and the urine unusually purulent, in which case the patient should be put to bed with a continuous lavage, two ureteral catheters having been inserted into the renal pelvis, one attached to a reservoir containing a lavage solution placed several feet above the patient to insure sufficient pressure to produce a satisfactory flow. The solution is allowed to run into the renal pelvis at a rate that will not produce pelvic distention, and escapes through the second catheter into a receptacle in the bed. The lavage lasts several hours each day, and several liters of fluid may be run through in the course of twenty-four hours. The intelligent patient will soon learn to regulate the flow himself and will take considerable interest in seeing how great a volume can be run through without producing pain from overdistention of the renal pelvis. Such catheters may be left in place as long as they drain freely, usually five or six days, after which deposits of mucus and urinary salts occlude their narrow lumen.

During the interval between lavages of the renal pelvis, the bladder should be lavaged, preferably with a warm boric acid solution, followed by the instillation of an ounce or two of a sedative solution, such as silver iodide emulsion, which is retained until voiding.

To promote free drainage the ingestion of large amounts of water is, of course, imperative. The urinary output should range from 2,500 to 3,000 c.c. daily; if allowed to drop below 2,000 c.c., beneficial results will be greatly diminished. Drugs are employed, as formerly, to change at weekly intervals the reaction of the urine, as it seems logical that such changes must at least discourage bacterial growth. When acid sodium phosphate is given to acidify the urine, the diet should contain large amounts of protein as this also increases the urine's acidity. During this phase urotropin should be administered in doses of from 40 to 60 grains daily, or intravenously in one of the several convenient forms now on the market under various trade names. When so given much smaller doses are as effective as larger ones by mouth, because the acidity of the stomach splits up a great amount of the drug. To make the urine alkaline the diet should, of course, be largely vegetable, and potassium cit-

rate and potassium acetate given until litmus paper shows the desired effect.

Recently there has been added to our stock of useful drugs hexyl resorcinol and mercurochrome; the latter in its efficacy in this type of disease, is frequently little short of marvelous. The following case is indicative of its value:

CASE 3.—A woman, aged thirty years, came to the Clinic August 6, 1920. Her physician wrote that she had suffered for six or seven years with bladder trouble, manifested by frequent and painful micturition, the capacity of the bladder seeming to be limited to about 2 ounces. Eighteen months before, the right ovary and the tube and appendix had been removed in the hope of relieving the disease of the bladder, which was supposed to be the result of extravasical pressure. No relief being obtained, a hysterectomy was advised. The patient usually urinated every five minutes; intervals were never longer than one hour.

The physical examination was negative save for rather marked suprapubic tenderness. Approximately 50 pus cells to the microscopic field were found in the urine, but many stained specimens failed to show the tuberculosis bacillus. The phenolsulphonaphthalein return was normal; roentgenograms of the urinary tract were negative. Cystoscopic examination revealed subacute areal cystitis. Urine obtained from the kidneys contained pus cells and colon bacilli. Roentgenograms disclosed five devitalized teeth and one infected root. Three of these teeth had definite areas of rarefaction in the apical region; two showed none. Believing that the periapical infection was the source of the pyelonephritis and was what kept it active, the teeth were removed surgically, and from each pure cultures of green-producing streptococci were isolated. Six rabbits were injected with cultures of these organisms, and all developed marked renal lesions from which the streptococcus was in each case recovered. Eight more rabbits were injected with these organisms, and in all but one renal lesions resulted. Cultures were made at necropsy from the kidneys, urine, bile, liver, blood, and joint fluids, whether or not lesions were present. In all the animals the streptococci were recovered from the kidneys and urine. In ten of the animals all other cultures were negative. A culture made from a catheterized specimen of the patient's urine early in the investigation showed only Gram-negative bacilli, which were injected into two rabbits, intravenously in one, and into the bladder in the other. Neither of the animals developed lesions of the urinary tract. Following removal of the badly infected root, the patient experienced a severe febrile reaction, and green-producing streptococci appeared in the urine in large numbers, which still contained Gram-negative bacilli. The mixed culture from the urine was injected into two rabbits. Both animals developed lesions in the kidneys, and one a hemorrhagic lesion in the bladder. Cultures from the lesions showed the streptococcus in both animals.

The patient returned home, and subsequent inquiry revealed the rather disappointing fact that she had derived but little benefit from the eradication of these foci. Evidently the infection in the renal tissue had progressed too far to be overcome by natural

resistance even after the original focus had been removed. Similar disappointments account, I believe, for the tardiness with which the fact of focal infection is being accepted. Too many septic teeth are being removed after the heart begins to beat irregularly, after the urine contains albumin or pus, or after the joint has become deformed, with the assurance of benefit. The infected teeth or abscessed tonsil should, of course, be removed, but to inform the patient that improvement in chronic disease will result is to court disaster, and to bring the benefits to be derived from the early eradication of foci of infection into disrepute. Four years later this patient returned to the Clinic greatly troubled with urinary frequency. An hour was the limit of urinary retention during the day; at night she voided from eight to ten times.

Cystoscopic examination revealed a urinary infection differing but little from that of four years before. There was a mild pan-mural cystitis, but the irritability of the bladder was extreme, and cystoscopic examination most painful. Urine, containing pus, was obtained from both kidneys, and on culture many colonies of colon bacilli were found.

Evidently removal of the original focus of the disease had not prevented its continuation in the urinary tract. The renal pelvis were lavaged several times with a solution of silver nitrate, but without result. The organisms causing the present symptoms being located deep in the tissues of the bladder, ureters, and kidneys, they were not reached by this method. Only a germicide conveyable through the blood stream would, under these circumstances, be effective. The disease, if once checked by such a germicide, should not recur, as its original focus had been removed. Accordingly, the patient was sent to the hospital, and 20 c.c. of a 1 per cent solution of mercurochrome was given intravenously. A rather trying reaction followed, characterized by nausea and a brisk diarrhea for several hours, but no rise in temperature. Usually, if the patient's temperature is normal at the time of administering the mercurochrome, a febrile reaction either does not occur or is very slight, but if the patient has one or two degrees of fever the temperature rises very rapidly to 104° or 105°, accompanied by a chill, immediately followed by a rapid drop to normal temperature. The sharp and often alarming rise of temperature may be due to the large amount of bacterial protein thrown into the blood stream as a result of the death of organisms. Forty-eight hours after the first dose, a second one was administered. Originally 5 mg. or more of the drug for each kilogram of body weight was employed, but this causes nausea and vomiting almost immediately, and is probably close to the margin of safety. Therefore, 4 mg. for each kilogram of body weight is preferred, and for the average patient 20 c.c. of 1 per cent solution is approximately the same, but for heavier patients the dosage must be larger, as fractional doses are ineffectual from the bacteriologic point of view. Following the second treatment the patient experienced a rather severe chill and became salivated. Sodium bicarbonate was administered orally with considerable relief. As mercurochrome is soon excreted and probably produces its maximal effect within twenty minutes, the early administration of alkalis tends to minimize the unpleasant sequelæ, such as salivation and diarrhea,

and does not affect the efficiency of the drug. The night following the first dose the patient voided but twice; as eight to ten times had been the invariable rule for several years, the patient, as well as the attending physicians, was much surprised at the sudden decrease in the irritability of the bladder. A week after the first dose, a third was given, and forty-eight hours later, a fourth.

A cystoscopic examination made immediately after the patient left the hospital showed that the cystitis was decreased. Urine from both kidneys was not only without pus, but was sterile, as was also a catheterized specimen from the bladder. Equally remarkable was the clinical improvement. The patient found that the urine could be retained for six hours without discomfort. Two months after the first administration of mercurochrome she wrote, "I got home the morning of October 23 and went to work at noon the same day. I am feeling fine, and my trouble is over. I am gaining every day."

Naturally, equally gratifying results are not obtained in all cases; nevertheless, mercurochrome seems to be the most potent drug now available for intravenous use in cases of resistant renal or bladder infection. Its preparation and administration are simple. A 1 per cent solution is made by the addition of the crystals to sterile distilled water; it is allowed to stand two hours to insure sterilization. It is applied with a 20 c.c. syringe directly into the vein, care being taken in the application, as sloughs follow subcutaneous infiltration. Symptoms of acidosis have occasionally appeared, and the drug should therefore probably not be given if the renal function is greatly impaired. The immediate administration of sodium bicarbonate, either intravenously or orally, has always produced the desired neutralization in such cases.

CARCINOMA OF THE MAXILLARY ANTRUM WITH REPORT OF A CASE AND A REVIEW OF THE LITERATURE*

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Incidence.—Carcinoma of the maxillary sinuses is a comparatively rare condition. Most text-books barely mention that such a condition may occur; while most authors of text-books on rhinology are agreed that sarcomata are not so infrequently met with. Skillern, in his fourth edition of "Accessory Sinuses of the Nose," 1923, says, "Malignant tumors of the sinuses are not as common as is generally supposed, the most frequently met with being carcinoma. The maxillary sinus is the seat of malignant disease more often than all the remaining sinuses together." A search of the literature bearing on the subject would seem to corroborate these statements.

Coakley's book, 1899, does not mention carcinoma of the sinuses, while Lennox Browne's fifth edition, published the same year, says, "Primary nasal cancer is rare and mainly epithelial."

Kyle's "Diseases of Nose and Throat" says, "Sarcoma and carcinoma of the antrum may be either primary or secondary."

Wendell C. Phillips says, "Primary carcinoma of the nose and nasal accessory sinuses is of rare occurrence. It is less common than sarcoma, and, unlike sarcoma, it usually occurs after the fortieth year. In this location the alveolar carcinoma and the epithelioma are found." The

author (Phillips) has reported a case of primary epithelioma of the maxillary sinus which extended through a tooth socket into the mouth.

Denker and Brüning, *Lehrbuch der Krankheiten des Ohres und der Luftwege* says, "Of the malignant growths in the nasal accessory sinuses are found more frequently sarcoma and fibrosarcoma, less frequently lymphosarcoma, and, lastly, there occur carcinoma, hard papilloma, adenoma, endothelioma, and cylindroma."

The Pratts, in their new book, have this to say, "Malignant growths are not very frequently met with in the nose. Primary carcinoma is rare. Sarcoma is not so uncommon. Carcinoma is met with in the form of squamous epithelioma, or alveolar carcinoma, chiefly in advanced age. Any of the varieties of sarcoma may be met with in the nasal fossa."

Jos. C. Beck, in his new book, "Applied Pathology of the Nose, Throat and Ear," does not mention carcinoma of the sinuses.

Curtis¹ gives figures from Heymann's *Handbuch der Larynx und Rhinologie*, "M. Schmidt found nine cases in 42,635, or .021 per cent, while in the Universtäts Poliklinik, Berlin, but two occurred in 27,600 cases."

Bayer, *Deut. Med. Woch.*, 1887, says he found four cases of carcinoma from the nose and sinuses recorded in 11,131 cases of carcinoma.

Gordon B. New² saw thirty-three malignant

*Presented as an inaugural thesis upon admission to the Clinical Club of Minneapolis, March 20, 1924.

tumors of the antrum at the Mayo Clinic from January 1, 1917, to July 1, 1919, fifteen too advanced for operation, and eighteen treated with cautery and radium. Of the eighteen, sixteen were primary tumors of the antrum, occurring in males almost twice as frequently as in females. Squamous cell epithelioma in this series was more than twice as frequent as sarcoma.

Davis³ made a survey of the notes on cases, the majority being his own cases. In this number there were squamous carcinoma, 19; endothelioma or columnar carcinoma, 7; papillomatous growths, 3; chondrosarcoma, 2; spindle cell sarcoma, 2; melanotic sarcoma, 1.

Greene⁴ reports that, for the six-year period from 1916 to 1921, there were 84 cases of carcinoma of the antrum treated at Huntington Memorial Hospital in Boston. Many of these had been diagnosed and operated on elsewhere and came for radium, etc. Ewing, 1916-1917, 1892 cases treated at Memorial Hospital 48 (2.53 per cent) in nasal region, 35 involved maxillary sinus.

Origin.—Curtis¹ finds six cases in the literature up to 1900 occurring in patients from 33 to 75 years of age, most of which arose from polypi, with transformation to carcinoma. Lennox Browne long ago called attention to the fact that benign tumors of nasal origin may become malignant. It is interesting to note that Morgani, in 1779, recognized the presence of polypi in the maxillary antrum. Zuckerkandl says they are found in 2 per cent of all cases, while Heymann puts the ratio as high as 6 per cent. The latter says that most of the malignant growths originate in the walls of the antrum.

Wendell Phillips,⁵ in his conclusion to the study of this question, holds that large mucous polyps in the antrum of Highmore may become malignant. His case, which will be reviewed later, seems unquestionably to have had its origin in this manner. He made a very careful search of the literature up to 1898 and abstracts fifteen cases, ages 33 to 69 years, of primary carcinoma of the antrum, some of which were the so-called epithelioma terebrant, or burrowing epithelioma, originating in cysts frequently seen at the roots of teeth, cysts which are developed from epithelial debris, the remains of developmental processes.

The Pratts, in their new book, go on to say "Malignant growths may originate anywhere in the nose, but particularly in the ethmoidal labyrinth and the palatine process of the superior maxilla at the junction of the floor and septum. More rarely they grow from the septum, though sarcoma is not uncommon here. The growths

may be pedunculated or sessile, and, by ulceration, may secure fresh attachments; still, a tumor may fill a nasal chamber and even some of the accessory sinuses and yet only be attached by its point of origin."

Davis,³ in the study of his 39 cases, says that a majority of squamous carcinoma began in the ethmoid and spread along the orbital plate or roof of the antrum, whilst a few originated in the orbital plate itself. The soft, friable, suppurating growth filled the antrum, then eroded and absorbed its walls and sprouted through the thin orbital plate. The thin bone of the facial wall was frequently perforated near the infra-orbital foramen, or in front of the molar recess of the antrum, and a characteristic puffy swelling of the cheek below the eye was produced. The more extensive growths perforated the posterior wall into the pterygoid fossa. The alveolus and palatal process were the last to be eroded in most cases. He reports one doubtful burrowing epithelioma terebrant, which appeared as a thick-walled dental cyst in a man of 66, extending horizontally into both palatal processes of the maxillæ, bulging up the floor of the antrum and nose.

ABSTRACTS FROM REPORTED CASES

I have abstracted a number of cases from the literature at hand which, though not a complete review of cases reported, are quite typical of the general type found.

Wendell C. Phillips⁵, 1898, reports a case of primary epithelioma of the antrum of Highmore: Male, aged 58. Six years before pain in right antrum, continued three years, especially radiating to teeth. One and a half years ago an opening was made into the antrum through the alveolar process—very little discharge of pus or blood. The opening was never closed and, four months ago noticed growth around this opening which rapidly increased in size. Pedicle into antrum; mass bled freely when touched; sensation of fulness with some pressure in region of antrum; no severe pain. Transillumination showed a dark area over antrum. Nasal cavity negative. Mass removed with snare and antrum curetted. Uneventful recovery.

Microscopic study showed epithelioma at one extremity of the polypus.

Curtis¹: Female, aged 50. Operated on. Rapid extension following operation. Death in six weeks.

Kopetzky⁶: Female, aged 29. Intensive pain in right cheek, toward eye, for five months. Swelling in cheek for three months. Dental treatment: tooth removed; antrum washed through socket. Purulent discharge following puncture. Repeated in ten days and again in three weeks. A few days before examination there were sensations of numbness and slight facial paralysis. Swelling in cheek varied in amount at different times, almost disappearing at intervals. Operative findings: Necrosis of antrum wall; antrum

filled with pus; detritus and soft polypoid degenerated mucous membrane. No hard masses. Glandular swelling at angle of jaw twenty-three days after operation. Swelling in cheek persisted. Re-operated on antrum. Found to be filled with hard, gritty masses. Specimen showed, microscopically, a typical epithelioma. X-ray used for some time. Death after fifteen months.

Essential points: Rapidity of growth.

No sign of malignancy at first operation.

Frederic S. Crossfield⁷: Miss P. H. W.; aged 63. Intense pain in left side of face for one year. Several nasal hemorrhages soon after onset. Recurrence of hemorrhages several months later, 1907. One month later had difficulty in breathing through nose, left side. At same time had swelling in the left cheek, and the left eye became suffused and prominent. The pain was constant and severe, preventing sleep in spite of anodynes. Examination showed a large friable mass filling in the left nostril, bleeding easily and emitting very offensive odor. Operation in April,—removal of growth with snare. Antral wall necrosed; antrum filled with broken down tissue. Curetting out and cavity cleansed. Symptoms subsided, and general condition improved for four months. August first, all the previous symptoms reappeared; growth filled left nasal cavity. Condition, at time of report, November first, very grave.

Voislawsky and Braun⁸: Male, aged 37. Repeated removal of polypo (Killian operation)—frontal, thick, creamy, fetid pus. Mucosa found thickened and edematous. Ethmoidal cells full of pus and polypoid tissue. No evidence of tumor in the frontal or ethmoidal cells. Antrum was opened and found filled with soft tumor-mass. Erosion of naso-antral wall. Squamous celled epithelioma.

J. B. Murphy⁹: Male, aged 52. Twelve years ago had enlargement, size of a pea, on the gum above the right bicuspid tooth; no ulcer. Four years ago the gum began to pain. Physician excised the growth. Wound healed in two weeks. Two month later the right antrum became painful. Entered through buccal cavity above bicuspid; gauze drain inserted; slight discharge. Ache continued for two years. Seven months ago physician entered the antrum through the cheek and curetting walls. Pain continued in cheek and maxilla. Scanty purulent secretion. Section removed by Dr. Murphy shows adenoma strongly suggestive of malignancy. Tumor extends almost to midline of palate; has been of slow growth; fills antrum. Clinically had all appearances of carcinoma. Radical removal of maxilla.

Geo. W. Boot¹⁰: Polypoid mass in right side of nose removed. Antral wall destroyed by carcinomatous process evidently begun in antrum.

Shambaugh¹¹: Male, aged 60. Sole complaint was a sensation of pressure on right side of face of only a few weeks duration following an acute head cold. No nasal discharge. Transillumination showed a shadow over right antrum. Irrigation of sinus gave a mucopurulent secretion. Washing done every three or four days. Patient referred to Dr. Moorehead to have decayed upper molars removed. Two months later there were increased pains, loss of weight, and cachexia. Right eyeball somewhat protruding and fixed. Exuberant, newly-formed tissue

protruding from unhealed tooth sockets. Tissue examination shows carcinoma. Removal of superior maxilla by Dr. Bevan. Death one week later.

Geo. T. Ross¹²: J. S., aged 56. Present trouble dated back two years, following a "cold in the head." Had free nasal discharge from left side, slight pain and tenderness on pressure over left antrum. Examination: Mucopurulent discharge from left nostril; tumefaction of turbinates; no bulging of naso-antral wall; no external swelling; some tenderness over canine fossa. In mouth the soft tissues of the hard palate were loosened from the bone on left side; boggy tumor mass, 4 cm. by 2 cm. Tumor opened; escape of fetid pus; necrosis of bone of hard palate. Radical Luc-Caldwell operation done. Pathologist reported carcinoma. Recurrence.

J. Harper Blaidell¹³: Male, aged 63. Two years before upper left canine tooth gave trouble and was extracted. It was found that the root processes had been mostly absorbed and that a previous dentist had left a pledget of cotton at the end of the root canal. Later abscess developed in alveolus, and gauze was found in the socket where the tooth had been extracted. Shortly afterward steadily increasing swelling of the antrum and a moderate amount of obstruction of the nose on left side and constant discharge took place. Antrum filled with soft pulpy material, proving to be squamous-cell carcinoma. Treated by radium alone. Recovery after stormy period of months with no recurrence in twenty-two months.

K. S. Blackwell¹⁴: W., female, aged 58. Severe pain left antrum radiating over left side of face and ending at occipital region. Pain dated back one year but, during past month, became almost unbearable. Sensation of fulness over antrum. Left eye swollen and dark circle under it. X-ray showed tumor in left antrum. Radium first used. Radical operation with cautery. Radium. Sections show squamous-cell carcinoma.

Margaret Butler¹⁵: Female, aged 59. First seen in November, 1910. Had severe pain in right side of face, head, neck, and eye; mass in nose. Dental care and seven extractions gave no relief. Pain, intense. Surgical operation. Patient was told she had cancer and needed more extensive operation (February). May 30, mental condition bad; maniacal. Radical extenteration of ethmoids, sphenoids, and antrum June 20, 1911; healed. Patient recovered; alive at time of report, twelve years later.

Harry A Barnes¹⁶: C. H., female, aged 46. Right cheek began to swell in August, 1917. Had three upper molar teeth extracted because of pain and increased swelling. Examination, September 23, showed grayish mass filling right nostril. Nasopharynx filled with the same tissue. Section shows carcinoma. Surgical removal, October 18, of mass from antrum and nares followed by a long course of radium, which did not begin until January 14. Second operation, May 14, 1918, antrum, ethmoids, and sphenoids extenterated; nasal septum nearly completely removed; also right upper alveolus and palatal process of superior maxilla. Again followed by radium June 1, 1920. No recurrence.

(Case 2). H. B., female, aged 36. November 14, 1916, lesion of right upper jaw and palate which slowly advanced until entire soft palate was de-

stroyed. Right antrum filled with tumor. Specimen from soft palate, carcinoma. Operation June 18, 1917, followed by radium. December 11, 1918, left side shows replica of original lesion on right, which had entirely healed. Patient died of exhaustion January 20, 1919.

The case I wish to report is as follows:

Mrs. M. J. W., aged 39, came in on September 1, 1923, complaining of intermittent pain and tenderness on right side of face,—over malar bone and around the right eye, with a particularly tender spot in the gum, right side, in the region of the second molar. She had been having some pain in this region for several weeks and had thought it was due to her teeth. A dentist had extracted the second molar tooth without relieving the pain. At this time the pain was not severe, sometimes only a sense of pressure, with tingling and burning sensations. The symptoms increased, and she consulted a rhinologist, who punctured her antrum several times and washed it out through a trocar. When I first saw her there was no swelling, but she said that in the morning her cheek was swollen at times, with some puffiness under the right eye. She pointed out the tender area in the gingiva, just behind the socket of the tooth which had been extracted. Her pain was worse at night, and she said that she was taking an analgesic to relieve it. At times this seemed to ease it, but sometimes it did not. Her general health had been quite good and her appetite fairly good. Her weight had been quite constant.

Examination showed a fairly well nourished woman, who did not show evidence of extreme suffering. Her color was good, and she seemed bright and cheerful, even when telling of the severe pain she had suffered. Externally there was nothing found except a large firm gland, about three-fourths of an inch in diameter at the angle of the jaw.

Examination of the nose gave negative findings, the nares were clear, with no bulging of the lateral nasal wall, with possibly a slight turgescence of the middle turbinate on the right side. The mouth was normal with no evidence of swelling or of downward displacement of the hard palate. I could make out at this time no swelling in the gingival surface, though the patient said she felt a small mass in the area mentioned before.

Transillumination showed the frontal sinuses and the left antrum of Highmore clear, but the right antrum was dark.

Suction with a Sorenson pump brought no secretion from the sinus. A diagnostic puncture of the antrum was made through the lateral nasal wall below the inferior turbinate. The needle passed through easily, but the fluid used for irrigation did not, apparently meeting with resistance in the sinus. It was returned, however, with a slight amount of mucoid secretion and some blood, but no pus. The washings were without foul odor. The trocar was removed with more difficulty than it was inserted, seeming to be grasped between the plate of bone pushed up in entering and the firm bony wall.

Because of the character of the pain and the findings in our diagnostic irrigation, she was sent for a röntgenogram to Drs. Allison and Morse with a request for careful examination for bone pathology; that is, necrosis, osteomyelitis, and neoplasms, especially any signs of the latter, which he was told

I suspected in this case. I received the following report on the x-ray findings:

Posterior and anterior plates were made of the nasal accessory sinuses. These show a dense shadow involving the maxillary and ethmoidal sinuses on the right side. There is no evidence of destruction of the walls of the maxillary sinus.

Dental films were made of the upper right jaw. These show no evidence of bone pathology. The socket of one of the molars which has been removed is in close relation to the floor of the sinuses. Plates were made of the right lower jaw. These show no evidence of bone pathology.

Conclusions: There is definite evidence of involvement of the maxillary and ethmoidal sinuses on the right side. There is no evidence of bone pathology. The socket of one of the molar teeth in the upper right jaw may, however, communicate with the maxillary sinus. The absence of bone destruction would speak against a neoplasm.

The patient was kept under observation for a few days, blood counts were made, which showed 4,128,000 erythrocytes and 6,400 leucocytes. A Wassermann test was also had which was negative. I learned from the patient that she had been under the treatment of a physician for two years and had been getting injections. I called this physician, who told me that she had syphilis and had been irregular in her treatments. He said that he felt she should have more treatment for her lues, and she was advised to continue this treatment more faithfully. The patient then disappeared for a time, and when she returned she said that the swelling on her gum had enlarged and had been opened by another doctor, who she said told her it was an abscess. There was now a definite small mass above the alveolar process quite firm and seemed to me to have a definite pulsation on palpation. I was convinced that it was not an abscess, feeling that it was either luetic or malignant. Because of the x-ray report and because she felt that it was due to her teeth, I advised her to see a good dentist and get his opinion first. She went to the Dental School at the University and was seen in time by Dr. Carl Waldron, who excised a piece of the small mass for microscopic examination. In conversation with Dr. Waldron late that day, he told me he was of the opinion that it was malignant, most likely sarcoma. It proved to be a squamous-cell carcinoma, and the patient was referred by Dr. Waldron to Dr. New at Rochester for treatment. I will quote from a letter I received recently from Dr. New:

At the time of our examination, October 5, 1923, we found a very extensive epithelioma filling the entire right antrum. The right posterior choana was entirely filled with the growth, the right cheek was bulging, as was the upper jaw and alveolar process. There was an operative wound above the alveolar process where Doctor Waldron had removed the tissue for diagnosis. There were three palpable glands in the right cervical region, just at the angle of the jaw, two about an inch in diameter and one a little smaller than this. On account of the fact that tissue had been removed elsewhere, I obtained the slide for microscopic examination which proved to be a squamous-cell epithelioma, grade 3, according to Doctor Broders' classification. Her Wassermann at that time showed to be total inhibition.

On account of the activity of the growth and the hopeless prognosis from any form of treatment, I had her husband come down and advised him regarding this. I tried to have her return home for x-ray and radium treatment, but they did not wish to do this. The following is a copy of a paragraph of the letter I wrote Doctor Waldron at the time of the original examination, on October 10, 1923, so that you will understand the condition when she came here: "I talked with her husband regarding the fact that the prognosis, on account of the extent of the growth locally, and the glandular involvement, would seem to be very poor from any form of treatment, but recommend the use of radium either here or in Minneapolis. He is planning to have his wife stay here to start the treatment."

She has returned here from time to time and while the local condition has improved a great deal, the glands have been steadily getting larger. At the time of her last examination, February 13, 1924, the mass in the neck had broken down. On account of the general weakened condition of the patient, I recommended continuation of the treatment at home, as in this way she would avoid the trips here.

The patient came to our office on November 17, 1923, a short time after she returned from Rochester, and at that time the glandular involvement was quite marked. She was gradually losing in weight and strength and suffering a good deal of pain. She again came in on February 18, 1924, five days after her last examination by Dr. New, when she told me she was not to have any more radium at Rochester, but that she was reporting to Dr. Waldron. At this time she showed a marked loss of weight. There was marked involvement of the cervical glands.—a hard, indurated mass, which had broken down. There was also marked involvement of the parotid gland and edematous swelling of the eyelids. The conjunctiva of the right eye was injected. The vision in the eye was not interfered with except by the swollen lids and the conjunctivitis. She was taking morphine for the relief of her very severe pains. At the present time there is more glandular involvement and exophthalmus of the right eye, the patient's general condition being very low.

It is not the object of this paper to discuss the treatment of malignancy in the antrum, whether it be surgical or surgery combined with radium, or cautery with radium. I do wish to call attention to the fact that carcinoma does occur in the maxillary sinus, and that an early recognition of the condition is imperative, in order that any treatment may be instituted with any degree of success. To that end a study of these cases shows the following symptoms:

Sensory disturbances: There may be in the early stages only a sensation of burning or itching in the cheek due to irritation of the superior branch of the trigeminal. In a number of cases there was a sense of pressure or weight in the antrum. In others severe pain is an early and

constant symptom,—pain in the cheek, about the eye, and particularly in the alveolar process, which brings many of these patients to the dentist first. As the disease progresses the pain is very acute and difficult to control.

Hemorrhage: Bleeding from the nose occurring spontaneously, especially in elderly people, in the absence of high blood pressure, of evident ulceration on the nasal septum or other local cause, should be looked on with suspicion. Bleeding on instrumentation, either probing or irrigation should also make one suspect, at least, that malignancy is a possibility.

Nasal discharge: In the early stages there may be no excessive discharge from the nose or there may be a thin serous secretion. With secondary infection, or in cases developing on old chronic infectious processes in the sinus, there may be a purulent or mucopurulent discharge, with or without foul odor. Attention is called by some men to the characteristic foul odor in malignant disease of the sinus, but I should place this as of much later occurrence, coming on when the tumor mass is breaking down, or there is bony necrosis of the antral walls or floor.

Swelling: Swelling of the cheek and puffiness about the eye without other inflammatory signs may be a fairly early symptom, usually not remaining constant and of later occurrence than the pain. Actual swelling from the tumor mass breaking through the walls, or of extension to other parts are late signs and there should be no question of the diagnosis by that time. In the case I am reporting there appeared a small swelling in the gum over the alveolus. In a number of cases the tumor tissue pushed down through sockets of teeth which had been extracted.

Nasal obstruction also is a later sign, outward bulging of the naso-antral wall being due to pressure of the tumor mass. When this actually appears in the nares, the diagnosis should be evident.

Glandular involvement: This usually occurs later, but in the case I am reporting there was a large gland at the angle of the jaw when I first saw her. This seems to be a favorite site for the first appearance of glandular involvement, between the ramus of the jaw and the tip of the mastoid process. Later, there is involvement of the other cervical glands and of the salivary glands, particularly the parotid and submaxillary.

General appearance: Usually good; secondary anemia develops fairly early, but cachexia

and loss of weight and strength occur relatively late.

Diagnosis: The diagnosis, then, is made from the findings of the above symptoms, together with the findings in our examination. Transillumination shows a shadow over the involved side. The röntgenogram also shows the presence of a mass in the antrum, and the presence of necrosis in the bony walls. On irrigation of the sinus through the lateral nasal wall, in early cases, the absence of marked purulent secretion and perhaps more free bleeding than in simple sinusitis. Later, we may find the bony wall soft, permitting our trocar to enter more easily than usual. From the presence of a mass in the antrum there may be difficulty in irrigation, either because the needle is obstructed by the mass or because the ostium is occluded by the mass.

Finally, tissue examination is the positive finding, which will make the diagnosis; therefore, in any suspected case, where we have definite signs of disease in the antrum, an opening into the sinus should be made, and tissue obtained for examination. No harm is done, as far as we know now, in opening through the canine fossa and doing a Caldwell-Luc operation. I feel that this is the one thing that should have been done early in the case I am reporting. While there was already glandular involvement when I first saw the patient, there was a much better chance for recovery at that time than a month later, when she first had radium.

Differential diagnosis: From acute or chronic suppurative inflammations of the sinus.

From dental pathology, carious teeth where direct extension is possible into the antrum when roots of teeth are in almost direct relation with the floor of the antrum, root abscesses, circumscribed or diffuse osteitis of the alveolar process, infected dentigerous cysts.

From osteomyelitis, which usually occurs before puberty.

From tuberculosis, which is usually secondary to some other focus of infection in the body, but has been reported as primary in the antrum.

From syphilis in the tertiary stage, with necrosis of the bony walls.

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ACUTE OSTEOMYELITIS: A SYMPOSIUM*

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In brief, I wish to report a case of acute septic osteomyelitis, not because it is unusual, but, rather, the contrary. It is the type most frequently seen in hospital work and the type in which we all should do our share to minimize complications:

W. F., male, aged 6. Outside the usual diseases of children, the patient has enjoyed good health, although he is somewhat frail in appearance. About August 10 he fell on a nail, which penetrated the skin of the right knee. This wound began to suppurate, but did well under home management of

poulticing. On August 17 he fell, injuring the left leg immediately above the ankle. On the following day (according to his mother) he began to complain of pain at the site of the recent injury. This was associated with a fairly high temperature. Home remedies were resorted to, but to no avail. The temperature continued, the pain became more severe, the leg started to swell and showed signs of inflammation. On August 20 the local doctor was called. He made the diagnosis of acute osteomyelitis and brought the patient to the hospital for immediate operation.

Examination on admission: Patient looks acutely ill. Temperature 103°; pulse, 140. The left leg is held in flexion and carefully guarded against pain. There is a marked brawny swelling from the ankle

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to the upper third of the leg, most pronounced, however, near the ankle. The joint does not seem involved, as it can be moved without pain when careful attempts are made. Even light pressure over the tibial surface cannot be tolerated. General examination is negative except for a small pre-sternal abscess. His mother states that he sustained a bump there too at the time of his fall.

X-ray, negative; urinalysis, negative; leucocytosis, 26,000; polymorphonuclear, 82 per cent.

Under ether anesthesia an incision was made medially over the crest of the tibia and a large quantity of pus escaped. The periosteum was stripped off the bone for a distance of approximately four inches. With a drill the medullary cavity was opened. Pus escaped, and, to give it full vent, the opening was extended about two inches along the shaft.

This is the story covering the beginning of this patient's disability and the method of treatment. How long the treatment must be continued is problematic, but we know that disability will most likely be present throughout life.

Faulty or tardy diagnosis is responsible for the great majority of these cases of purulent exudation and acute osteomyelitis is a most serious condition in its destructive effects to life and limb. It is largely a disease incident to childhood, and because of a diagnosis of rheumatism, arthritis, abscess, dislocation, fracture, erysipelas, or something else equally misfitting, the unfortunate youngster must suffer untold agonies in his treatment that may consume years of time and necessitate a number of operations, and, finally, to cap the climax, leave him partly crippled and a stigma to the profession.

Mitchell says there are two reasons for delayed diagnosis: (1) A child has been sick for several days without known cause and a systematic examination of the ends of long bones has not been made; (2) in cases of acute illness an abscess may form over the tibia, a small incision is made to drain the pus, without realizing the true condition until irreparable damage has been done.

The classic case of acute osteomyelitis is not difficult to diagnose, and the same may be said of many other conditions. However, they are not all classic and do not necessarily follow a text-book schedule. Pfeiffer reports two cases in a series of thirty-five, without any local symptoms the first twenty-four hours. These did have a very severe general infection, but no other early diagnosis was possible. I believe that these cases were not cases of osteomyelitis the first twenty-four hours, but cases of bacteremia only, and that the osteomyelitis was a secondary condition. Despite the fact that only about one-half the cases show a positive blood culture, it is

generally agreed that osteomyelitis is a blood-borne infection, and that the staphylococcus aureus as the most common causative agent has a selective affinity for osseous tissue. The location of the process is, invariably, in the shaft near the epiphyseal line by reason of its anatomic construction.

A superficial infected wound or some other focal infection, frequently assisted by slight trauma, is the usual history of such cases. The onset is very sudden with a chill, high temperature, rapid pulse, and severe pain near some joint, most frequently of tibia or femur. In a short time the objective local symptoms of redness, swelling, and edema appear, and the general symptoms due to toxemia become more pronounced. A high leucocyte count, in addition to the enumerated symptoms, should clinch the diagnosis. It is a fatal error to depend on the x-ray for the diagnosis of this condition. In the case reported the findings were negative on the fourth day of the disease, and Robertson cites negative findings even as late as the fifth day of an active process. If one does wait for confirmation by the x-ray valuable time has been lost, and disaster results.

Early diagnosis and immediate operation are the outstanding requisites for a satisfactory outcome. Cohn states that cases treated early have immediate subsidence of symptoms, and the wound heals rapidly, in fact, like a clean wound, and no secondary operations are necessary.

All agree that early operation must be done if rapid recovery is to be obtained. There is, however, a difference of opinion as to the best method of procedure. Recent literature on the subject shows American surgeons to favor free opening of the medulla in every case. Cases of twenty-four to forty-eight hours' duration may and frequently do recover without any further surgical intervention. Those of longer standing usually require sequestrectomy at some subsequent date which probably is best determined by the looseness of the sequestrum and the strength of the involucrum. A few months is probably the average time required for the development of this condition. Mitchell advises subperiosteal resection of the entire thickness of the shaft as far as there is any abnormal detachment of the periosteum.

Brandt reviewed 304 cases admitted to Voelker's Clinic at Halle during the past twenty years and came to the conclusion that surgery in these cases is most successful when conservative. These statistics show a mortality of 18 per cent in cases

of simple incisions to the cortex and 30 per cent in cases of medullary opening. The records also show that metastases were twice as frequent following the more radical operation of draining the medulla. He states: "We have to come to the conclusion that in most cases of osteomyelitis it is sufficient to open the periosteal abscess. Only in a very limited number of cases does it seem necessary to open the medulla, and that may be done at a later date. When the cortex is dense, as in adults and children who have had rickets, one usually finds very little subperiosteal pus and in such cases one should open the bone."

Kittel reports a case of acute osteomyelitis of the femur which was treated by early incision of periosteum and rubber-tube drain for forty-eight hours. The symptoms promptly disappeared, and the wound healed by first intention.

Pfeiffer cites one case treated by simple incision on the second day of the disease. No pus was found, but there was profuse drainage later and recovery without sequestrum formation. Three cases similarly treated on the third and fourth day died from toxemia.

It is true that many of these cases are seriously sick, and unnecessary trauma ought to be avoided. It does not seem logical, however, to depend on the Haversian canals for drainage of the medulla, and no new avenues are opened by trephining the cortex at the site of the infection as indicated by the clinical symptoms and by the separation of the periosteum from the bone.

The incision should be so placed that all structures of importance may be saved as far as possible and the resulting scar out of harm's way and not subject to too much trauma and irritation, which would be the case if it should lie over the crest of the tibia, for instance. The periosteum should be opened as far as separation exists and the medulla entered with drill or trephine. Whether one finds pus under tension, or merely a droplet of fat as evidence of beginning necrosis, or nothing at all as ocular evidence, he may rest assured that the best procedure has been carried out and that the chance for recovery is better. The cavity, although it may appear like forbidden ground, will yield, as a rule, a pure culture of staphylococcus or some other organism. Either one of the two last findings is positive evidence of early diagnosis and

should offer a good prognosis. Two or more openings should be made with the trephine, and a cortical bridge of about two inches in length removed with chisel to insure free drainage. Care must be exercised in protecting the epiphysis, as the future growth of the bone depends on this. Reaming out the marrow cavity and endosteum is a procedure justly condemned years ago. Any curettage of the medulla will spread the infection into new channels and also destroy the nutrient artery, which may result in massive sequestration.

The postoperative treatment should be directed to the sterilization of the wound, which, I believe, is best accomplished by the use of fresh Dakin's solution. We shall not enter the discussion of secondary operations for the removal of sequestra nor of osteoplastic operations for restoration of function. It was my purpose to present the fundamentals of acute osteomyelitis so that we may ever remember that in this condition, if treated early, secondary operations will become a rarity and the economic gain immeasurable.

Besides the local treatment such cases require the best of general care to fight the severe toxemia. Sunlight, fresh air, good food, and tonics are all very much in order. Vaccine therapy does not meet with much enthusiasm from the various authors. Because of the infection and the prolonged period of disuse the muscles in the region of the lesion become much impaired, and early and vigorous treatment will accomplish much towards restoration. Massage and passive motion, soon followed by active motion and early natural use of the muscles, are very important and should be encouraged.

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ACUTE OSTEOMYELITIS OF THE MANDIBLE*

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Acute osteomyelitis of the mandible is a diffuse inflammation of the bone marrow, due to pyogenic organisms.

Prevalence.—It affects the male sex over the female in the proportion of 3 to 1, due to the greater hazard of exposure of the male. With reference to age, it affects the young less than osteomyelitis in the long bones and is met mostly in and past middle life. This bone is the eighth in point of frequency to be affected, the order being as follows: femur, tibia, humerus, radius, ulna, vertebral column, os calcis, and mandible.

Origin.—It may arise without any wound at the site of the pathologic process, when the infection comes through the blood stream.

2. It may follow some locally infected wound, such as a compound fracture, a gunshot wound, etc.

Predisposing Factors.—1. The anatomic situation of the mandible exposes it to injury.

2. Compared with other bones the mandible is not so freely supplied with blood; it is but scantily covered with soft tissues; and it is often laid bare and exposed to infection.

3. Decrease in vital resistance, caused by—
(a) Acute infectious disease; (b) traumatism; (c) overexertion; (d) exposure.

Exciting Factors.—Direct infection, such as—
(1) Alveolar abscess; (2) compound fracture; (3) carious teeth; and (4) gunshot wound.

Indirect infection, carried through the blood stream from—(1) tonsils; (2) respiratory organs; (3) intestinal canal; (4) genito-urinary organs; (5) boils; (6) infected wounds of the skin.

Etiology and Pathology.—It was at one time thought that osteomyelitis was due to a specific organism, but Pasteur proved that micrococci are the cause. Ogston demonstrated pyogenic bacteria in the pus from cases of osteomyelitis. Ullman was unable to induce osteomyelitis experimentally without first creating by bone injury a point of least resistance.

Most cases are due to staphylococci. There may be a mixed infection of streptococci and staphylococci or a mixed infection of pneumococci, gonococci, and the before-mentioned vari-

eties. Often the typhoid or tubercle bacilli may serve to establish a point of least resistance, become mixed with the pyogenic organisms, and produce the disease.

Although the inflammation begins in the medulla or spongy bone tissue, it passes on to the Haversian canals, compresses the vessels and cuts off the nutrition from certain areas of bone, similar to the action of gangrene observed in soft tissues. Dead bone is separated from the living by a line of demarcation. This tends to isolate the dead bone and form a sequestrum.

Symptoms and Diagnosis.—1. *When spontaneous infection has taken place without the wound:* The history will contain a statement that a blow has been received, or a febrile disease has existed, or that the patient became suddenly chilled after being overheated. The onset is sudden and generally at night. The disease is usually ushered in by a chill, which is followed by a septic temperature. There is intense pain in the bone of a boring, gnawing, or aching character. One of the earliest symptoms is stiffness of the muscles of mastication, causing partial or complete inability to open the mouth. There is headache, thirst, dry tongue, and rapid and small pulse accompanied by great prostration, so that the symptoms seem out of proportion to the physical signs. Stupor or delirium soon sets in, hence the disease at this stage is often mistaken for typhoid fever or meningitis. If the case is seen in the early stages the soft parts have a healthy appearance. These, in a short time, will discolor, swell, and present distended veins, and become glossy and edematous. The discoloration increases to a red or livid hue so that it looks very much like a case of erysipelas. If the case is not seen early, or has not been recognized, or, if treatment has been delayed, providing the patient survives, fluctuation becomes evident within a few days. If the abscess is then opened, or it reaches the surface and opens spontaneously either inside the mouth or externally, the symptoms abate somewhat and one or more sinuses are present.

In an early case the local point of tenderness is our only guide to the seat of the disease. Tapping of the jaw on the opposite side will cause pain on the affected side which is out of proportion to the pain encountered in any other affec-

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tion. Radiography will be of assistance only in those cases which are seen after destruction has been present for some time, and not in an early case.

2. *When osteomyelitis of mandible is secondary to wound:* For instance, extraction of an abscessed tooth, a compound fracture, or alveolar abscess. Here the symptoms of septic absorption are evident. There is a profuse, offensive, and purulent discharge, which usually contains bony fragments and tissue sloughs. The periosteum is red, thick, and separated from the bone. The soft parts are swollen and discolored, and the tenderness over the bone is very acute. The physical examination may reveal a wound inside the mouth which was not known before. The other physical signs and symptoms are the same as in cases without a wound.

Differential Diagnosis.—Diseases which may simulate acute osteomyelitis of the mandible, wholly or in part, are the following: (1) Typhoid fever; (2) cerebrospinal meningitis; (3) erysipelas; (4) acute articular rheumatism; (5) tetanus; (6) alveolar abscess; (7) acute subperiosteal abscess; (8) actinomycosis; (9) necrosis; (10) those diseases which cause closure of the jaws.

1. *Typhoid fever* presents a few confusing symptoms: the prostration, stupor, or delirium, and a similar fever. In typhoid the patient usually becomes ill more slowly, and only after some time has passed will he show prostration, stupor, or delirium. Usually the Widal's reaction and rose spots are present at this time. Only spontaneous cases of osteomyelitis without a wound may be confused before local signs are present. Here the early rigidity of the jaws should lead us to examine for a local point of tenderness, which, with the sudden onset, clears up the diagnosis.

2. *Cerebrospinal meningitis* may simulate because of the delirium, stupor, and fever. In this condition the temperature is more irregular. The rigidity of the muscles is in the neck and not in the jaws. The muscles of the back are also rigid, and sometimes even the abdominal muscles are in the same condition. Kernig's sign, clonic spasm, and opisthotonos clear up the diagnosis.

3. *Erysipelas* may be confused because of its location on the face, the redness, fever, glossy appearance, swelling, and prostration. There is usually some slight abrasion from which the redness starts and spreads. It soon reaches beyond the area of the jaw. The swelling and glossy

appearance are very slight. Small vesicles are usually present.

4. *Acute articular rheumatism* involves the temporomandibular articulation from the beginning, while in osteomyelitis the local evidence is well clear of the joint. More than one joint is usually involved in rheumatism. Movement of the jaw increases the pain in rheumatism.

5. *Tetanus* is confusing only in the locking of the jaws in early cases. In tetanus we have the history of a wound which has existed for seven days or longer. The patient may open his mouth with difficulty, but without pain. The muscles of the face become involved, producing the characteristic "grim." The patient remains conscious even during the spasmodic paroxysm.

6. *Alveolar abscess* produces pain more throbbing and acute. Pressure on the tooth over the seat of the trouble causes severe pain. The face and eye may be swollen and discolored on the affected side in severe alveolar abscess, but the history, local tenderness, and lesser constitutional symptoms establish the diagnosis.

7. *Subperiosteal abscess* is the hardest to differentiate because alone it is not common, but usually accompanies acute osteomyelitis. It presents all the symptoms of osteomyelitis with the exception of the nervous symptoms, which are milder. A spindle-shaped mass is present in subperiosteal abscess which would be absent in uncomplicated osteomyelitis. As both conditions require surgical treatment, we are justified in dividing the soft parts, opening the periosteum, and examining the bone. If the bone is not involved there will be a marked improvement in the symptoms after twenty-four to thirty-six hours. If there is no amelioration in the symptoms, particularly in the pain, the bone should be opened without delay, for the diagnosis of osteomyelitis will be correct.

8. *Actinomycosis* needs to be differentiated from a case of osteomyelitis which was seen late and after spontaneous rupture had taken place. Actinomycosis of the bone is most common in the jaw. As a rule there is no fever and the course is mild. Often there is evidence of infection elsewhere. In the discharge is found the characteristic yellow granules containing the ray-fungus.

9. *Necrosis:* Osteomyelitis is the most common cause of necrosis. But necrosis may follow other causes, such as typhoid fever, syphilis, compound comminuted fracture, excessive use of mercury, and fumes of phosphorus. In these

cases we have a definite history. A careful inquiry as to the cause, the constitutional symptoms, with a careful examination of the mouth, will lead to a diagnosis. The suppurative symptoms in these forms of necrosis come on late.

10. *Closure of jaws* is a symptom that occurs in a number of diseases besides those already mentioned. It is of a spasmodic type and is due to irritation of the motor filaments of the third division of the fifth nerve. It may be caused by parotitis, severe tonsillitis, tumors, and delayed eruption of the third molar. The stiffness of the jaws is here similar, but there the resemblance ends.

The Prognosis.—This is not as grave as when it occurs in the long bones. It may cause death by systemic poisoning before a diagnosis is made. It may be followed by septicemia or pyemia. Amyloid disease may follow if the suppurative condition lasts long. One case of osteomyelitis without any wound came under my observation. It required three months to complete a recovery and was the inspiration for this article.

Two cases following extraction of abscessed teeth, where the dentist failed to curet out the pyogenic membrane, required four months.

One followed a compound comminuted fracture and took five months. One of compound fracture from gunshot wound took six months. This man lost all the bone posterior to the last bicuspid tooth except a strip one inch long. No new bony growth took place and he refused a transplant operation. A fibrous band unites the two ends and he is able to chew on the opposite side.

GENERAL TREATMENT

Preventive.—Cleanliness of the mouth; attention to carious teeth; extraction before alveolar abscess has formed; exceptional care of the mouth during fracture and wounds.

Medical.—This consists of a supportive treatment as indicated by the condition of the patient. Such food as milk, liquid beef peptonoids, beef juice, and other concentrated foods, should be given every three hours. Autogenous vaccines may limit the spread of infection during the suppurative convalescence.

SURGICAL TREATMENT

A. *Acute pyogenic osteomyelitis without wound.*—A free incision is made through the soft parts directly over the point of greatest tenderness, which should be carefully elicited before anesthesia is begun. Avoiding important structures, the periosteum is freely opened. We may

still be in doubt as to whether we are dealing with a subperiosteal abscess, or whether the bone and medulla are involved. If drops of free fat are seen under the periosteum, or if, after wiping the surface of the bone free of exudate, there appear minute droplets of pus; if the bone seems softened over some area; if the suspected bone cuts easily with a knife; or if, in advanced cases, one finds a small sinus exuding pus leading into the bone, then one should not hesitate to open the medullary cavity. Remove the bone as far up and down as the abscess extends. Curet the medullary cavity, swab with pure carbolic acid and follow with alcohol. Provide for drainage with rubber tubes; pack the cavity with iodoform gauze, and leave the wound wide open. If the patient is in good condition we should endeavor to remove all the bone which is apparently dead. This will hasten the healing, and there will likely be no subsequent sequestrum formed.

B. *Acute pyogenic osteomyelitis with wound.*—If a wound exists, such as a compound fracture, enlarge the wound, remove loose fragments of bone, curet the medullary cavity, and irrigate with hot antiseptic solution. Follow this with carbolic acid and alcohol; establish drainage; dress with hot antiseptic dressings until the swelling and inflammation disappear. A secondary operation will be necessary if a sinus persists. If a sequestrum has formed it will manifest itself partly by the persistence of a sinus, and partly by the presence of bare bone which can be felt with a probe. It must not be assumed that a sequestrum will form because bare bone is felt for two or three weeks after the primary operation. If the bone continues bare for six weeks or longer, the probability is that dead bone is present. If the bone is living, its surface becomes covered with granulations, which are soft and velvety to the touch of a probe, while the bone which is dead feels grating and hard.

CONCLUSIONS

1. Osteomyelitis of the mandible is not as common as in the long bones.
2. It is most common after middle life, and is most frequent in the male sex.
3. When it occurs in the mandible it often opens spontaneously and is mistaken for subperiosteal abscess.
4. Radiography will be of no assistance in an early case, but in an advanced case it is invaluable.
5. Drainage established through the mouth is not adequate; it is not easily accessible; it is al-

most sure to cause a mixed infection; and it interferes with nourishment.

6. Because of loss of bone dividing the mandible into two parts, mastication is not seriously hindered.

7. The prognosis is more favorable than in the long bones because of the thinness and the superficial covering of the bone which favors a spontaneous opening.

8. Early recognition and radical removal of all infected tissues tends to limit the area of destruction, shortens the disease, limits disfigurement and prevents a secondary operation.

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DISCUSSION OF THE TWO PRECEDING PAPERS

DR. ARTHUR N. COLLINS (Duluth, Minn.): I have chosen four cases of osteomyelitis from the records of St. Luke's Hospital, Duluth, treated during the past two years, which I desire briefly to report.

CASE 1.—A boy, aged 14. Five years ago he went in swimming in cold water. Had a chill, with pain in the right leg, and was treated for rheumatism. Five weeks before admission to the hospital, he was ill in bed, unable to stand, had high fever, and had severe pain in right leg.

Findings: Right knee flexed to a right angle and twice as large as left. Two sinuses above and two below the knee, which drained profusely. The x-ray showed osteomyelitis of the lower right femur and of upper half of the right tibia. The sequestrum was removed and a partial cast applied. He was discharged with normal temperature in fourteen weeks. Delay.

CASE 2.—A girl age 1½. Sudden onset three days before admission. Left thigh swollen and tender. An x-ray on the fourth day showed hazy appearance, probably due to pus around knee-joint. The lower surface of the femur thickened and roughened.

Operation: Incision and packing. Recovery in fifteen weeks. Delay four days from onset.

CASE 3.—A child aged 11, who has had infected tonsils for the past two years. Eight months before admission she had acute pain in the left thigh. When admitted a fluctuating mass over left femur proved to be pus. Incision; pus drained, and left femur curetted. Discharged in five weeks with normal temperature. Delay with abscess.

CASE 4.—Man, aged 60. The left tibia was operated on seven years ago, when pus and bone were removed. Ten days before admission had swelling and much pain in the left leg.

Operation: Pus was found and bone curetted, packed with iodoform gauze. Discharged with normal temperature in six days. Delay and sequestrum.

Osteomyelitis may result, first, from local injury, with the introduction of pyogenic micro-organisms; second, it may be metastatic from infection else-

where, such as septicemia, the occurrence of badly infected tonsils, or the exanthematous fevers.

Every physician should school himself to rule out of the diagnosis acute osteomyelitis if there is the least suspicion of its presence. Parents are frequently to blame for delay in calling a physician, but, when called, osteomyelitis should not be overlooked.

The location of a small circumscribed abscess in one of the long bones can frequently be determined by making pressure over the surface of general tenderness and locating a point of exquisite pain.

The x-ray is not always available, and a white-blood count is not always obtainable, but every clinical feature should be carefully studied and where osteomyelitis cannot be ruled out the patient should be sent to a hospital. If a hospital is not available, surgery should be resorted to where the patient resides. There is no medical side to osteomyelitis.

It is quite possible that re-infection may occur from some other source within the system and attack the old osteomyelitis. It is, therefore, well to look carefully for any foci of infection elsewhere in the body, and especially to bear in mind infected tonsils and devitalized and abscessed teeth.

From a bacteriologic standpoint the majority of osteomyelitic cases are due to staphylococcus pyogenes or streptococcus pyogenes. The process usually begins in the shaft of one of the long bones, and the medulla becomes hyperemic and edematous. Next the marrow becomes streaked and mottled with gray, leading to suppuration. There may be multiple abscesses in the marrow and the entire bone may become rapidly involved. Necrosis of bone and periosteal involvement follow.

What is an early and what is a late operation in osteomyelitis constitutes a paradoxical question. In general, an operation within the first twenty-four hours from the onset might be considered an early operation. One need not search far to find instances of almost complete involvement of the cavity of the bone from acute osteomyelitis within twenty-four hours.

The operation cannot be done too early if the case is an osteomyelitis. The case reported by Dr. Nestos illustrates the fact that operation done even as promptly as his was done reveals the presence of well-developed abscess.

A small opening made into the medullary cavity with a sharp gouge without the use of a mallet will frequently enter the focus of infection.

DR. F. GREGORY CONNELL (Oshkosh, Wis.): I hope the discussion will bring out as to the length of time that is necessary to elapse when one can take an x-ray and positively exclude acute osteomyelitis. We all know that even in a case of very serious osteomyelitis the x-ray that is taken in twenty-four to forty-eight hours is negative.

Within the last year I have had a case in which there was an acute osteomyelitis of the tibia, a classical case of seven days' duration, with x-rays of the two tibias absolutely not distinguishable, one from another.

In reference to the treatment of acute osteomyelitis, the indication is to open the medullary cavity to relieve tension.

DR. DEAN LEWIS (Chicago, Ill.): Osteomyelitis is attracting at the present time a great deal of at-

tention. There is considerable diversity of opinion concerning treatment, and there are also varying opinions as to the way the infection spreads when once established. The clinical picture of osteomyelitis differs, depending upon the organism. Streptococci and pneumococci osteomyelitis occur in young children, and in both of these infections small foci occur near the epiphyseal cartilage. These may rupture beneath the capsule and the inflammatory process may extend to the joint so that the disease clinically resembles an arthritis, and the real nature of the lesion is not suspected until the arthritis fails to heal after incision due to a small sequestrum.

Cases of osteomyelitis should be operated on early. I believe that we are all agreed to this, but ideas concerning the extent of the operation vary. It has been shown by statistics, published recently, that radical operation is associated with a higher mortality than the conservative one and that the radical operation does not reduce metastatic foci of suppuration or lessen the frequency or amount of sequestration. I do not believe that any method of treatment can be universally employed. Surgical judgment must be used, and the surgeon must determine what he thinks best for the individual patient. In most cases I believe the marrow cavity may have to be opened, but judgment must be used, for a marrow not infected must not be exposed to the dangers of infection. Healthy bone should not be injured, making possible the formation of secondary sequestra; and bone which is not dead, although it may appear to be, should not be removed. I believe that bone is frequently chiseled away which, if left *in situ*, would live and play an important part in repair.

The doctor in his treatment should pay particular attention to the prevention of deformities. Flexion contractures should be prevented. When the flexion of the knee begins in osteomyelitis of the lower end of the femur or upper end of the tibia traction should be applied in order to prevent flexion contractures and also to separate the articular surfaces and avoid to some extent, at least, destruction of the articular cartilages. The doctor can prevent the deformities which often become the most disabling after-effect of acute osteomyelitis.

Referring to Dr. Connell's question: This raises a very interesting point in connection with some cases of osteomyelitis in adults. I have seen osteomyelitis in the humerus of a man twenty-nine years of age who had been treated for at least two weeks for cervical neuritis. Finally an abscess formed in the middle of the arm on the outer aspect which communicated with the bone. No evidence of a sequestrum was found upon x-ray examination and no periosteal proliferation. I operated on the patient and found gangrenous marrow. He went home, but returned four weeks later with a definite localized point of tenderness over the upper part of the humerus. Gangrenous marrow was found here. Small particles of calcareous matter were removed, but no large sequestra, and there was no proliferative change in the periosteum.

In order to treat osteomyelitis successfully an early diagnosis must be made. This must be based upon the ordinary old clinical symptoms of pain, temperature, and definite localized tenderness over the affected bone. We are prone to rely too much upon x-ray findings, failing to realize that when

these are definite and well-established considerable, even irreparable, damage has been done.

DR. FREDERICK A. DUNSMOOR (Minneapolis, Minn.): Immediately after making incision through the periosteum and allowing the abscess to empty—we all agree that this is necessary—fill the abscess cavity with carbolic acid, wait two minutes, and then wipe out the carbolic acid and follow with alcohol. Immediately after this make an opening into the medullary cavity, then we have gone far enough to give opportunity for drainage and to relieve pain. If it then becomes necessary to do a secondary operation there will at least be a safety-valve.

DR. GEORGE M. SEELE (Oshkosh, Wis.): I would like to ask Dr. Lewis, who has spoken so well from the standpoint of the clinical story of temperature and local pain, and particularly as to the definite localized point of tenderness found in these cases, if, in addition, he would not think it a decided help to be able to elicit a local swelling of the periosteum indicated by a good x-ray film. A patient was sent to me for a diagnosis as to whether there was pus in the lower end of the femur, and I found the visible swelling. The x-ray is only *one* of the aids in diagnosis, and every last one we can get is vital, and in that case it was proven by operation.

DR. LEWIS: I would have an x-ray picture taken, but if it did not show anything I would not be influenced. I would operate on clinical findings. The x-ray findings are not definite until the fourth or fifth day.

DR. ROWLAND GILMORE (Bemidji, Minn.): While it is true that in an acute osteomyelitis the x-ray picture may be negative, I believe that it is possible to make an x-ray picture that is positive in almost every case. In a properly taken x-ray picture we are, as a rule, able to detect some difference in the appearance of the bone and, as Dr. Steele said, in the periosteum. Even if very faint, the shadows can usually be concentrated by focusing through the small end of an opera glass. Very early some little shade of difference can be detected in almost every case. On the other hand, I do not believe an x-ray picture is necessary for the diagnosis of osteomyelitis. What I mean to say is that x-ray pictures can be made to show a great deal of pathology that is at present overlooked on account of making pictures too hard. To show early pathology, pictures should be stereoscopic and should be made soft.

DR. ROGER T. VAUGHAN (Chicago, Ill.): As to Dr. Connell's question: I cannot remember that I have seen any definite x-ray evidence of acute osteomyelitis under nine days, and sometimes it takes two weeks. I have not seen any cases that show definite lifting of the periosteum in four days.

It seems to me that Dr. Lewis before he got through finally disproved his initial statement. His initial statement was that the pathology was well known. No doubt it is true that it is well known, but the difficulty in my experience has been in determining what is the pathology in the individual case. The point of local tenderness is important, and the swelling of the limb is important, and the constitutional symptoms are important; but it is possible to go wrong on all of those. One case that I had a year ago shows how three of us went wrong on the same case. Dr. E. J. Lewis, of

Rush Medical College, who is much interested in bone work, said it was osteomyelitis. Swelling was confined to the thigh. He made a typical incision on the outer side of the femur and went down on it, found no pus, and left the wound open because he thought pus would appear.

In leaving the wound open in these cases and putting on ordinary dry dressings, my experience is that pus will appear. The next day Dr. Meyer looked at the case and decided that the incision was not long enough and that pus would be found if he proceeded a little farther, which he did but found no pus, and he also left the wound open. The interne was satisfied the condition was osteomyelitis, but pus was not found. I thought possibly it had not been found because of the position of the incision, and the tenderness was on the inner side. So I went on the inner side and explored the femur from the inner side up and down, and I found no pus. Instead of leaving the wound open I put in interrupted stitches, so that if pus appeared it could come out between the stitches. Pus did not come from out incision on the inner side, but from the outer incision. The femur always remained normal. Swelling of the thigh persisted, the leg did not become swollen. After a while we began to wonder if it might be a thrombosis. If so it was localized to the thigh because the leg was not swollen. The man finally recovered after four months' suppuration, and the femur remained normal.

I operated on two children the same night. There were pain and swelling in the leg with fever and leucocytosis. I operated on these cases with marked constriction in order to have a dry field. In the first case I cut down over the point of tenderness at the upper end of the tibia, and after hunting around we got three or four drops of pus showing cocci in the smear. I did not trephine the bone. It was so small an affair that I believe it got along without opening the cavity of the bone.

The other case had tenderness over the lower end of the fibula. I incised over this point and got nothing. I closed the wound with interrupted stitches, left on an alcohol dressing, and after four days pus came from the upper angle of the wound, instead of from the lower. At the end of ten days that case showed the periosteal shadow, which we interpret as lifting of the periosteum.

First I diagnose an osteomyelitis, then cut down on it and find perhaps nothing, as in one case, and have to hunt around for a possible focus beneath the periosteum; or I find nothing under the periosteum and drill the bone and it bleeds, and I make different drill holes and the bone bleeds and I close up; or, if I find suppuration, I generally drill the bone. At the present time I no longer gouge the cavity of the bone as we used to do. Now I drill holes. If there is no hemorrhage through the holes I infer that probably it is a necrotic focus of the bone lining. If it does not bleed it is probably dead. So I make two or three drill holes in that area until it bleeds. If it bleeds, I do not know whether I have found the focus or not, and I may make several other drill holes until the bone bleeds.

The difficulty which I find is in determining not only whether the condition is an osteomyelitis, but whether it is an osteomyelitis or a periostitis after I get in and find pus, or in determining what it is if I do not find anything. The x-ray is helpful after

ten days or two weeks have elapsed, when I think we can tell whether or not we have a proliferative osteomyelitis. Our difficulty is in diagnosing the case both before and after operation.

DR. LEWIS: Dr. Vaughan's statement seems to me to be a little misleading. There seems to be some difference between methods of extension and pathology. It seems to me that the pathology of osteomyelitis, even relating to the different types, due to different organisms, is pretty well agreed upon.

DR. ERNEST L. SCHROEDER (Shawano, Wis.): Within the last six months I have had three cases of osteomyelitis. I was much interested in the discussion of x-ray as used in these cases because I heard at that time that one could not always detect osteomyelitis by the x-ray. One particular case gave me ample opportunity to use the x-ray and interpret the findings.

A girl was brought to my office and I took an x-ray picture, examined the film, and could not see any necrosis in the bone. I took a picture the second day, the third day, the fourth day, and finally on the fifth day I noticed a little dark spot in the upper third of the fibula.

Another child came in with the knee very much flexed, red, and edematous, and with a temperature of 104° F. I followed the teaching of my old preceptor, John B. Murphy, who said: "You do not need the x-ray, you do not need to have blood cultures; if you are called to a home, as many of you will be, and the child has a high fever and the limb is swollen, just place your finger over the affected part and exert long-continued pressure, and when you elicit pain you are sure osteomyelitis is the cause. Have a 10-penny nail in your pocket and just drill a hole in the bone, then go home and sleep, and your patient will get better." I have followed this procedure in several cases and have had fairly good results.

This brings me to a case I had just before coming here, that of a man 27 years of age. He came to the office complaining of slight pain in the knee-cap. I did not remove his trousers and make a thorough examination because I thought the pain was due to rheumatism of some kind or to a sprain. I gave him a local application and sent him home. He did not come back, but in a few days I was called to his home and found him with a temperature of 104° F., but suffering no pain. I said to him, "How is your knee?" "Oh, my knee is all right," he replied. He was sitting up and during the day had been out doing chores. I asked him why he was not in bed. He said because he felt all right, that there was nothing the matter with him except that he had a fever. The next day I called again and found that he had developed some pain in his femur.

He then gave me the following history: Twelve years before, at the age of 15, he had pus discharging from his leg, dead bone came out, and he showed me the old scar. Then I felt right away that there was something wrong with the femur, and what was there to be done? I suggested taking him to the hospital for immediate operation, but the family, being of the old type, would not consent, claiming that they could drive the trouble away with poultices. They went on treating the case with hot bread-and-milk poultices, etc. Later I was again called, as the patient was getting worse. He was

very much prostrated, and I insisted that either he be taken to the hospital or they call some one else, but they would not listen to me. A few hours after I had left they called up and said it had opened and that it would be all right. I had warned them to be careful because the leg might break. Four days later they called me stating that the leg had broken when the patient attempted to move it. I sent him to the hospital, thorough examination was made, and the diagnosis was osteosarcoma. However, at this time I am still in doubt as to whether it was sarcoma or chronic osteomyelitis. Nevertheless, we amputated the leg at the hip.

DR. ALFRED M. RIDGWAY (Annandale, Minn.): The x-ray in these cases is a wonderful help in confirming the diagnosis. The man who lives in the country and does not have suitable x-ray equipment must rely on the physical findings. One would make a grave mistake in waiting to have the patient rayed before taking care of the focus of the infection, because, from my experience, I am sure that a very short delay in operating costs the patient a great deal of suffering, multiple abscesses, and sometimes a limb or even his life. The man who would transport his patient in order to have a radiograph of an osteomyelitis, would be like the fellow that swabs the throat in diphtheria, sends the swab away for a laboratory report, and waits three days. He finds when the report is received the patient, usually, is dead. I believe that any of us ought to be able to diagnose most cases of osteomyelitis without an x-ray. I am sure I would not wait for an x-ray on any case, because if one makes a mistake in opening and draining a normal bone antiseptically, this is a very safe mistake to make, and in my opinion the x-ray is of no diagnostic benefit in the first few days of the disease.

DR. NESTOS (closing): What I wanted to bring out was the fact that early diagnosis is absolutely essential. There are a good many things that I did not discuss and had no intention of discussing, such as osteoplastic operations and the different types of examination. Common sense will tell us that thorough examination is absolutely essential in these cases and that we must take care of possible deformities that are so likely to occur in osteomyelitis.

Opinions in reference to the treatment of acute osteomyelitis vary decidedly between the surgeons of this country and those abroad, and from the literature which I have reviewed in preparing this paper I glean this fact: By early diagnosis and treatment we mean diagnosis and treatment within twenty-

four to forty-eight hours; that is early, and anything later than that is late. In the studies made at Professor Voelcker's Clinic as indicated in the cases reviewed by Dr. Brandt, reference to early diagnosis and treatment applies to cases that have been diagnosed and treated within five days, and late cases are those treated within a month perhaps of the initial symptoms of the disease.

As to the x-ray: I wanted to bring out the fact that we must never wait for x-ray diagnosis. Make the diagnosis from the clinical symptoms, which are very characteristic. If we make careful analysis of the symptoms I believe we will seldom make a mistake, and if we do make a mistake in the diagnosis the mistake in treatment is not going to be serious. The seriousness lies in the fact that we do not make the diagnosis. We make a faulty diagnosis of rheumatism, for instance, which is the usual mistake, the reason being that rheumatism is such a prevalent condition, while osteomyelitis is comparatively rare and most of us are found sleeping when such a case presents itself. The symptoms of acute pain, pronounced on continued pressure over a point of location of the process, high temperature, severe prostration caused by the toxemia, a leucocyte count of 25,000 with a high polymorphonuclear leucocytosis, must be the basis of the diagnosis of acute osteomyelitis, and not the x-ray.

DR. LEIBOLD (closing): As far as diagnosis of acute osteomyelitis by means of the x-ray is concerned, I do not care whether I have an x-ray picture or not. It is immaterial so far as treatment is concerned. If we wait until we get x-ray evidence of the process we are too late to give the patient really what is expected of us or what we would expect ourselves. The cases I have seen had no x-ray pictures, and I did not take an x-ray picture of any of them.

Recently I saw a boy with an osteomyelitis of the upper end of the tibia. There was absolutely no difference in the two legs; there was no swelling whatever and there was no appreciable discoloration of the skin. The only thing complained of was the severe pain, and there were high temperature and rapid pulse. The boy had been sick for two days before I saw him. I advised operation. They said they did not think there was anything there to be operated on because the limb looked absolutely normal. I told them the serious thing would be the deformity that would come later. They went to Minneapolis, and a surgeon immediately operated and found pus.

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NORTH DAKOTA MEDICAL BILLS

North Dakota is evidently having her troubles, and among the dominant ones in the introduction of bills was the so-called House Bill No. 204, an act relating to hospitals and providing for taxation of the same when any licensed physician, surgeon, doctor, or chiropractor is refused permission to practice his profession therein. It is a bill that will probably be defeated, but every man should bring his influence to bear upon the committee which has this bill in charge. It would be a very stupid and conflicting bill to pass and wholly outside of the bounds of tolerance.

Then comes Senate Bill No. 237, "an Act to Amend and Re-enact Section 2078, Compiled Laws of North Dakota for the Year 1913, as Amended by Chapter 223 Session Laws of 1919 and as Amended by Chapter 308 Session Laws of 1923, Relating to the Exemption of Property from Taxation."

One of the sections (2078) of this bill declares that "all property described in this section to the extent herein limited shall be exempt from taxation." This includes "all public school houses, academies, colleges, institutions of learning with the books and furniture therein, and the grants attached to such buildings necessary for their proper occupation, use and enjoyment, and not leased or otherwise used with a view of profits; also all houses used exclusively for public wor-

ship and lots or parts of lots upon which such houses are erected."

Another section includes institutions of charity and public hospitals under the control of religious or charitable societies used wholly or in part for public charity, and when "said hospitals fairly and freely allow all duly licensed and practicing physicians equal access to and privilege of practicing therein." This is evidently the nub of the bill, and it is intended to prevent hospitals from having staffs, also to open all closed hospitals to antediluvian methods.

This is simply an entering wedge to admit the undesirable practitioner. Fortunately, this matter has been settled by the higher courts, and the staff and board of directors have absolute control of the staff members and what shall be done with the hospitals. The idea of permitting a promiscuous body of men to come in and run a hospital is too absurd on the face of it to be put into a law.

In place of these a new bill has been presented that is supposed to supersede the two already mentioned, as they are looked upon as feeble and toothless bills,—a system of wild legislation. The substitute bill authorizes hospitals to adopt rules, regulations, and by-laws and to enforce the same; to suspend physicians and surgeons from practicing therein, providing for appeals to the courts and limiting the damages, if any, for the suspension of the right to practice medicine and surgery in such hospital.

This substitute bill also provides for a board of directors but permits any patient to employ any physician, he to have equal benefits with all other physicians and surgeons—a very broad section. It looks bad on the face of it; however, it is guarded by another section that "before admitting or permitting any physician and surgeon to practice his profession in any public hospital" in the state of North Dakota he must sign and agree to abide by all the rules and regulations and by-laws of such hospital. Another section provides for the suspension of any physician and surgeon when complaint is made of them in writing alleging material violation of the rules, regulations, or by-laws or grossly immoral or indecent conduct on the part of any physician and surgeon in any manner in the matter hereinafter provided.

A further section carries with it plans for a hearing of the case of the accused physician or surgeon, witnesses to be examined, and other things which simply litter up the management of a hospital.

A still further section provides in regard to the

hearing and examination, the suspension of the physician for first violation, and for subsequent violations. This means more machinery, more red tape, and more difficulties for the board of directors. Another section provides for the fining of a firm or corporation which violates the provisions of this act.

This last bill is much better than the other two, although it contains so much that is obnoxious to hospital managers that it would make just as much unpleasant feeling as possible. The only way to run a hospital is to have it managed by a board of directors to whom the staff is responsible, and the staff must be permitted to discipline its own members, to suspend or refuse to accept men who are disqualified or who are not sufficiently endowed with qualifications which make them satisfactory to a hospital or its board.

If any of these proposed laws go through there will be litigation and the supreme court would probably render a decision which conforms with other and similar decisions already in force, namely, that the staff should judge of the men they want to associate with or whom they think qualified to practice in a well-organized hospital under a board of directors.

"WHAT IS CIVILIZATION DOING TO MANKIND?"

This is the subject of the lecture which Mr. Albert Edward Wiggam, one of the most prominent biologists of the day, will give at the Church of the Redeemer in Minneapolis on Wednesday, March eighteenth, at 8:15 P. M. Mr. Wiggam has had a very liberal education. He studied medicine for four years. Earlier in life he was a newspaper reporter. And, finally, after associating with many other biologists and scientists, he suggested that it would be a good plan to write up this particular subject for the benefit of the public, but these men shook their heads and said it was impossible. Mr. Wiggam persevered, however. He wrote an article for *Scribner's Magazine*, which appeared in the issue of March, on "The New Decalogue of Science." It was immediately recognized as something that was informing in its nature, easy for the lay people to understand, and contained a great deal of material that is of particular interest to the physician; that is, he told them of his biological experience and that of others, the studies in heredity, of natural selection, and of eugenics. These lectures were finally put together in book form under the title, "The New Decalogue of Science." Since then he has written a second book called

"The Fruit of the Family Tree," which is even more interesting and informative than the first book.

Every doctor should attend this lecture and every man who is interested in the welfare of the public should know what civilization is doing to mankind. Further announcement will be made in our next issue so as to remind the medical profession that it will be not only a pleasure but a duty to hear Mr. Wiggam talk.

DR. DAVID OWEN THOMAS

The editor of *THE JOURNAL-LANCET* regretfully chronicles the death of one of the older members of the medical profession in Minneapolis. Dr. Thomas was one of our prominent men and was always an interested worker in the medical society of Hennepin County. For many years he was the chairman of the Board of Censors, and being the conscientious man that he was he very carefully investigated the history of each candidate who came up for nomination; and it was very seldom that he and his associates turned down an applicant. If he found a man was a little delinquent in his medical work or medical duties he talked to him, counseled him, and showed him where he could improve his status in the profession, and in that way he converted many men to true fellowship in the medical society.

Dr. Thomas was one of the most courteous, courtly, tender, and sympathetic men that one could meet. He was always a gentleman; he never failed in any particular; and he was very much loved by his patients because of his solicitation as to their welfare and his care of all of them. Whether of the lowest or highest order, it was always the same to him; they were sick people who needed the care and attention of a physician. And if he did not understand the situation he was the first man to call for a consultant. In that way he did his duty, not only to the patient but to the profession.

Aside from this Dr. Thomas was interested in biblical research and was deeply interested in religion. He belonged to the Portland Avenue Church of Christ, and for a number of years was a member of the Board of Managers of the United Christian Missionary Society of that denomination. He had recently completed a manuscript entitled "The Lord's Supper," which will doubtless be published in some religious journal, but it ought to be published in every medical journal so that the readers might follow the trend

of Dr. Thomas' mind. His example was one of great worth to physicians, as well as to laymen. His death took place from heart disease and probably a hypostatic pneumonia. It occurred during the time his wife was making a winter trip around the world. At the time of his death she was in India.

Dr. Thomas came to the United States when he was nineteen years old and graduated from Bethany College, Bethany, West Virginia, in 1878. That was the culmination, one might say, of his religious training. He graduated afterwards in medicine from the Medical College of Indiana, in 1884. He won a degree at the College of Physicians and Surgeons of New York City in 1890; then studied and practiced abroad, receiving degrees from the Royal College of Physicians and from the Royal College of Surgeons of England. He was a very broadminded man, and he believed sincerely in the work to which he was assigned. He was planning a visit to his birthplace in Pembrokeshire, Wales, where he was born seventy-two years ago, and from there he expected to go on to meet Mrs. Thomas in London.

We shall all miss Dr. Thomas because he was an outstanding figure in the medical profession. He was a man of very clever wit; when least expected, the Society would burst into a roar at some of his brilliant sallies. It was only very recently that he resigned his chairmanship with the Board of Censors and the suggestion comes to us that when a man gives up some of the things to which he has devoted his life, coincidentally he begins to go down; therefore he teaches us a lesson—to keep on working until called to our future home.

NEWS ITEMS

Dr. George Douglas Head, of Minneapolis, is in California.

Dr. Florence M. Ridgway, of Minneapolis, is making a trip through South America.

Dr. D. Leonard Pratt, who was a resident of Minneapolis for fifteen years, died last month in Towanda, Penn., at the age of 71.

The Ninth Annual Clinical Session of the American Congress on Internal Medicine will be held in Washington, D.C., March 9-14.

It has been decided to add three more stories to the present three-story building of Trinity Hospital of Minot, N. D. The cost will be about \$100,000.

Dr. Robert A. Scott, who formerly practiced in Crystal and Drayton, N. D., has moved to Detroit, Minn. Dr. Scott recently took postgraduate work in New Orleans.

The Mudbaden Sanitarium, at Mudbaden, has purchased the Jordan Sanitarium, which is its neighbor; and a consolidation of the two institutions will be announced soon.

The contract has been let for building the new wing of St. John's Hospital of Fargo, N. D. The structure will be five stories in height and 44x140 feet in size. The cost will be \$325,000.

The bill before the Minnesota Legislature to reduce to two years the limit of time in which medical malpractice suits may be brought, promises to be passed without serious opposition.

Dr. Frederick W. Schlutz, Chief of the Department of Pediatrics, University of Minnesota, is visiting the medical schools and hospitals in the principal cities of South America. He is accompanied by his wife.

At the February meeting of the Seventh District Medical Society of South Dakota, held at Sioux Falls, papers were presented by Dr. Frederick Treon, of Chamberlain, and by Drs. S. A. Keller and N. J. Nessa, of Sioux Falls.

Dr. Walter J. Marcey, of Minneapolis, has been elected president of the Hennepin County Tuberculosis Association. Other new medical officials of the Association are Dr. Emil Geist, Dr. J. M. Lajoie, Dr. F. K. Schaaf, directors.

The Kotana (N. D.) Medical Society held their annual meeting at Williston last month and elected officers for 1925 as follows: President, Dr. Ira S. Abplanalp; vice-president, Dr. E. J. Hagan; secretary-treasurer, Dr. Carlos S. Jones; censor, Dr. H. T. Skovholt, all of Williston.

Dr. H. A. Schoffman, of New Orleans, La., has joined the Stutsman County Clinic of Jamestown, S. D., succeeding Dr. A. W. Martin in the eye, ear, nose, and throat work. The Clinic is now composed of the following men: Dr. Willis C. Nolte, Dr. Edward J. Hotz, and Dr. H. A. Schoffman.

At the annual meeting of The Traill-Steele County (N. D.) Medical Society, the following officers were elected for 1925: President, Dr. T. J. Glasscock, Finley; vice-president, Dr. O. A. Knutson, Buxton; secretary-treasurer, Dr. Syver Vinje, Hillsboro; delegate, Dr. Syver Vinje, Hillsboro; alternate, Dr. O. A. Knutson, Buxton.

Dr. John F. Fulton, who for thirty years has been teacher in the University of Minnesota,

Medical Department, has been made Professor Emeritus in Ophthalmology. The Regents are certainly to be congratulated on having the name of Dr. John Fulton in their catalog and evidently appreciate the many years of service that he gave to the University.

The malpractice bill before the Minnesota Legislature was amended in the Senate Judiciary Committee by giving the patient the right to put in a counter-claim for malpractice, but only for the amount of the physician's bill, provided suit for such bill is brought after two years. This is inobjectionable to the profession. It is hoped that the bill in this form will soon pass.

The Stutsman (N. D.) County Medical Society, at its annual meeting last month elected the following officers for the current year: President, Dr. W. E. Longstreth, Kensal; vice-president, Dr. G. H. Holt, Jamestown; secretary-treasurer, Dr. W. A. Gerrish, Jamestown; censor, Dr. W. W. Wood, Jamestown; delegate, Dr. P. G. Artz, Jamestown; alternate, Dr. T. L. DePuy, Jamestown.

The North Dakota Legislature has bills before it (Senate Bill No. 237 and House Bill No. 204) which provide that any hospital in the state shall be exempt from taxation if it "permits any physician, surgeon, doctor, or chiropractor, holding a license to practice in the state, to enter or practice in said hospital." A new bill has been introduced to take the place of the above bills, see editorial on another page.

At the Annual Meeting of the Devils Lake (N. D.) District Medical Society, which was held at Devils Lake, February 11, the following officers were elected for 1925: President, Dr. C. J. McGurren, Devils Lake; vice-president, Dr. Clinton Smith, Devils Lake; secretary-treasurer, Dr. W. F. Sihler, Devils Lake; censor, Dr. J. G. Lamont, San Haven; delegate, Dr. W. D. Jones, Devils Lake; alternate, Dr. O. A. Arneson, McVile.

Dr. A. T. Rowe, a leading dentist of Minneapolis, was elected president of the Minnesota State Dental Association at its annual meeting held last month in Minneapolis. Dr. A. T. Rowe is a brother of Dr. Paul H. Rowe, the well-known physician and surgeon of Minneapolis, and both are sons of Dr. H. J. Rowe, a pioneer physician of North Dakota, who was secretary of the North Dakota State Medical Association for nineteen years, and who now lives in Minneapolis, having retired from practice.

THE SIOUX VALLEY EYE AND EAR ACADEMY

The Sioux Valley Eye and Ear Academy, which holds two meetings twice a year each on the day preceding a meeting of the Sioux Valley Medical Association, and at the same place, held its mid-winter meeting on Jan. 19 at Sioux City, Iowa. It was the best attended meeting ever held by the Academy, and the program was admirable. The "dry clinics," which were on the program for the first time, proved a marked success.

The speakers outside of the territory of the Academy were Dr. Cassius C. Rogers and Dr. A. H. Andrews, both of Chicago.

The unusual success of this meeting increased the desire, often expressed, to have a joint meeting of different eye and ear societies in the Missouri Valley, and such a meeting has been planned. It will be held next winter in Omaha, Neb., and will be a joint meeting of five or six societies composed of eye and ear men.

FREDERICK H. ROOST, M.D.
Secretary.

TENTATIVE PROGRAM FOR THE MINNESOTA STATE MEDICAL SOCIETY MEETING

Tuesday Morning, 8.00 A. M., April 28, 1925

Joint Session, Medical and Surgical Sections. The University Campus.

1. Clinic on Bone Tumors:
 - (a) Clinical Presentation, by Dr. H. W. Meyerding, Rochester, Minn.
 - (b) Pathological Demonstration, by Dr. W. C. MacCarty, Rochester, Minn.
2. Tumors of the Breast:
 - (a) Clinical Demonstration, Dr. W. D. Haggard, Nashville, Tenn.
 - (b) Pathological Demonstration, Dr. W. A. O'Brien, University of Minnesota, Minneapolis.
3. Tumors of the Lymph Glands:
 - (a) Clinical Presentation—Medicine—Dr. S. Marx White, Minneapolis.
 - (b) Surgical Demonstration, Dr. A. B. Colvin, St. Paul.
 - (c) Roentgenologic and Radium Treatment, Dr. A. S. Fleming, Minneapolis.
 - (d) Pathological Demonstration by Dr. E. T. Bell, University of Minnesota.

Wednesday Morning, 8:00 A. M., April 29, 1925

Joint Session, Medical and Surgical Sections. The University Campus.

1. Diseases of the Thyroid:
 - (a) Clinical Demonstration, Dr. H. S. Plummer, Rochester, Minn.
 - (b) Surgical Consideration, Dr. J. deJ. Pember-ton, Rochester, Minn.
2. Diabetes Mellitus:
 - (a) Clinical Demonstration, Dr. A. H. Beard, Minneapolis.
 - (b) Surgery in the Diabetic, Dr. A. A. Law, Minneapolis.

3. Diseases of the Glands of Internal Secretion. Dr. H. L. Ulrich, Minneapolis.
4. Neurologic Clinic:
 - (a) Nervous Disorders in Pernicious Anemia, Dr. A. S. Hamilton, Minneapolis.
 - (b) Early Diagnosis of Tabes Dorsalis, Dr. J. C. McKinley, Minneapolis.
 - (c) The Sequelæ of Encephalitis, Dr. E. M. Hammes, St. Paul.
 - (d) Surgery in Spinal Cord Tumors, Dr. A. W. Adson, Rochester, Minn.
 - (e) Clinic on Speech Defects, by Dr. Smiley Blanton, Minneapolis.

LITERARY PROGRAM

1. Phases of the Smallpox Epidemic; Lantern Slide Demonstration. By Dr. S. E. Sweitzer, Minneapolis. Discussion, Dr. O. M. McDaniel, Minneapolis, and Dr. H. E. Michelsen.
2. Causes of Death in the Fetus and Newborn, based on 450 Necropsies, by Dr. F. L. Adair, Minneapolis. Discussion, Dr. W. A. O'Brien, University of Minnesota.
3. Management of Toxemia Associated with Gastric Stasis, Obstructive and Non-obstructive, by Dr. C. S. McVicar, Rochester, Minn. Discussion, Dr. Balfour, Rochester, Minn.
4. Postoperative Pulmonary Complications, by Dr. P. G. Boman, Duluth, Minn. Discussion, Dr. F. J. Hirschboeck, Duluth.
5. Effect of Environment upon the Upper Respiratory Tract and Clinical Significance, by Dr. H. I. Lillie, Rochester, Minn. Discussion.
6. The Use of Novasural as a Diuretic, by Dr. Harry Oerting, St. Paul.
7. Congenital Syphilis and Its Treatment, by Dr. E. F. Robb, Minneapolis. Discussion, Dr. C. O. Kohlbray, Duluth, Minn.
8. Discussion of the Care and Treatment of the Psycho-Neurotic, by Dr. W. A. Jones, Minneapolis. Discussion by Dr. Arthur Sweeney, St. Paul, and Dr. Frederick Moersch, Rochester, Minn.
9. Psychology of Compensation Neuritis, by Dr. Arthur Sweeney, St. Paul. Discussion.
10. Paper by Dr. O. E. Locken, Crookston, Minn.

A tentative program for Monday evening is announced as follows:

Dr. Frank Billings, "Periodic Medical Examinations."

Dr. W. C. Woodward, Chairman Judiciary Committee of the A. M. A., "Medical Defense."

Mr. W. H. Oppenheimer, "Don'ts for Malpractice." And another speaker upon some of the medical legislative problems.

For Sale—A Burdick Lamp

At big reduction; ultra violet, water-cooled lamp with transformer, in perfect condition and very little used. Address 177, care of this office.

Physician Wanted

Excellent opening for physician. Fully equipped two-story hospital available. Hospital operated at present by registered nurse. Unlimited field. No doctor in county. Can get all Board of Health work. Write or wire A. C. Frohlich, Camp Crook, South Dakota.

Location Wanted

In a city of 5,000 to 10,000 population or association with a doctor intending to retire soon. Protestant, married, age 37, and has done special work in surgery and radiography. Address 176, care of this office.

Practice for Sale

In a modern progressive town in Southeastern South Dakota, graveled roads; office building of six rooms, at reasonable price. This practice is in the garden spot of South Dakota and Iowa. Address 178, care of this office.

Office in Good Location in Minneapolis Offered

For physician and surgeon in a modern new building at 3805 Nicollet Ave. Waiting-room in conjunction with dentist who is already located. No doctor on this corner. Special concession made to right man. If interested, call Colfax 2754.

Office Position Wanted

With physician or dentist by a young woman with some office experience. Can do typing and take care of books. Will work for moderate salary and give the best service possible. Age 26; best of references. Address 179, care of this office.

Practice and Small Hospital for Sale at a Bargain

Being obliged to retire from practice soon, I will sell at a bargain my practice and small hospital in a splendid Wisconsin town near the Minnesota line. Rich territory, large dairying interests, good schools. Address 181, care of this office.

Assistantship Wanted

To a general practitioner or a surgeon, preferably in a Montana city, by a graduate of a Class A medical school, aged 31, protestant, married, hospital experience, six months in general practice, capable, and ethical. Address Box 93, Bismarck, N. D.

Physician Wanted

For a lumber town in the Black Hills, South Dakota. Permanent position; good salary; six room modern house; good schools; and a church. Additional opportunity for private work. Give full qualifications in first letter. Address Dr. F. E. Clough, Lead, South Dakota.

A Practical Course in Standardized Physiotherapy

Under auspices of Biophysical Research Dept. of the Victor X-Ray Corporation, is now available to physicians. The course offers a highly practical knowledge of all the fundamental principles that go to make up the standards of modern scientific physiotherapeutic work. It requires one week's time. For further information apply to J. F. Wainwright, Registrar, 236 South Robey St., Chicago, Ill.

Minneapolis Office for Rent

Office space for rent together with a group of physicians with common waiting room and x-ray and clinical laboratories. New building constructed for physicians' offices. Located in the hospital center. Six minutes walk from the center of town. Two rooms with waiting room, \$50.00 to \$65.00. Free auto parking for physician and his patients. If specializing, state in what line. Address 183, care of this office.

THE JOURNAL LANCET

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SOME OF THE SIMPLER FUNCTIONAL TESTS CONCERNED IN THE DIAGNOSIS OF CHRONIC KIDNEY CONDITIONS, WITH PARTICULAR EMPHASIS UPON CHRONIC GLOMERULO- NEPHRITIS AND THE CHRONIC NEPHROSES*

By E. L. TUOHY, B.A., M.D., F.A.C.P.
 The Duluth Clinic
 DULUTH, MINNESOTA

When Dr. LaRose invited me to appear before you he asked me to be practical; to give something that would be of benefit to all the members and to all practitioners of medicine. While I might have chosen some subject that I am personally more interested in, and that the literature has not so much to say about, still there are few phases of medicine that come to every-day attention oftener than the problems arising from kidney affections. Hence, while this may be a rather "dry" subject, I promise to take it up especially from the "wet" side. I wish to point out to you very definitely the great advantage of utilizing the various modifications of studying the concentrating capacity of the kidneys by the simple use of the tests of the urinary quantity and specific gravity. This means the use of the various modifications of the Mosenthal test and of the later so-called "concentration" and "wet" tests.

CHART I

Technic of Wet Test—Avoid all solid food for the day. Take 1500 c.c. of water (within a period of 15 minutes) beginning at 8 A. M. Measure the output of urine every hour for the first four hours. Then every two hours until 8 P. M. The normal subject will void as much or more as the intake in the first

four hours. The following schedule is illustrative from actual cases:

| Hour | Normal Case | | Suspected Nephritis | | Advanced Nephritis | |
|----------|-------------|---------|---------------------|---------|--------------------|----------|
| | Amt. Passed | Sp. Gr. | Amt. Passed | Sp. Gr. | Amt. Passed | Sp. Gr.* |
| 9 A. M. | 240 | 1009 | 146 | 1010 | 180 | 1010 |
| 10 A. M. | 370 | 1005 | 272 | 1011 | 110 | 1011 |
| 11 A. M. | 630 | 1002 | 250 | 1005 | 110 | 1009 |
| 12 | 460 | 1005 | 194 | 1005 | 180 | 1010 |
| Total | 1700 | | 871 | | 580 | |
| 2 P. M. | 140 | 1011 | 117 | 1010 | 190 | 1011 |
| 4 P. M. | 140 | 1014 | 164 | 1015 | 200 | 1010 |
| 6 P. M. | 130 | 1018 | 51 | 1015 | 220 | 1011 |
| 8 P. M. | 120 | 1020 | 74 | 1016 | 210 | 1010 |

*Note the fixation of the specific gravity between 1.009 and 1.011 (isostenuria.)

The older clinicians knew the great importance of these simpler determinations, and had much to say concerning the specific gravity of the urine and the relationship between the night and day specimens. We have allowed these tests to become obscured by a wide series of far more technically involved measures, that frequently fail in giving us anything like as specific information as those just enumerated.

Another reason for taking up this subject is because it has fallen to my lot to grapple with the various problems concerned with hypertension and cardiorenal or cardiovascular situations as they have been presented in the daily routine of a busy clinic. It has often been a very nice

*Presented at the Thirty-seventh Annual Meeting of the North Dakota State Medical Association, at Bismarck, N. D., September 10 and 11, 1924.

problem to determine just what part the kidney has borne in these situations, and always the great problem at hand has been a logical and accurate *prognosis*. We may plume ourselves as much as we like and congratulate ourselves on our acuity in diagnosis; our patients, on the other hand, are apt to measure us up much more definitely by the skill with which we determine the outlook or the prognosis. Where we are at fault in this particular we are apt never to hear the last of it. The masters in Medicine have been the most willing to acknowledge this, and occasionally it is possible to get the most illuminating data bearing upon their previous blunders and misjudgment, particularly if we find them in a reminiscent mood. Many a patient has been in previous years told that he had a fatal chronic Bright's disease, only to show up ten or fifteen years later without any albumin in his urine, with a normal blood pressure, and with some quite different ailment. Some of these patients did not have a nephritis, but a nephrosis—the persistent severe albuminuria was improperly understood, and what was a very bad blunder in prognosis from the physician's standpoint proved to be a great boon to the patient himself.

Some years ago I wrote an article, to which I gave the resounding title, "Our Changed Conceptions of Cardiac Disease." It would have been better had I said, "changing" instead of "changed." We are always going to be in a condition of constant change relative to many features of our medical work, and it is one of the great purposes of such meetings as these to come together and secure a more or less common understanding of the subjects discussed. Although much appears in the literature, we do not all read the same literature at the same time. Part of this is lack of opportunity; some of it because of intensity along other lines. Nevertheless, we all need a brushing up from time to time, and we cannot hear too much about the common conditions affecting all of us in the understanding of our work, no matter what specialty we may be in. Accordingly, I join in this sort of "clearing house" or "exchange," and it shall be my effort to draw to your attention some of the current work that is yielding us keener methods of differentiation.

People in general have a great horror of Bright's disease. Common experience has taught them that folks die of it. The life insurance companies have devoted the very keenest attention to it, and for decades the examination of the urine has been elevated to a position where

it is a fetish with many intelligent folks, who fancy that within this magic fluid are to be found the various signals to indicate or yield all the evidence needed to determine one's pathological log. Therefore, many people present themselves to you who have either been told that they have albumin in the urine, or you find it out yourself. While it is vital never to overlook albumin when it is really present in the urine, it is just as vital for us to inquire fully into all the possible situations that may bring it about, and weigh them all most cautiously before we make a diagnosis of true *Bright's disease*.

To do this it is necessary for us to give some decided consideration to a careful classification of renal disease. Some find fault with any and all classifications—they would rather have a simple picture than a complicated chart. Nevertheless, if we are to make correct prognoses, fundamental and early differentiations cannot be dispensed with. We must go back to the underlying and fundamental anatomical physiological principles governing kidney function; we must take into consideration the various associations and entanglements dependent upon cardiovascular and cardiorenal relationship—in a word, a general size-up of the entire body. It may seem a waste of time to hark back to these fundamental data, but regardless of what simplification time may yield, or what shortcuts brilliant research may bring to us, we should at least be in a position to understand them when they come. If we look at a book on biological chemistry written just a few years ago we find many pages devoted to the various theories pertaining to glycosuria and diabetes. Now with our understanding of insulin, the relationship and position of the pancreas is entirely obvious. Had we not familiarized ourselves more or less fully with the various puzzling problems associated with diabetes we would not be in as good a position today to understand or use insulin as we fortunately are. This is simply another excuse for showing you a series of slides pointing out the fundamental physiology and then the pathology back of a renal disease classification, which is presently as illuminating as it is useful.

In this classification nothing is included relative to so-called "ascending" or pyelonephritic disease. This is a different story, and by itself deserves the very greatest attention. There can be little doubt that this type of inflammatory renal damage is more common than we ordinarily consider, and too often overlooked. In like manner, the conditions are not considered having to do with obstruction to urinary flow, either from the

standpoint of the disturbances in later life incidental to prostatic enlargement, or the various embryological or inflammatory perversions which often much earlier interfere with ureteral function.

(At this point a series of slides were shown, beginning with a diagrammatic outline of the glomerulus, and showing its intimate blood vessel relationship, illustrating the site of the pathology in different entities and illustrative postmortem specimens, with case histories).

Much confusion exists in the minds of many doctors as to just what is meant by a nephrosis; also, as to just how the nephroses differ from the nephritides. Some two years ago I had the opportunity again to see the work of Dr. Hans Eppinger of Vienna. My associate, Dr. F. J. Hirschboeck, thoroughly reviewed Eppinger's monograph on "Die Nephritis Frage," and copies of the chart he devised have been passed out to you (a blueprint from a stencil copy).

result fatally. There are indeed many mixed forms. Some assert that there is no true nephritis in which there is not some admixture of a nephrosis. On the other hand, it can be definitely stated that while rare, there are true instances of chronic nephrosis in which there is no associated nephritis whatever. One such instance is here briefly reported.

(T. H. L.), male, aged 48, married.

Previous history negative except for measles twenty-three years and typhoid twenty-two years previously, respectively. In December, 1912, after an acute illness of some three weeks, he was told by his attending physician that he had "Bright's disease." During the early months of 1913 he was treated as an instance of "chronic parenchymatous nephritis."

When I first saw him (March 29, 1913) he had a huge amount of albumin in the urine, there were very numerous casts, the systolic blood pressure was 146, and the diastolic 86.

He continued under my care for a short time, and without any particular change. Then he voluntarily

CHART II

DIFFERENTIAL FINDINGS IN KIDNEY DISEASE

| TYPES OF RENAL AFFECTION | URINE | | | | | | | EDEMA | | | | | ECLAMPSIA | UREMIA | FUNCTION TESTS | | BLOOD | EYES | THERAPEUTIC PRINCIPLES | | | |
|--------------------------|---------------------------|-------|----------|-------------------------|---------|---------------------------------|--------------------|---------------|---------|-------------------|---------------|---------------|---------------------|-------------------|------------------------|----------------------------------|-------------------------|----------------|------------------------|--------------------------------|--------------------------------------|---------|
| | ALBUMEN | BLOOD | SEDIMENT | URUBILIN | LIPIDS | QUANTITY | SPEC GRAV | RENAL | CARDIAC | BLOOD PRESS | HEART HYPERT. | LONGEST-TION. | | | OTHER SIGNS OF DECOMP. | DILUTION | | | | CONCENTRATION | BLOOD | SERUM |
| ACUTE-NEPHRITIS | SEVERE | + | - | BLOOD CASTS WHITE CELLS | OFTEN + | OLIGURIA INVERSE RATIO OF EDEMA | HIGH OR NORMAL | USUAL | OFTEN | HIGH BUT LABILE | + | + | EDEMA LUNGS ASCITES | + | + | DEPENDENT ON ALBUMEN EDEMA | NEAR NORMAL | HYDREMIA DARK | RETIN ALBUM RARELY | ETIOLOGY HUNGER THIRST CARDIAC | | |
| | MILD | + | + | DO | + | DO | NORMAL | OFTEN | ○ | RARE | ○ | ○ | SLIGHT IF ANY | ○ | ○ | DO | DO | NORMAL | ○ | DIET ETIOLOGY | | |
| | | + | + | DO | ○ | ○ | NORMAL | DO | NONE | ○ | ○ | ○ | ○ | ○ | ○ | NORMAL OR NEARLY SO | DO | | ○ | PROPHYLACTIC HYGIENIC | | |
| ACUTE-NEPHRITIS | FOCAL | + | - | DO BUT LESS | ○ | ○ | NORMAL | DO | NONE | ○ | ○ | ○ | ○ | ○ | ○ | NORMAL | DO | | ○ | ETIOLOGY PROPHYLACTIC | | |
| ACUTE-NEPHRITIS | SUB ACUTE | + | + | BLOOD CASTS WHITE CELLS | ○ | DEPENDENT ON EDEMA | HYPOSTHENURIA | + | RARE | HIGH AND CONSTANT | + | + | + | + | ○ | DEPENDENT ON EDEMA OR MONOTONOUS | HYDREMIA LIGHT | + | + | SAME AS ACUTE | | |
| CHRONIC NEPHRITIS | AVERAGE COURSE | + | ○ | CASTS WHITE CELLS | ○ | + | POLYURIA | DO | + | ○ | DO | + | ○ | ○ | RARE | ○ | MONOTONOUS | HYDREMIA LIGHT | RETIN ALBUM OFTEN | CARDIAC | | |
| | TERMINAL STAGE | + | ○ | DO | ○ | + | DO | ISO-STHENURIA | + | + | DO | + | + | EDEMA AND HYDROPS | + | + | DO | DO | DO | DO | HITPOLEN FREE DIET CARDIAC | |
| | WITH HEART DECOMPENSATION | + | ○ | DO | + | + | MODERATE NYCTURIA | DO | + | + | DO BUT LOWER | + | + | + | DO | + | DO | DO | DO | DO | CARDIAC | |
| CHRONIC NEPHRITIS | WITH ACUTE EXACERBATION | + | + | BLOOD CASTS WHITE CELLS | + | + | DEPENDENT ON EDEMA | HYPOSTHENURIA | + | ○ | HIGH CONSTANT | + | + | + | + | + | DO | DO | DO | DO | SYMPTOMATIC AND COMPLEX | |
| NEPHROSIS | WITHOUT EDEMA | +++ | - | CASTS | + | + | NORMAL | NORMAL | ○ | ○ | ○ | ○ | ○ | ○ | ○ | NORMAL | O. M. | DARK | LIPID | RATHER RARE | SALT FREE DRY DIET DIURETICS THYROID | |
| | WITH EDEMA | +++ | - | LIPIDS | - | + | SEANT | HIGH | + | + | ○ | ○ | ○ | ○ | ○ | DEPENDENT ON ALBUMEN EDEMA | NORMAL | NORMAL | TOXIC | RETIN SELFDIA HEMORRH | DROPHYL | |
| | HEART COMPENSATORY | + | - | ○ | + | VARIES NYCTURIA | NORMAL | ○ | ○ | HIGH CONSTANT | + | + | ○ | ○ | RARE | ○ | NORMAL | NORMAL | DARK | RETIN SELFDIA HEMORRH | DROPHYL | |
| NEPHROSIS | HEART INCOMPENSATORY | + | - | CASTS FEW | + | + | OLIGURIA NYCTURIA | HIGH | ○ | + | DO | + | + | + | DO | ○ | SHOULD NOT BE PERFORMED | DO | DO | DO | DO | CARDIAC |

Adopted from H. Eppinger by F. J. Hirschboeck

We should remember that the most common source of albuminuria is the acute nephrosis: an acute degenerative process from which complete resolution is the rule. The true chronic nephroses are extremely rare—most of the severe ones

went upon a diet of his own choice, which consisted chiefly of buttermilk and fruit.

I did not see him again professionally until July 16, 1924. At that time he had decisive seizures of angina pectoris, from which his life was dramatically terminated about the middle of August, 1924.

(He happens to be the instance of angina pectoris mentioned in the clinical cases accompanying this report.)

Fortunately, autopsy was permitted, which showed extensive arterial sclerosis, and marked atheroma, notably of the aorta, blockage of the coronary arteries and extreme degree of chronic fibrosing myocarditis. The kidneys showed no evidence of connective tissue overgrowth whatsoever, and aside from certain minor changes in the blood vessels, were reported by the pathologist to be entirely negative.

I do not know the etiology of this man's *nephrosis*, but it probably was some acute infection.

CHART III

A useful current classification of the nephroses and nephritides excluding, however, many of the nephropathies.

A—Nephroses:

1. Acute (febrile albuminuria.)
2. Chronic.
3. Special (amyloid, hg., veronal, pregnancy, diabetes.)

B—Nephritis:

1. Diffuse: a. Acute.
b. Chronic glomerular.
2. Focal or embolic.

C—Nephritis and Nephrosis:

Mixed.

D—Atherosclerotic:

1. Arteriolar, precapillary fibrosis.
2. Arterial, benign.

CLINICAL DEMONSTRATION CARDIAC AND NEPHRITIC CASES

CASE I.—This patient gives a history of abdominal pain, burning in nature, without definite relation to meals. He is seventy years old. You will note that he looks tired and anxious. He is breathing easily and does not like to be disturbed. He complains of his stomach. There is edema about the ankles and scrotum.

It is generally accepted, and, I think, it is a very fair way of putting it, that so-called edema of the parenchymatous organs is apt to be cardiac in origin, and this is exemplified by the swelling and passive congestion which are common in failing hearts. Skin edema, occurring in the upper portion of the body, and notably the edema under the eyes in the morning, is correctly associated in the minds of many clinicians with kidney disease. It was pointed out to me several years ago that where there was found so-called retromalleolar edema, independent of edema elsewhere, it was a splendid hint of malignancy. Do not forget that. On a few occasions I have fallen down lamentably because I had my attention so keenly drawn to an obvious failure of the heart and kidneys that I overlooked a malignancy, usually gastro-intestinal.

There is, in this instance, a complicating feature from the prostate. We must learn to be extraordinarily cautious in drawing conclusions as to kidney capacity where the prostate is a factor. Many patients would never be given the benefit of prostatectomy if the functional tests were taken literally and given too much weight. Many an individual with prostate obstruction looks hopeless, but after a slow drainage of the bladder he picks up and his kidney function returns. The urea nitrogen retention gives a better index than the phenolsulphone-phthalein test. However, I am not assuming that this man has a prostate that greatly influences this particular picture.

I am afraid in this brief period that it will not be possible to draw attention to more than a few features. It is very easy to state that Mr. A. or Mr. B. or Mr. C. has arterio-sclerosis. It is hinted so often because we think they ought to have it because of their appearance or age. Before stating that anybody has any notable arterio-sclerosis we should hold to an objective demonstration thereof. You can tell a lot by feeling the palpable arteries, but there are two other methods of getting a finer differentiation: none is better, in the hands of those who understand it, than a study of the eye-grounds. Time has come when each of you must have someone available who will pay close attention to retinal study. I find that the average Eye, Ear, Nose and Throat man is not ready to give us just what we need. He is only ready for the outstanding changes that center about loss of eye function and loss of sight. He has to be trained in the closer differentiations pertaining to the retinal vessels. I now know three men who are ultimately going to give us some valuable data on the early retinal changes in arterial decay. They will be great aids in determining prognoses.

You will notice in taking x-rays of the legs and extremities that you very often get beautiful pictures of the arteries. Instances arise where you are in a quandary relative to chest pain. Is it true angina? If you can prove that this individual has a well-traced artery on the Rontgen plate of the leg or arm you have gone a long way toward making a logical diagnosis of probable aortic or coronary disease.

The age incidence means a great deal. We do too many things in medicine perfunctorily. We get the family history because it is said to be the thing to do; we take the age of the patient because there is a place on the blank for it; we take the social history, not because we are particularly interested in marital felicity, but because we like the idea.

We too often fail to make use of the answers given. The age incidence has a very great bearing on cardiovascular and cardiorenal differentiation, and I shall only tell you that our experience has been no different from that which is ordinarily gained by those who have written on the subject or analyzed a considerable series of cases. This individual is seventy years old. The *slowly progressive* vascular changes, the changes that come into the kidney, as well as the heart, and influence the whole arterial tree, lead up to this age of sixty-five to seventy-five. True chronic glomerular nephritis of the worst type comes fifteen and sometimes twenty-five years younger than this man's infirmity has appeared. By the fact that he has reached the age of seventy it probably takes him out of the cases of true primary shrinkage of the kidney independent of primary arterial disease. Now, you may ask, what difference does it make? It makes some immediate difference because the prognosis in these cases is not quite so bad. The kidney damage is not so great and not so nearly total. Have we clinical evidence here to support that? We have a urinalysis made that shows a specific gravity of only 1004. This speaks against a terminal kidney condition. The concentration of the specific gravity at 1008 or 1010 is a very definite finding in chronic interstitial nephritis. The fact that he has not an isostenuria in a condition so manifestly severe and demoralizing speaks for some other classification. The difference between the night and day urinalyses is moderate, but the night urine is a little in excess. He has a moderate reduction in red-blood cells. Therefore, from the grounds here stated, I would classify this man, not as a primary kidney, but as a secondarily affected kidney, incidental to an arteriosclerosis, which, as in so many aged people, in addition to moderately changing the intima, has hardened the large arterioles and has resulted in the picture of hypertension.

CASE II.—A patient who was too ill to be brought here is of great interest, and she has been most carefully studied and the data compiled for this clinic.

She is sixty years old. She has a systolic blood pressure of 290 and a diastolic of 170. The left ventricle is obviously hypertrophied, and there are an accentuation of the second aortic tone, some liver congestion, and vascular edema. She has dyspnea and orthopnea. The urine shows a moderate amount of albumin and some casts. There is less output of urine than intake. The specific gravity is 1014. It may seem a rather trifling matter to split hairs over the specific

gravity of 1009 or 1014, but I tell you that where the specific gravity is accurately taken it has more meaning than most of the complicated tests all combined. Rowntree and Geraghty deserve a great deal of credit for the phtalein test. It has many uses, but correct conclusions cannot come from its use alone; there are too many varying factors. If you inject the dye into a vein you get a better judgment if circulatory imbalance obtains. You will find it better to use the specific gravity method, the "wet" test, and "concentration" tests; you will get better ultimate results thereby. (See chart I.)

This particular patient is having cardiac overstrain. There is a hypertension of heroic proportion: 290/170. She is having cardiac distress. What are the probabilities here? You may say, what is the use of attempting a classification? What difference does it make whether this patient has a primary cardiac disease, a primary kidney disease, or a primary blood-vessel disease commonly known as essential hypertension? With this particular patient it does not make any difference, but with a great many others it becomes vital to know when they are going to die. What we would like to know is how long this patient has been in this condition. What would she have shown ten years ago? She has been seen twice. If she had hypertension ten years ago it was not due to chronic glomerular nephritis, because my experience corresponds exactly with that of Henry Christian, who says those patients do not live more than two years. A very noted clinician, a man of wide experience, long interested in this subject, quite recently said that chronic nephritis is not a serious disease, because he had known so many patients who had had it and who got along very well. Insofar as his experience was good, he was confusing the nephroses and vascular types with true diffuse glomerular disease. I do not believe that this patient has a true glomerular nephritis. In the first place, the systolic tension of 290 is too high. No one with a blood pressure up around 300, unless very close to the end, has a glomerular nephritis, and this patient has no other findings to go with it. She has a urea nitrogen of 35. She has progressively come into the condition via the vascular route. The autopsy undoubtedly will show kidney changes, but not of the diffuse type.

CASE III.—This patient is sixty years old. She complains of impaired vision of the right eye, dizziness, nervousness, and backache. In February, 1920, her systolic blood pressure was 220, diastolic 125. On June 16, 1921, she complained of much dizziness and of being easily exhausted.

She has not followed the instructions regarding a nephritic diet. In April, 1924, she still complained of much dizziness, and her blood pressure was 190/110. Several specimens showed a trace of albumin, but the urine was otherwise negative.

There was a feeling some years ago by excellent authorities that anybody who had a systolic tension over 180 and a diastolic over 100 was developing chronic interstitial nephritis. That is absolutely untrue. Those of you who have followed the literature know that considerable has been written upon it. Riesman, of Philadelphia, has advanced the hypothesis that there are definite kidney changes in this type of so-called essential hypertension, and, if these patients went on *long enough*, they would all develop nephritis.

This type of hypertension is found extraordinarily often. It is a common disease among physicians and quite common with their families. One could devote an hour to the discussion of the presumptive etiology, but I shall stop with this: Infection may be a potent cause in the very beginning, but at the time we usually see them we can easily go too far in eliminating useful teeth and other doubtful foci. Surgeons have pointed out that there is some connection between gall-bladder disease and myocarditis; it has the same relationship with hypertension. You notice this history stated that the patient suffered from dizziness. When dizziness, vertigo, and tinnitus are the outstanding features that bring these patients in you can make up your mind that these signs are only secondarily due to hypertension; they arise commonly from cerebral vessel atheroma. There is no better indication of cerebral atherosclerosis than vertigo, tinnitus, and a tendency to tremor. Why do I mention that? I think that cerebral arteriosclerosis is responsible for a number of symptoms which go unexplained. If these patients are taught the meaning of these symptoms and given belladonna, bromide, and digitalis, the tinnitus and vertigo will improve; they will tolerate what remains.

Whatever may ultimately be shown to be true etiology of essential hypertension, it does seem that there is a strong familial tendency to it—"As a man is born so he dies." Essential hypertension terminate in one of three ways: 65 per cent die by the cerebral route, 20 per cent by the cardiac route, and 10 per cent via a nephritic complex. Often they are called chronic nephritis because albumin is apt to be present at one time or another, and may be easily due to passive congestion of all the parenchymatous organs from myocardial weakness. This matter of essential hypertension is too often confused with

arteriosclerosis. Credit is due to Slifford Allbutt for splitting up the group and pointing to the especial features. He has shown what part chiefly is due to the intima. If any sclerosis invades only the larger arteries hypertension need not occur. If the sclerosis is in the smaller arteries a mild grade of hypertension follows; if the arterioles or precapillary bed and the finer divisions are invaded then hypertension must follow. I believe heredity is a big factor. People who are disposed to it will have greater chance of longevity, not by preventing kidney infection but by a change in their habits of labor and expenditure of nervous and mental energy.

CASE IV.—This is a case of myocardial degeneration. She is forty-three years old. She has had acute rheumatic fever. Her present complaint is weakness, which began on August 24th. For the past two years she has had more or less trouble with shortness of breath and swelling of the lower extremities. For the past two weeks swelling of the feet and ankles has been quite notable.

Examination shows some cyanosis of the skin and mucous membranes. There is pulsation of the vessels of the neck. The heart is greatly enlarged. The dullness extends to the axillary line. She has a harsh presystolic murmur at the apex and also a systolic murmur. The liver margin extends to 10 cm. below the costal margin. There is moderate edema of both legs.

In a few minutes at our disposal I want to draw your attention to that cardiac silhouette (pointing to illuminated chest plate) and notably the region of the left auricle. If we had time we could easily trace it out by percussion. We have this wide heart, the story of endocarditis, and the presystolic murmur. That association means a great deal. There is, as stated, a systolic murmur at the apex, which is transmitted to the axilla, and there is a pronounced diastolic murmur, terminated by the first heart tone. Now, let us analyze this: A systolic murmur transmitted to the axilla could not by itself indicate a lesion that would give this kind of silhouette. The typical aortic heart is the kind that comes out here to the left like a shoe (pointing to the x-ray plate). She has a stenosis in addition to an insufficiency. The mitral stenosis dictates the prognosis. Pure insufficiency of the mitral due to endocarditis is rare, and if present is not a crippling lesion.

We could again devote thirty minutes of interesting discussion to the great necessity of not overlooking this presystolic murmur. The most typical presystolic murmur is easy to hear. When

in that state of good compensation the patient does not need us badly. It is when auricular fibrillation ensues, when the characteristic murmur is mid-diastolic or lost, that we need all our faculties to direct correct digitalization and proper control. Too many medical students come into the practice of medicine having seen the wonderful changes that have been brought about in cardiacs in the presence of decompensation by massive doses of digitalis. Having seen this they make a memorandum to this effect: "Wherever we find decompensation we should give this kind of treatment." They soon find it does not work. They find what does so much for one patient does nothing for another. They find, what is so important in administering treatment, that the individual patient must be studied. Surgeons have taught us that it makes much difference with surgery of the thyroid the stage of the disease in which the patient is found. A patient with early auricular fibrillation is invariably helped immensely by digitalis. Other patients when given digitalis are made worse—the muscle deficiency has gone much farther and sometimes even degrees of block obtain. I would surmise that this patient in the regular cycle of her disease is going over into the stage of myocardial decompensation, and from now on it is going to be very difficult to give her permanent relief. The prognosis is bad; the auricle ultimately in its failure tires out the ventricle.

CASE V.—This patient presents a rather good silhouette of an aortic heart. I think as far as quickly determining what is in the chest the average man gets more by palpation than by percussion. This is an aortitis on a luetic basis, associated with the customary aortic insufficiency. I came back from England a couple of years ago very much interested in what I saw in the clinic of Dr. Strickland Goodall of the London Heart Hospital. I thought after I came in contact with the clean physical diagnosis of the Englishmen that they have much to be commended. While they have not come by their information through the pathological route, they have popularized physiology. If one could well combine the pathological-anatomical viewpoint of the Germans with the excellent physiological viewpoint of the Englishmen, a very fine combination should result. The attending physicians at the Heart Hospital were giving unusual attention to the mediastinum and conditions pertaining to the pericardium. By a careful study of the latter, particularly under the fluoroscopic screen, many murmurs, otherwise difficult of interpretation, can be more logically shown to be due to pleural

pericardial adhesions, to attachments to the diaphragm, or to torsion upon the great vessels entering or leaving the heart, than by attempts to attribute the abnormal sounds either to the lining structures of the heart or to the blood itself. By proper study of the cardiac silhouette, noting how the diaphragm separates from the heart shadow itself in deep respiration, as well as by a careful study of the so-called hilus shadows, one can secure leads indicative of early inflammatory lesions within the mediastinum and about the heart that later have decided influence upon heart sounds, and may influence, even decisively, heart function. This is a field of cardiac diagnosis that is altogether too much overlooked.

This man appears to have no evidence of cerebrospinal lues. These remarks relative to the mediastinum are simply slipped in here because they come to mind. In treating a man like this it must be remembered to be very cautious in the use of arsenicals.

CASE VI.—This man is twenty-four years old. On initial examination there was reported that he had a presystolic murmur with accentuation of the first sound, and we suspect a mild mitral stenosis, but after he was examined again the murmur had disappeared. Now, the murmur is brought about on exercise. One must be overcautious, particularly in an insurance examination, in diagnosing unusual murmurs. Other things being equal, a murmur that one has to search for with a fine tooth comb had better be forgotten. I do not think this patient has a stenosis. He has a fast heart. He has a livid skin. He is an instance of "neurocirculatory asthenia" or "irritable heart." Acute infections often bring this syndrome into the foreground.

CASE VII.—This patient eleven years ago developed an exophthalmic goiter and had a ligation done. She was so much improved for two years that she had no further treatment. She later took two hundred dollars worth of chiropractic treatment, and now comes back with a very bad exophthalmic goiter. She was under treatment for a month, and the goiter removed. Now she is much better.

There is a great group of murmurs associated particularly with true Graves' disease and hyperplastic thyroids, the explanation of which is by no means satisfying. If you ever think you have a failing heart in a nervous subject and you put that patient to bed and he does not get better, look out for the thyroid. I have fallen down on that a number of times.

Sometimes the damaging thyroid tissue is found in a substernal goiter. Careful fluoroscopy should

show these up, although at times unusual aortic aneurysm and innominate aneurysm confuse the picture. Remember that most substernal thyroids move up and down on swallowing.

CASE VIII.—We would have a patient, excellent of figure and showing on casual inspection no visible or outspoken signs of disease, to illustrate the difficulties in making both a diagnosis and a prognosis in angina pectoris. There being no such patient available, I wish to talk relative to this situation, and report briefly the further history of a man whom I showed in a clinic August 3, 1924, in Duluth, before the members of the Northern Minnesota Medical Association. By a strange coincidence he happens to be the same man whom I have reported above as a true instance of a "chronic nephrosis."

At the time I showed him at the clinic in Duluth I commented upon the fact that he was of splendid appearance, that under circumstances he felt very well, and in fact had the deep conviction that his shortness of breath and severe paroxysmal seizures of pain, with typical radiation into the arm, were really due, as he said, to "lack of exercise" and to the fact that he had been changing his manner of life and was too sedentary.

Just a little over two weeks after the above meeting the papers announced his death, stating that he left his home feeling well and went out to his work as a road supervisor. As he was looking over the machinery in one of the larger tool houses he evidently had a major seizure, and when they found him he had his hand in his vest pocket, on the box of amyl nitrite pearls which I had taught him to have always at hand.

This patient, like many of his kind, was most intolerant of the idea that he could have a serious heart condition when he felt well most of the time. It will be recalled that on a previous occasion I had given him a rather bad prognosis relative to his kidneys. Time has shown that he had made no mistake in determining upon his own course of procedure. I have lost a good friend—in this instance, permanently.

If you will look at the slide I have prepared from his heart wall (showing slides) you will see the extreme and most unusual degree of chronic fibrosing myocarditis.

Herrick, of Chicago, who has had a very great experience with angina pectoris, and whose judgment we have all learned greatly to respect, relates that on one occasion he had given a man with angina pectoris a rather good outlook and had told him that, as a rule, thoughtful living and constructive care gave patients with this malady many possible years of life. He relates

that this man left his office and died on the elevator going down.

This should lead us to be most guarded in making our prognosis in angina pectoris. We should never fail to give the fullest attention to the subjective signs presented by these patients. We should pay particular attention to breathlessness; to edema in the bases of the lungs posteriorly early in the morning before these patients have moved about. Much is being said presently about the great value of the electrocardiograph in telling us more relative to the myocardium, but we must admit that except in certain larger medical centers this agency is not available for most of you. In time it will come, but for the present you must use your keenest judgment, and, as McKenzie has so well taught, "Learn to properly evaluate subjective disease."

DISCUSSION

DR. J. O. ARNSEN (Bismarck): This is a very hard paper to discuss especially for me. It was very refreshing to me to listen to the very lucid demonstration that Dr. Tuohy gave on kidney pathology and kidney diagnosis. He brought out some points of great importance which called to mind the apathy with which we as general practitioners are apt to view diseases of the kidney. As the Doctor brought out, much can be accomplished in making a fine diagnosis. There is too much of a habit of taking for granted that infections are not important. I want to emphasize another thing; that is, in making functional tests of the kidney we must always bear in mind that they are valuable corroborative evidence in the study of diagnosis and prognosis.

DR. R. W. HENDERSON (Bismarck): The determination of kidney function has always been a very unsatisfactory procedure to me, principally because I have never been able to get a definite mental picture of the mechanism of the kidney. The past summer, however, while reading a little book written by Sir William Bayliss, I obtained a conception which related kidney function in a physical and chemical way with the varying conditions of the blood-vascular system. I have since been very much interested in a review of the histology of the kidney in the light of this explanation.

Bayliss states that: "The evidence is now overwhelming that the first stage in its production (urine) is . . . an ultrafiltration." An ultrafilter is a modification of the dialyzer, an apparatus used for the separation of crystalloids from colloidal solution. Suppose this line is a semipermeable membrane. On one side of the membrane is a solution of colloids and crystalloids, and on the other side is pure water. This picture will then represent a dialyzer, and the crystalloids will pass through the membrane into the water while the colloids will not, except for the fact that the solution of crystalloids and colloids exert an osmotic pressure, which will draw the water through the membrane into the crystalloid-colloid solution.

Now, to change the dialyzer into an ultrafilter a pressure greater than the osmotic pressure is placed

on the crystalloid-colloid solution, so that the osmotic pressure is neutralized and the crystalloids are literally squeezed through the semipermeable membrane which holds back the colloids.

The glomerulus is composed of an arterial capillary that comes, by the most direct route, from the aorta and breaks up in Bowman's capsule into a capillary tuft which, together with Bowman's capsule, forms a semipermeable membrane. Starling several years ago demonstrated that the blood serum has an osmotic pressure of about 40 mm. of mercury. So here we have a mechanism, an ultrafilter, by which arterial pressure overcomes the osmotic pressure of the blood, and the separation of urinary salts and water occurs in the glomerulus. As though to assure the maintenance of this intracapillary glomerular pressure, there is a definite constriction of the efferent capillary at the point of its exit from the glomerulus. This constriction probably also has the effect of removing the arterial pressure from the venous capillaries into which the efferent glomerular capillary breaks up. These venous capillaries intimately surround the convoluted tubules and since the arterial pressure is removed the normal osmotic pressure of the blood serum draws the excess water of the urine back into the blood through a membrane which is not permeable to salts.

Bayliss also gives a physicochemical theory of secretion which may be used in explanation of the supposed secretory function of the convoluted tubules, but which cannot be discussed at this time.

The Doctor stated that even in the presence of apparent nonfunction of the glomeruli the kidney, for some unknown reason, keeps on excreting. With respect to this, I would like to offer a suggestion. Henle's loop has heretofore seemed to me to be a useless bit of machinery, but since it is intimately surrounded, mostly, by arterial capillaries which come as directly from the aorta as do those of the glomerulus, and since its epithelium is of the extremely flat pavement type, especially through the descending portion, and since like Bowman's capsule it is followed immediately by a convoluted tubule where resorption of water may take place, may it not be that Henle's loop is an excretory apparatus secondary to the glomerulus?

If this explanation of the mechanism of the kidney is correct, the effect of changes in the blood pressure, concentration of the blood, or obstruction to the blood supply of the glomerulus, thickening, or anything changing the permeability of the uriniferous membranes, or obstructing the outflow of urine from the kidney, will be more easily understood in their relation to kidney function.

IODINE IN THE TREATMENT OF GOITER*

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The use of iodine in the treatment of goiter is one of the oldest therapeutic measures of present-day medicine. The ancient Greeks were wont to give the water in which sea shells had been boiled to persons afflicted with this disease. The Greeks, however, were unaware of the chemical properties of the water, and it was not until 1820, when Coindet isolated iodine, that the real beneficial effects of sea foods in the treatment of goiter were appreciated.

For many years thereafter iodine remained the principal and most important means of combating goiter. The era of Listerism, with the brilliant surgical achievements of Kocher, revolutionized the treatment of thyroid diseases. Not only did Kocher prove that goiter could be successfully cured surgically, but he repeatedly emphasized the danger of the indiscriminate use of iodine in thyroid therapy. He gave the name "Jod Basedow" to the peculiar type of hyperthyroidism resulting from the treatment of multiple adenomas with iodine and repeatedly warned against it. Little heed has been given to Kocher's teachings and even to-day thousands of persons

in this country are suffering from iodine hyperthyroidism.

In spite of the fact that iodine therapy in goiter is one of our oldest known remedies, our ideas in regard to its use are continually changing. Next to the discovery of insulin, perhaps the greatest boon to mankind in the past decade, has been the recognition of the efficacy of iodine in the treatment of exophthalmic goiter. While isolated observers have called attention to the value of iodine in the treatment of occasional cases of exophthalmic goiter, credit for conclusively proving the beneficial effects of the drug in a large number of cases must be given to Plummer. His observations have practically revolutionized our ideas in regard to the treatment of Graves' disease. Until very recently the general opinion has prevailed that iodine was valueless, and even dangerous, in the treatment of this condition. Plummer, and a few others, have shown that while iodine will not effect a cure, it will so minimize the risk that operation may be attempted with comparative safety.

Likewise, credit must be given Marine and Kimball for conclusively establishing the fact that iodine is largely effective in the prevention

*Presented before American Association for the Study of Goiter, Chicago, Ill., June, 1924.

of the simple colloid goiter of adolescence. Again, the idea was not entirely original, but the brilliant research of these scientists dispelled the rather vague ideas of the benefit of iodine in the treatment of colloid goiter and, more important, showed that this condition could actually be prevented in 99 per cent of children.

IMPORTANCE OF CORRECT CLASSIFICATION

There are certain definite indications and contra-indications to the use of iodine in the treatment of diseases of the thyroid. Before these factors are considered, a clear understanding of the classification of goiter must be reached. Great confusion on this subject has been evident in the text-books, as well as in the minds of the profession. The simpler the classification, the more readily may the diagnosis and therapeutics of goiter be appreciated. The following classification suggested by Plummer is now generally accepted:

1. Colloid goiter.
2. Adenoma.
 - a. With hyperthyroidism (toxic adenoma).
 - b. Without hyperthyroidism (simple adenoma).
3. Exophthalmic goiter (Basedow's or Graves' disease).
4. Tuberculosis, malignancy, syphilis, thyroiditis, actinomycosis, and so forth.

The various forms of cystic, calcareous, and hemorrhagic goiters that are often described as clinical entities are merely degenerative stages of the adenoma type. Likewise, the terms "simple" or "endemic" goiter have been applied to the adolescent colloid goiter, as well as to the simple adenoma occurring in youth. The terms "endemic" and "simple," then, when used to express these two distinct types of goiter are not only incorrect but misleading, since the treatment and prognosis differ in each type.

Finally, it may be mentioned that for many years little distinction was made between the hyperthyroidism of exophthalmic goiter and that of toxic adenoma. In 1913 Plummer differentiated these two conditions and noted distinct clinical types of hyperthyroidism, each associated with a definite pathologic change in the thyroid gland. In exophthalmic goiter there are always hypertrophy and hyperplasia of the thyroid; in adenoma with hyperthyroidism, hypertrophy and hyperplasia do not constantly occur. The clinical syndrome of toxic adenoma may readily be distinguished from that which is characteristic of exophthalmic goiter. Many clinicians even today fail to make a distinction between these two very definite diseases. Europeans especially

have made little attempt to separate these two types of hyperthyroidism. It is interesting to note that the incidence of toxic adenoma is apparently far greater in this country than in Europe.

IODINE IN COLLOID GOITER

Undoubtedly, the greatest value of iodine in the therapy of various types of goiter lies in the prevention and treatment of colloid goiter. In order to derive the maximum of benefit in the preventive treatment of goiter, medication should be begun early and not when the colloid goiter is well developed. Every child living within a goiterous area should be started on some form of iodine medication at not later than ten years of age. Many physicians have their own favorite method of administering iodine. It matters little what form of iodine is given so long as the child receives it in sufficient amounts and over a sufficient length of time. The old method of painting iodine on the skin has been generally discarded, since it is disfiguring and irritating. Likewise, large tablets of sodium iodine are no longer used, and the various tinctures and syrups are coming into disregard because they are objectionable to children.

Following the work of Marine and Kimball in this country, Klinger, working in the interests of the Swiss government at Berne, found that the weekly administration of a small amount of iodine gave more satisfactory results than the use of larger doses twice yearly. He has used a small tablet containing iodine and chocolate so that it is at once effective and palatable. This tablet, "iodostarine," has become very popular in the prevention of goiter. American drug houses have similar preparations so that the market is full of various tablets. During the past year I have been administering these preparations to about three hundred children, either normal or with colloid goiter. The majority of tablets have given equally good results, but at present I find the Swiss product the most satisfactory. The company handling the distribution of the tablets in this country is prepared to distribute their tablets to physicians and public health officials at considerably reduced rates.

Dosage.—Each of the tablets of iodostarine contains 10 mg. of iodine. It is suggested that for the prevention of goiter one tablet a week be given during the school year to children less than sixteen years of age. For the treatment of colloid goiter one tablet daily for thirty days during alternate months, is advised. I have varied this dosage by giving two tablets weekly.

This is the equivalent of 20 mg. of sodium iodide and is considerably higher than the amount advised by others. From observations on certain test cases, in which still greater amounts of iodine were used without the slightest harmful effect, I have become convinced that this dosage will be found perfectly safe and more effective than the smaller amounts.

The results of the treatment are not uniform. In many instances there is a remarkable reduction in the size of the neck of from 3 to 6 cm. within a year; in other cases the response, even to increased doses of iodine, is slight. In considering the reasons for failure in the latter cases, other factors may be important. Undoubtedly, our modern system of education together with the strain imposed by numerous social obligations causes an added tax on the thyroid gland at an age when this extra burden can be least endured.

With regard to iodinated salt: Attention was called in a previous paper to the fact that it may cause harm because the dosage is inaccurate and cannot be regulated by the laity.⁶ At that time I had just heard of a public health official who advocated its use as a cure for all forms of goiter. Recently McClendon, in a splendid piece of work, "The Inverse Relation Between Iodine in Food and Drink and Goiter," unfortunately concludes by advocating the addition of iodine to the water supply of every city, as has been done at Rochester, N. Y. Still another instance of the popular appeal is that made through the newspapers. The public is urged to avail itself of the use of iodine for the cure of goiter. William Brady, who is described as a noted physician and author, writes in the Personal Health Service Column of one of our large daily papers as follows:

"Get your iodine. Get it from any good grocer now."

A few days ago I saw a young woman with a toxic multiple adenoma of the thyroid. She was undoubtedly suffering from iodine hyperthyroidism. For some months she had been hearing about the effectiveness of iodine in curing goiter, and during this time she had been taking iodine under the direction of her druggist. Now, she and her sister, likewise a victim, are considering suing the druggist.

It is one thing to call an enlargement in the neck a goiter and prescribe iodine; it is another thing to distinguish between a colloid and an adenomatous goiter and to administer the proper treatment.

IODINE HYPERTHYROIDISM

While it is a fact that iodine hyperthyroidism rarely occurs in persons less than twenty-five years of age, this does not excuse the promiscuous use of iodine. Iodine to be effective in the treatment of goiter must be given early, since between the ages of sixteen and twenty adenomas tend to develop in neglected colloid goiters as a form of compensatory development. Moreover, once an adenoma has developed all the iodine it is possible to administer will not remove the adenoma, although it may temporarily retard its growth.

As a rule, iodine is not permanently effective, even in colloid goiters after the age of twenty-one. Consequently, its administration should be discontinued in such cases, except during pregnancy or at the menopause. The danger of iodine hyperthyroidism steadily increases after the age of twenty-five. The occurrence of this condition increases every day as the wave of iodine cure for goiter strikes the popular imagination.

Recently I reported eighteen cases of iodine hyperthyroidism observed over the brief period of a few months. Many of these patients had suffered permanent myocardial and renal damage, others had lost as much as fifty pounds in weight and were generally debilitated. When chemists and public health writers advocate the popular use of iodine by the laity, how can they disregard the hundreds of thousands of persons in the Middle West and the Northwest who are afflicted with adenomas of the thyroid? It is true that some persons with adenomatous goiters have received large amounts of iodine without harmful effects; in others meager amounts have been sufficient to induce hyperthyroidism.

At present there are thousands of victims of quack remedies for goiter. More than a year ago a sample of one of the much vaunted preparations was sent to the propaganda department of the American Medical Association.¹ Examination revealed the presence of ferrous iodide, which many of these "cures" contain. During the last year I have had fifteen patients with toxic adenomas, in whom hyperthyroidism was directly caused by this remedy. In spite of the fact that I described this nostrum in the *State Medical Journal*⁷ and warned the physicians of Wisconsin, this concern is still doing a thriving business, with the public health authorities apparently helpless. If this remedy were suggested for hogs or cattle the State would long ago have crushed the pernicious activities of this concern.

I do not wish to decry the good work that is being done in the prevention of goiter by iodine and I believe that every girl and boy between the ages of ten and twenty should receive iodine in some form, providing there are no large adenomas present. They should preferably receive iodine in tablets on a scientific plan based on the method of Marine and Kimball. The public should not be given iodine or encouraged to take it, except under a physician's direction.

IODINE IN EXOPHTHALMIC GOITER

At the December meeting of this Society attention was called to the fact that in exophthalmic goiter, Lugol's Solution (liquor iodi compositus) reduces the pre-operative metabolic rate an average of 20 per cent.³ Lugol's preparation is an aqueous solution of iodine (5 per cent) and potassium iodide (10 per cent), and affords a large amount of iodine loosely combined with potassium.

For many years Plummer sought to find some means of preventing or aborting the crises that occur in exophthalmic goiter. Many patients when they were first seen by the physician were either on the verge of a crisis or were in a crisis, and in such a critical condition that the prognosis was hopeless. While studying with Plummer I became very much interested in the treatment of these desperate cases, and when he informed me in 1922 that he believed he had discovered a successful solution to this problem, I took up his idea and have since successfully treated many patients according to his methods.

The fact that we have successfully performed 180 ligations and thyroidectomies from June 1, 1923, to June 1, 1924, including 40 operations for exophthalmic goiter, with no operative mortalities, may be attributed in large measure to the use of iodine in cases of great risk. In what was probably the first detailed report on a series of cases of exophthalmic goiter treated with iodine, mention was made that in the first twenty cases an average daily dose of 10 drops by mouth was given.⁸ At that time patients were frequently given treatment for a period of a week or ten days. Since then I have reduced the pre-operative period and increased the daily dosage of iodine. Now 30 drops a day are frequently given for three days and then 40 or even 50 drops for one or two days before operation.

Although in many instances the apparent necessity for ligation is eliminated, I have preferred to maintain a conservative stand in the more critical cases. In many of these, either one ligation or a multiple-stage thyroidectomy has been

sufficient. Thus far I find I have erred only on the safe side by a considerable margin. In only two cases has hyperthyroidism followed operation, and both of these occurred almost a year ago when only small amounts of iodine were administered. The postoperative reaction in these two cases was perfectly controlled by iodine. More recently operation has been performed on patients with very high metabolic rates, and there has been only the mildest reaction following operation.

In spite of the remarkable benefits derived from iodine both before and after operation in these cases, great caution must be exercised in regard to the care of these patients. With each new discovery the pendulum of enthusiasm is apt to swing too far. Undoubtedly, disastrous effects from operation are bound to follow the over zealous support of this treatment.

The clinical improvement following the administration of iodine in these cases is remarkable. In many instances the metabolic rate will fall from plus 125 per cent to plus 70 per cent in a few days. The patients no longer thrash about in bed and chafe their extremities, and the extreme nervousness accompanied by insomnia is abated. Although exophthalmos persists until after thyroidectomy, the staring expression so characteristic of the disease disappears.

Patients seen for the first time in a crisis with constant vomiting may be given iodine by rectum. Usually the gastro-intestinal crisis is controlled in a day or two, and the drug may then be given by mouth.

Following operation the amount of Lugol's Solution given depends upon the severity of the disease. In the more toxic patients as much as 35 or 40 drops a day are administered for twenty-four to forty-eight hours. Likewise, depending upon the degree of hyperthyroidism, patients are kept on 10 drops of the solution daily for from one to several weeks. This time limit is also governed by the degree of clinical improvement and a study of the metabolic rate.

It is interesting to note the pathologic changes that occur in many of these cases as a result of iodine therapy. There is a tendency for the gland to assume a more natural appearance, colloid tending to replace areas of hyperplasia.

Briefly, the theory of the value of iodine in exophthalmic goiter is that the gland is overworked and puts forth an incomplete secretion. Lugol's Solution places the gland at rest and allows it to complete this product.

IODINE IN TOXIC GOITER

Plummer and others have reported successful results in the treatment of cases of toxic adenoma with Lugol's Solution. I have felt that some benefit resulted from the postoperative use of the drug, but in the few cases in which it has been given before operation I have not obtained sufficient satisfactory evidence to report. Further careful investigation of this question is indicated before Lugol's Solution can be announced to be of definite clinical value in these cases.

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A FEW LABORATORY KINKS*

BY W. R. KING, M.D.

MINNEAPOLIS, MINNESOTA

The object of this paper is to bring to your attention a few minor modifications of technical apparatus or improvements in methods of those already in use. The paper is prompted by visiting the laboratories of my physician friends and finding apparatus or methods of use which could be improved or simplified. Some of these suggestions will be seen readily to be most useful to the man who does most of his own collections of samples and examinations. No claim of originality is made for any particular kink, although practically none of them will be found in any laboratory text-books.

URINALYSIS

1. All glassware used should be washed immediately after using and placed in the drying rack. Test tubes and centrifuge tubes should be inverted so as to allow the water to drain completely. Such a rack should be built so as to have a drain-board with the water-shedding groove or mechanism for draining water into the sink.

2. For getting at the sugar-testing solution quickly, easily, and with one hand, I find advantaging the use of a bottle for a container fitted with a two-hole rubber cork with the delivery tube extending down to the bottom of the bottle and the top or delivery end bent and drawn to deliver a small stream (1 m.m. diam.) in a slightly downward direction. The small end allows close checking of the amount of the test fluid, and the downward direction shoots it into

the tube and not across it. The bent arm is short (not over .75 in.) so that the contents of the delivery arm are easily drawn back into the bottle. The other hole is fitted with a short tube bent into the shape of a "U" which opens into the top of the bottle. The other end is connected to a one-hole rubber bulb, such as is used on modern irrigating syringes. Near the bend of this tube a very tiny pinhole puncture is made before the tube is bent. This is done with a blowpipe made of a glass tube and the pressure bulb applying pressure to the tube to be punctured. The blown out hole is then heated with the tiny blowpipe until it is all but closed. The tube is then carefully bent so as not to close this hole entirely. The purpose of this hole is to allow the escape of air under pressure in the bottle due to changes in temperature in the room, and it is so small as to allow a safety-valve action without interfering with efficiency when pressure is needed. When the testing solution is wanted, pressure on the bulb will be sufficient to force enough over; then when the pressure is released the suction action will be sufficient to suck back into the bottle the small amount contained in the delivery arm of the tube.

3. The pipette for collecting sediment or measuring drops into the sugar-testing solution will be more efficient if one or two slight enlargements are blown into the stem three to four inches from the tip. These should not be very large, as their object is to increase the capacity so that the specimen is not easily drawn into the rubber bulb, thereby contaminating other specimens with pus or casts, etc. It also allows for

*Presented before the Minneapolis Clinical Club, October 16, 1924.

using twice the amount of urine for sugar testing without another dip.

4. The use of a wider slide two or two and one-half inches wide, such as can readily be made from an used *x*-ray or photographic plate, with a glass cutter, will be found useful in making the examination of sediment a clean neat job both as to the operator's fingers and the microscopic slide.

STAINING OF SMEARS

1. The simplest method I have found of leveling the slide to be stained is to use the bottom of the urine specimen glass which is held in a rack in an inverted position. The glass can be tilted slightly in any desired direction to bring the slide level.

2. In keeping the stain from getting on your fingers in picking up the stained slide for washing, use a forceps or, if you must pick it up with the fingers, wet the fingers first. This is especially true for Wright blood stain, but is not so good for carbol fuchsin.

ROUTINE BLOOD WORK

1. Portable material for collection can be used in the form of three small vials: (a) one bottle with alcohol with a sharp cutting edge needle imbedded in the cork to be used as a stilette for puncturing; (b) one bottle with Hayem's fluid for red blood count; (c) one bottle with a 0.5 per cent acetic acid with a drop of methylene-blue as an indicator as to the contents of the bottle. Glass slides may easily be carried in a small nickel-plated brass container, such as contains Williams' shaving stick. The hinged container is better than the screw-top type and keeps the slides clean and prevents breakage.

2. Collection and labelling of samples and cleaning pipettes:

Collection.—(a) The use of a rubber catheter size 11F., instead of the cheap kinking rubber pipette connection, will be found very satisfactory, as it is easily adaptable to any size pipette, due to the bell or funnel-shaped end and does not kink because of the thickness of the wall.

(b) For carrying the pipettes when filled without spilling or changing the level of fluids, rubber bands about three inches long and one quarter inch wide will be found very satisfactory. When placed over the tip of the filled pipette and adjusted to close both ends evenly the fluid level will be found to be exactly as originally sealed even though the count is done several hours later. Occasionally one finds that the rubber band is broken or mislaid. A good make-

shift for temporary use is to fill the pipette about as usual and plug the measuring tip end by jabbing it into a cake of soap a few times. This makes an effective sealing plug inside the bore and will not dissolve out for many hours. When removing this plug the pipette is well shaken, and a small wire is used to puncture the soap plug a few times when it will be easily washed out by a drop or two of the diluting fluid.

The rubber binder or soap plug should be left in place during the shaking and mixing of the sample as it makes this manipulation practically fool-proof as no loss of fluid can possibly occur.

A word of caution in regard to the carrying of loaded pipettes will be appreciated especially by those of us who have collected a sample to find on arrival at the laboratory that it is not suitable for use. It is very essential to see to it that the pipettes are lying horizontally during transportation or in the interval between collection and examination in order to prevent the cells, both red and white, from settling into the shank of the pipettes from where it is impossible to dislodge them and return them to the mixing chamber. This of course makes the count useless.

Labelling.—Blood smears are best made on the slides, and a method of labelling which is as lasting as the smear is to write the date, name, or initials of the patient into the smear with a pencil or other scribing tool. This method forever labels whose smear it is and when taken. Pencil or scratch labelling cannot possibly add any factor of error in staining technic.

Cleaning Pipettes.—(a) Routine cleaning: The use of suction is the only known method of rinsing and cleaning pipettes. In many large laboratories suction apparatus is used, but a great many of us of necessity, must use mouth suction, and some of us are salivated by the presence of the glass or rubber tip in the mouth. All of us are in too much of a hurry to take the time properly to clean our pipettes. The use of constant suction is wasteful of materials; alcohol and ether cost money and *just enough* is all that should be used. With machine suction the vacuum is too high for economy and a short period of suction wastes considerable material. In remedying these objections, the use of a single-hole rubber bulb such as described for use on the sugar-solution bottle will be found more useful. After expelling all the contents of the pipette and rinsing with water, the pipette is disconnected while the air is forced out of the bulb. The alcohol is then drawn in and slushed around the barrel of the pipette and then drawn into the

bulb. Ether is then drawn in and the alcohol rinsed out. The remaining vacuum in the bulb is sufficient to draw in sufficient air to dry the pipette thoroughly. All practically in one move.

(b) Removal of albumin or other collections of dirt in pipette: The use of alkali solution, such as is used in doing Fehling's test or even Haines' solution will be found to be very efficient and speedy. About 5 c.c. of alkali solution is heated to boiling in a test-tube, and by using the above-mentioned rubber bulb and sucking it in and out of the pipette rapidly, the membranous deposit is softened and loosened from the wall of the pipette. Any masses too large to be expelled through the graduated end of the pipette can be blown out through the short arm easily. The pipette is then rinsed with dilute acid and water, and dried. The use of alkali for cleaning has a theoretical objection in that it tends to remove some material from the glass. This objection is obviated by the fact that the expectancy of life of a pipette is not over six to eight months before being broken and, in this time, it might have to be cleaned six or eight times. If the amount of material removed from the glass at each alkali washing were .000562 mg. in weight the sum total would still be only .00 + per cent, which is negligible in the face of a 5 per cent error in the accuracy of counts under the best of conditions.

(c) *Blood clots in the pipette shank.*—These are cleaned out with a wire stilette or small silk-worm gut or horsehair.

(d) I prefer the Sahli hemoglobinometer for general use because of its portability and the fact that the color matching is gradual and by dilution. An objection to the instrument is that the standard color tube fades with age. I have used a standard color tube made by boiling a strong solution of tannic acid with a few drops of sulphuric acid and adding a few drops of hydrogen peroxide from time to time until the color reaches a permanent shade. There is an oxidation product formed by this action (rufigallic acid), which is permanent as to chemistry and color and does not change with age. This strong solution is diluted with glycerin to the proper shade for use as a standard. If the color shade is unknown it is possible to arrive at a correction coefficient by selecting several bloods from healthy subjects whose red cell count is 5,000,000 per cu. mm. These bloods when properly diluted will give a reading on the graduated tube, we will say, of 70. The 100 per cent color mark will then be at 70 on the graduated tube. It will be easy to compute any other reading by dividing

the reading obtained by 70. The resulting figure will give the percentage of hemoglobin; for example, the reading on the graduated scale is 56 then $56 \div 70 = .80 = 80/100$ normal, or 80 per cent.

Another objection to the Sahli instrument is that the matching of the color shade is difficult and varies with individuals. This seems to be due to the fact that the usual method for comparing shades is to hold the tubes up toward a light or the window. This method allows for too much light to pass outside the instrument and enter the eye, thus disturbing the sensitiveness of the retina to the colored rays. This easily can be obviated by using the closed fist as a diaphragm or lensless telescope to cut out all rays except those passing directly through the two tubes. By this method the colors can be very accurately compared, and in readings taken by several persons no great color differences will be found.

BLOOD TRANSFUSION WORK

1. *Blood matching or grouping.*—The use of a porcelain plate with depressions, such as chemists use for checking color reactions, will be found most satisfactory for mixing the bloods to be tested for agglutination. The white background is excellent for naked-eye checking of agglutination and a slide sample easily can be taken from the pit. The depressions make it almost impossible to mix samples accidentally and afford a graphic score-board, which insures no mistakes in recording the particular bloods mixed.

2. Transfusion apparatus.—(a) Drawing blood: A bottle fitted with a two-hole rubber cork and short tubing to the donor, with a longer tube for suction by the operator, has been most satisfactory. This apparatus affords speed, cleanliness, prompt mixing, and freedom from contamination.

(b) Giving blood to the patient: The drawing bottle may be used or the contents filtered through a sterile towel into a similar bottle. This bottle is fitted with a two-hole cork with a long arm bent at right angles at the top and the lower end bent slightly at right angles to the top bend. This lower bend allows the tube to take the blood from the corner of the bottle. This allows utilization of all of the blood without a waste of over 5 c.c. in the total operation.

The upper end of the delivery tube has a rubber tube for connection to the needle in the patient's arm. This allows absolute control of the flow by the operator pinching off the column of

blood whenever he wishes, thus making it impossible for the assistant to force the donation beyond the operator's wishes. The short arm of the apparatus is connected to a Davidson syringe bulb by means of a short rubber tube. The cork should never be tied in the bottle, for when not tied its liability to be blown out by too

much pressure becomes a safety valve and makes the apparatus explosion-proof. The entire apparatus may be sterilized by boiling.

All needle connections are slip-fitting, or of the Luer type, which allows the use of syringes for insuring entrance of the needle into the vein or other syringe manipulation.

THE VITAL CAPACITY OF THE LUNGS IN A GROUP OF SANATORIUM PATIENTS*

BY WILLIAM BAILEY, M.D., AND J. A. MYERS, M.D.

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During the past three-quarters of a century, indeed since the time that Hutchinson invented the spirometer the vital capacity of the lungs in the diagnosis of tuberculosis has been found useful. Immediately following Hutchinson's work, Arnold, Wintrich, and others employed the vital capacity test in the diagnosis of this disease. They found that tuberculosis very definitely reduced vital lung capacity. In 1884 Dr. George Cornet, who later became an international figure in the field of tuberculosis, presented a thesis on the subject of vital capacity. He, too, found this valuable in diagnosis in conditions of the chest, particularly tuberculosis. Since Cornet's time a number of other workers have reported results of their studies on the effects of pulmonary tuberculosis on vital lung capacity. It was not until the period of the World War, however, that this test became very popular among physicians.

It was Dreyer of England who placed great emphasis on the use of this test and who stimulated numerous investigations throughout the various parts of the world. Indeed, in our own country, workers in medical centers have taken up vital capacity and have found it extremely valuable in diagnosis and prognosis and also in the guidance of treatment of such diseases as those affecting the heart and lungs, particularly pulmonary tuberculosis. Later Dreyer and Burrell of England reported the results of their findings in some two hundred cases of pulmonary tuberculosis. In their conclusions they strongly emphasized the value of this test in diagnosis and in prognosis. In later communications these same authors found that in the guidance of treatment the vital capacity test is extremely valuable

in that it frequently shows changes in lung function either for better or for worse before physical or *x*-ray findings reveal definite changes.

Preceding the work of Dreyer and Burrell, Garvin, Lundsgaard, and Van Slyke had made a study of the vital capacity in a group of men and a group of women in the New York Sanatorium, and they found that pulmonary tuberculosis very definitely decreased the vital lung capacity even in the incipient stage. Later Wittich, Myers, and Jennings reported a small series of cases in which they confirmed the findings of Dreyer and others. Since that time Myers, Myers and Rice, Cady, Cameron, and a number of other workers have investigated the effects of pulmonary tuberculosis upon the vital capacity of the lungs. In a recent work it was of interest to find in the study of a considerable number of persons suffering from clinical tuberculosis the average vital lung capacity decreased with the increase in the extent of evidence of disease revealed by *x*-ray examination. In a similar series of cases it was shown that the vital lung capacity decreased as physical signs and symptoms increased. In this communication it was pointed out that non-clinical tuberculosis has little or no effect upon the vital capacity of the lungs. Therefore, to be of any diagnostic value, the vital capacity test must be applied to clinical cases.

In view of the fact that numerous investigators have found this test valuable in the diagnosis and guidance of treatment of tuberculosis, as well as in prognosis, and in view of the fact that not one has ever reported any harmful results to patients from the performance of this test and that several have stated in their communications that they have seen no harm result from it, we decided that it would be of interest and practical value to take vital capacity readings on all the patients in one sanatorium for this report. This

*From the Minneapolis General Hospital and the Department of Preventive Medicine and Public Health, University of Minnesota.

was carried out at Parkview Sanatorium at a time when 95 patients were resident. These readings were taken in the usual manner with the Sanborn water spirometer, and the percentages of the theoretical normal here presented are based on the surface area standard.

Of all patients examined 43 were in the far-advanced stage. Their average vital lung capacity was found to be 45 per cent of the theoretical normal. In the moderately advanced stage there were 35 patients with an average vital capacity of 57 per cent of the theoretical normal. There were only 17 patients with minimal disease, and

their average vital capacity was found to be 60 per cent of the theoretical normal.

It is obvious, therefore, that clinical tuberculosis requiring sanatorium treatment very definitely decreases vital lung capacity. In our group with minimal disease there were included a few persons who refused to co-operate, as well as a few well beyond the prime of life. We feel that it is, unquestionably, these cases which reduced the percentage so materially. In other groups of cases with minimal disease we have not found such a marked average reduction.

PROCEEDINGS OF MINNEAPOLIS CLINICAL CLUB

Meetings of December 18 and October 16, 1924

The regular monthly meeting of the Minneapolis Clinical Club was held at the University Club on Thursday evening, December 18, 1924. Dinner at 6:00 P. M. The meeting was called to order by the Vice-President, Dr. Seham. There were 18 members and 1 visitor present.

The minutes of the November meeting were read and approved.

Dr. R. T. LaVake read a paper entitled, "Diathermia, with the Metal Electrode as a Possible Adjuvant in the Treatment of Gonorrhoea in Women."

DISCUSSION

DR. WYNNE: I have had an opportunity to see some of this work Dr. LaVake has been doing and I think it is an excellent piece of work. In a recent number of the *Journal of the A. M. A.*, Dr. Walter, of New Orleans, reported three cases which he had given one treatment with diathermia and reported them free from gonococci. There were no details. Dr. LaVake's careful work shows how difficult it is to know when a patient is cured, even after diathermia, and that with this treatment, as with other methods of treatment, it is only fair to report cures after many negative smears. After reading some of the reports of cures following diathermia, we are led to believe that no physician is doing his duty who does not treat gonorrhoea in women with a diathermia machine. It is quite evident that this technic does not cure gonorrhoea in women.

DR. GRAVE: I have seen it used on prostatic disease in men, but without benefit.

DR. LAVAKE: The interesting feature of that chart is the fact that even after seven negative smears you will find a positive. Examinations have to be many and extended over long periods, and after menstrual periods.

DR. WYNNE: What length of time does Dr. Crobus advise for one treatment?

DR. LAVAKE: Forty minutes to an hour, I believe, but you may use it any length of time. You cannot force the course of the current. It takes the path of least resistance I believe. We had some sloughs, and some of these sloughs took five weeks to heal. The slough occurs at a point on the cervical electrode opposite to the indifferent electrode, namely, posterior to the cervical electrode with the indifferent electrode over the pubes. We thought if we put a band around the body the current could radiate from the electrode in all directions. One man in England puts a pad in front and one on the back, or alternates one pad.

DR. LAJOIE: With the pad all the way around the waist, the current would not necessarily go in all directions. You must have resistance to have heat generated.

DR. LAVAKE: In minor injury, or injuries to the muscle and ligament, the heat given by diathermia is reported to give patients almost immediate relief.

DR. GRAVE: How big are the pads?

DR. LAVAKE: The band is about four inches wide and encircles the waist completely, with a rubber pad over it.

DR. GRAVE: If you had a large pad the heat would concentrate nearer the smaller electrode.

DR. LAVAKE: We started out using a pad as large as my two hands over the pubes or sacrum. On one patient we had to give it up because she had had an abdominal operation and felt tremendous pain in the scar. Finally she could not stand the discomfort and had to give up the treatments.

DR. HAYES: I have had no experience with interuterine diathermy, but I have had charge of the diathermy for the Veterans' Bureau for the past three years. With all due respect to the man who has invented this electrode, it seems to me that he has violated the fundamental principle of diathermy if he obtains a burn at the site of the intrauterine electrode. The object of the high frequency, and

consequently the first principle of diathermy, is that we do not get maximum heat at the site of the electrode but midway between the electrodes if they are of equal size. If they are of unequal size, then the point of maximum heat is half way between the electrodes. This point may be brought closer to one or the other surface by the use of electrodes unequal in size. Burns produced at the point of application of the electrodes are usually due to improper application of the electrodes, causing sparks to jump across.

DR. BARRON: The trouble with diathermy in this location is that you are dealing with several different tissues. In the leg the tissues are all rather uniform in consistency, and the current, therefore, will follow diffusely, producing the desired results. In the cervical canal we have different types of tissues through which the current must pass, such as mucous membrane, connective tissue, muscle tissue, and finally ligaments in different locations and of different densities. In this location the current will therefore travel through perhaps only one fine filament of least resistance and will not spread diffusely so as to generate sufficient heat to bring about the desired results.

DR. LAVAKE: The cervical electrode is small. If you had a large electrode you would have better results.

DR. WYNNE: Your electrode is the regular Corbus electrode?

DR. LAVAKE: Yes. I wrote him about it, but he said it was all in the technic. We do not get the results that were promised for it. In the acute cases (sprains, fractures, etc.) you would no doubt get excellent results with large electrodes.

DR. WEBB: I notice it takes twenty to thirty diathermia treatments, but my patients get well without that.

DR. LAVAKE: It is a big problem from an economic standpoint, time wasted and expense of the machine. One needs special assistants. This means great expense to the patient. Besides that, the patients do not like it.

DR. GRAVE: Do these cases get worse?

DR. LAVAKE: You cannot tell because in most cases variations appear in the local appearance. No two infections have the same degree of virulence, and the resistance of patients differs.

DR. SOUBA: Was there any scarring after this treatment?

DR. LAVAKE: No. You would think that if vaginal douches are helpful, the same heat directly applied to the cervix ought to be of the same value, but the results do not seem to be encouraging. It does not look promising, and yet you can not say it is no good.

Dr. E. D. Anderson reported a case of "Congenital Stenosis of the Esophagus."

DISCUSSION

DR. PHELPS: Congenital strictures of the esophagus are not so very common. I think the most common type is the blind esophagus and an esophago-tracheal fistula above. These children do not live

very long. I had an opportunity of bronchoscopic one such case. Congenital absolute stenosis does occur: I saw one in a negro baby. I got that open and the child lived.

In Dr. Anderson's case, the child does not have a complete occlusion but a narrowing, perhaps two or three inches long, for we could get a thread through from the start. An infant's esophagus at birth should be 7 mm. in diameter at least. I have had dilators in this child up to 7 mm. but no further as yet.

This condition is quite different from the esophageal stenosis following lye burns. There the stricture is annular and eccentric. Dilation takes place only in the normal wall of the esophagus for scar tissue will not stretch. Hence, we must be very slow and careful in our dilating. Here the entire lumen of the esophagus is narrow, the walls probably are as strong at one point as at another. I, therefore, was not afraid to use considerable force in passing dilators.

An interesting feature of Dr. Anderson's case is the prognosis. Will this stay open once it is stretched? I recently saw a child ten years of age, who had been treated as a baby for congenital stenosis of the esophagus. He has had several recurrences of his trouble, but each time a few dilations was enough to cause his symptoms to disappear. Hence, I think this case of Dr. Anderson should be kept under observation for several years.

DR. HAYES: How old was this child when he began vomiting?

DR. ANDERSON: We were called in when the baby was about ten days old, but he might have vomited before that.

DR. LAJOIE: A few years ago I saw a child five or six years old with stricture of the esophagus. The blood Wassermann was positive. Under anti-syphilitic treatment there was prompt relief from symptoms.

DR. BARRON: One thing seems rather unusual in this case and this is that the child can take solid foods without vomiting, but will regurgitate liquids. Ordinarily we find that this condition obtains when there is a functional stenosis and not an organic one. In this case we have a definite organic lesion, and yet the child is unable to retain the liquids, though the solids are fairly well taken care of.

DR. ANDERSON: Before this dilation was done the baby got so it started to keep liquids down but until that time he could not keep any liquids down.

Dr. Max Seham gave the following case report:

A girl ten years old, was brought to the Lymanhurst Heart Clinic for Children about one year ago. One year before she had been to a chiropractor by whom she was treated for a stiff neck. The chiropractor told the mother that the girl had a leakage of the heart. When she came to us at the heart clinic, the heart was well compensated. We were unable to decide definitely what the lesion was. She had a very peculiar series of murmurs. We questioned whether it was congenital heart lesion or an acquired aortic lesion. She went to school every day for about a year. In July of last year she de-

veloped a severe articular rheumatism, with quite a high temperature, and was quite sick with cyanosis and dyspnea. She came back to the clinic in September looking badly, and was twenty-five pounds under weight. She was emaciated and looked very green. We sent her to the hospital on September 15 where she stayed until November 21, when she died. She had three positive cultures of streptococcus viridans; showed petechiæ of the eyelids; the spleen was enlarged all the time; and she ran a septic temperature of from 98 to 102-103 degrees. She was given one blood transfusion with very bad results. Another intravenous injection of mercurochrome resulted in a severe shock.

The interne reported that there was heard a continuous double murmur over both sides of the heart at the base, and it was thought that an aortic regurgitation and stenosis existed.

At autopsy the heart weighed 480 gms., and measured 14 cm. across at the 5th space and 10 cm. at the 3d. The valves were normal excepting the aortic, and there a good many vegetations were seen which involved not the opening alone but the arch, both anterior and posterior, of the ascending aorta. This was diagnosed by pathologists as an aortic aneurysm. There were also present dilated sacs both on the anterior and posterior aspect of the aorta. The streptococcus viridans organism was recovered from the valves and also found in the blood stream post mortem.

This case is reported for three reasons:

1. A mycotic aneurysm is almost unheard of in pediatric literature.
2. The aorta alone seemed to be involved.
3. Because the condition of subacute bacterial endocarditis has just recently been given the importance in pediatric literature it deserves.

Up to 1912-13 there is practically nothing in pediatric literature on the subject. In the last two years, we have had four cases of subacute bacterial endocarditis in children in Lymanhurst Heart Clinic for Children.

DISCUSSION

DR. BARRON: Did she have any infection at all? Did she have blood in the urine?

DR. SEHAM: No.

DR. McCARTNEY: If I had known this case was coming up I might have been able to bring over the specimen. One of the questions in connection with this case is; What is the real difference between acute rheumatic fever and subacute bacterial endocarditis? Dr Clausen has been working on this problem from the standpoint of etiology. Just what conclusions he has reached, I do not know. I know this, however, that from both types of cases he finds organisms which are at least morphologically similar. Many of his cultures do not become positive for a relatively long time, several only after two or three weeks or longer. As the organisms are frequently present only in small numbers, larger quantities of blood and media than are ordinarily used are necessary. He has also demonstrated the organisms repeatedly in the valves from both types of cases. In some parts of a valve the lesion may be that typical of rheumatic fever, a proliferative inflammation, and, in other parts, that of subacute bacterial endocarditis. Petechiæ may be present in both rheumatic fever and subacute bacterial endo-

carditis. The mycotic aneurysm is probably due to an embolic process with destruction of the wall of the aorta.

DR. SEHAM: The only place petechiæ were found was in the eyelids. I might say there was quite a lot of doubt before the final diagnosis was made. There was a question of a congenital heart lesion, which was finally eliminated. Altogether it was three years from the time the chiropractor told the mother until we saw her.

DR. McCARTNEY: Did she have any stenosis?

DR. SEHAM: Yes, she had stenosis.

DR. McCARTNEY: We do not very commonly see pure involvement of the aortic valve, but quite frequently of the mitral.

DR. BARRON: Did this girl have a history of rheumatism before this?

DR. SEHAM: None except the stiff neck, which was probably rheumatic.

DR. HAYS: Did she have tonsils?

DR. SEHAM: No, she had had her tonsils out some months ago. The first x-ray showed something in the left sinus but the second and third disproved that.

DR. HAYES: What do you suppose is the avenue of entrance?

DR. SEHAM: Rheumatism, probably.

DR. BARRON: I think that Dr. Clausen has found that the type of organism in subacute bacterial endocarditis corresponds more to the intestinal group than to the types found in the mouth. This suggests that the infection may often be through the intestines.

These cases are all interesting because so many of them do not give any signs or symptoms for a considerable period of time. Dr. Seham's case represents a very good picture of subacute bacterial endocarditis, much more than of rheumatic fever. In cases of acute rheumatic fever the joint symptoms are much more pronounced, and are generally present before any cardiac symptoms develop. In subacute bacterial endocarditis, joint pains are also not so very uncommon. I am not entirely in accord with Dr. Clausen in that the two diseases are very closely related and that the etiological factor is probably the same. The heart lesions in the two diseases show very different characteristic lesions which in the great majority of cases helps to differentiate the heart of subacute bacterial endocarditis from that of acute rheumatic fever.

This case brings to my mind a case which we just recently studied at the University Hospital, an adult male who had been a prisoner at Stillwater for a period of four years. In March 1924, he started feeling badly, with pains and aches, and became weaker and could not do hard work. The doctor there examined him at that time and found he was running a fever of 101° or so in the afternoon. He remained working in the hospital at Stillwater until September when he was released. He went to see a doctor in Minneapolis, and the doctor found he was running a temperature. He was gradually losing weight (15 to 20 pounds), having some night sweats and some pain in the chest. The doctor thought it was a case of pulmonary tuberculosis and

sent him over to one of the chest men in town. This man examined him and could find no evidence of pulmonary tuberculosis. The man then went to a doctor in the Midway District who examined him and told him he had aortitis. The chest man in town finally advised him to go to the University Hospital. He entered three or four weeks ago complaining of marked weakness, 30 to 35 pounds loss in weight, occasional night sweats, some cough, and pains in the chest.

A very careful physical examination revealed nothing abnormal present. The heart was normal in size, shape, and position. Systolic murmur at apex was only slightly transmitted. Temperature was 99° to 101° and on one or two occasions 102°. An x-ray of the chest and heart was absolutely normal. The blood showed leucocytes 7500, hemoglobin 80-90 per cent, with 4,500,000 to 5,000,000 red blood cells. The urine was absolutely normal, no red blood cells and no casts. Sputum examination was negative for tubercle bacilli.

We were rather hard put for a diagnosis. A blood culture was taken very early. The first condition we thought of was subacute bacterial endocarditis with no physical findings. A report was circulated that the blood culture was negative. Three positive Wassermanns were obtained. The tentative diagnoses resolved themselves to two conditions; subacute bacterial endocarditis and syphilis. We ruled out typhoid and paratyphoid fever.

We had this case for rounds last Tuesday. When we came to the discussion of the two possibilities with the confirmatory Wassermann tests, we had to consider syphilis with gumma of the liver, which gives high temperatures with high pulse rates; indeed, Osler says that this condition is commonly mistaken for tuberculosis or malaria.

Just as we came to discuss the case, we learned that the first blood culture had been lost in transit and another blood culture which had been taken showed streptococcus in large numbers, suggesting a rather malignant type of infection. We now felt strongly that this was a case of subacute bacterial endocarditis without physical manifestations, but with a history only of fever, weakness, loss of weight, increased temperature, and a high pulse rate ranging from 100 to 130.

I stated that the leucocyte count was low. This is a common finding. The average runs between 8,000 and 10,000; some cases run 12,000, and a few run to 15,000. Cases that run over 15,000 are rare. Some cases even run a leucopenia,—4,000 or 5,000. It is surprising that we did not find any pathological evidence of emboli in other structures, such as spleen, kidneys, or other organs. Urine tests were entirely negative.

DR. SEHAM: How often does one find a single valve involved that way?

DR. McCARTNEY: I do not know the percentage frequency. More often we find the mitral, but not so frequently the aortic alone. If multiple, often the mitral and aortic, but only rarely the aortic alone.

DR. SEHAM: That certainly disproves the tradition that in children you never have an aortic lesion without a mitral.

DR. BARRON: In order of frequency they are, first, the mitral; then the double; then the aortic.

DR. SEHAM: I never read of a case in a child where the aortic was involved alone.

DR. McCARTNEY: I do not know about children, but ordinarily in postmortems there are the two lesions.

—J. C. MICHAEL, M.D.
Secretary.

PROCEEDINGS OF THE MEETING OF

OCTOBER 16, 1924*

The regular monthly meeting of the Minneapolis Clinical Club was held at the Y. M. C. A. on Thursday evening, October 16, 1924. Dinner at 6:00 P. M. The meeting was called to order by Dr. Michael, in the absence of the vice-president.

The minutes of the September meeting were read and approved.

The program of the evening consisted of the following reports:

Dr. Paul Giessler gave a report entitled "An Arthrodesing Operation on the Foot," as follows:

These are operations performed on deformed feet due to anterior poliomyelitis in which the lateral deformity causing lack of stability is the chief factor in the poor use of the foot.

The foot is made up of many joints, each capable of motion, and when this motion is imperfectly controlled, it becomes distorted.

The subastragaloid, mediatarsal, and the tarso-metatarsal are the worst offenders.

For many years tendon transplants and tendon fixations have been done in all possible combinations of muscles, but it has been found that deformities recur in so large a percentage of cases that the foot commission appointed by A. O. A. last year urged that tendon transplantation be almost universally supplemented by stabilization of enough of the smaller joints of the foot to prevent or correct all tendency to varus or valgus deformity.

Some one else has said that a great percentage of cases of infantile paralysis would be better off with an artificial leg because an artificial leg has motion only in dorsal and plantar flexion and it is the lateral motion which gives the most instability in cases of poliomyelitis. The dorsal and plantar flexion takes place in the ankle joint between the tibia and the astragalus. Why not fasten the other bones of the tarsus to the astragalus, which is held between the malleoli, and so have equivalent of an artificial leg? This is what has been done in the operation to be described.

After the usual sterilization and application of the tourniquet, horizontal incision is made beginning behind and above the external wall and running forward on the foot to the top of cuboid bone. Peroneals are retracted backwards, interosseus ligaments cut, and cartilage curetted from between os calcis and astragalus and os calcis and cuboid. Similar incision is made on the inner side of the foot and subastragaloid, astragalus-scapoid, and scapho-

*The report of this meeting was delayed in publication, and now appears late and out of order.—The Editor.

cuneiform joints denuded of cartilage. After closure, the foot is immobilized in plaster for two months, followed by a brace for one year, after which time the brace may be discarded.

This procedure sounds like a very radical operation and it is true that the incisions are large and the removal of cartilage extensive. The postoperative pain is comparatively little and the time of disability short, as the patient is allowed up on crutches in a week or ten days and soon back to school.

It should be understood that this operation is not done until at least two years have elapsed from the initial paralysis and only after attempt has been made to strengthen the partially paralyzed muscles.

It should not be done on too young a patient. Before nine or ten years of age, the amount of cartilage in these joints is large and removal of same would not allow the remaining bone surfaces to lie in close enough approximation to insure ankylosis. (Two clinical cases were shown.)

DISCUSSION

DR. TAYLOR: Did you say how long after the paralysis is the best time to do this operation?

DR. GIESSLER: Always wait at least two years.

DR. BULKLEY: Dr. Giessler is to be congratulated on the results in these cases. They are most instructive. The end result of operation and particularly of tendon transplantation in paralytic feet is notoriously disappointing. Theoretically the operation Dr. Giessler has described is sound. I would be interested to know how long any cases operated upon in this manner have been traced. I know we would all appreciate seeing these two instructive cases a year hence. I would like to ask Dr. Giessler if he has seen any cases over a number of years.

DR. GIESSLER: None in my own practice. Dr. Ryerson has reported quite a series of cases extending over five or six years, showing good results.

DR. WEBB: I think Dr. Giessler is to be congratulated on this original piece of work.

DR. GIESSLER: I would not admit that this was an original piece of work. I think Dr. Ryerson has done most of it although it is quite prevalent all over the country just now.

Dr. Rood Taylor gave a talk on "Acrodynia," emphasizing particularly the association of infection of the nasopharynx in practically all cases.

DISCUSSION

DR. MICHAEL: Dr. Taylor's presentation is now open for discussion.

DR. BEARD: Do they have rise of temperature?

DR. TAYLOR: They may have. If so, it probably means some complications. One child in our series had a pyelitis.

DR. BEARD: Do they get any infection around the finger-nails?

DR. TAYLOR: No.

DR. BULKLEY: Do I understand that tonsillectomy cures these children?

DR. TAYLOR: Either tonsillectomy or adenoidectomy, and so far we have not had to remove any other sources of infection.

DR. BEARD: Is there any pathology?

DR. TAYLOR: A case died at the Mayo Clinic. I do not know very much about it but they found evidences of a generalized infection I think.

DR. SOUBA: What is the cause of it?

DR. TAYLOR: It is evidently a toxic neuritis. Often-times there is perverted sensation.

DR. BOREEN: I think the eruption is due to some disturbance of the circulation.

DR. TAYLOR: There is no polycythemia.

DR. MICHAEL: I feel very fortunate to have been able to listen to the comprehensive discussion of this rare and interesting clinical syndrome. Dr. Taylor reports the knee jerks absent. What about the triceps and biceps?

DR. TAYLOR: I do not know.

DR. MICHAEL: The fact that the knee jerks are absent would indicate that the nerve roots or peripheral nerve trunks are involved. The photographs presented in the paper passed around would make one think there was a marked vasomotor or trophic pathology. The other symptoms which the doctor describes suggest that there is quite extensive peripheral nerve involvement.

I recall seeing one case at the General Hospital in consultation which we suspected was a case of acrodynia. However, after more time for observation we were unable to establish that diagnosis because many characteristic features were lacking.

DR. LAJOIE: How could the teeth and hair fall out with nerve involvement?

DR. MICHAEL: Those are trophic disturbances due either to nuclear root or peripheral nerve involvement affecting cranial as well as spinal segments.

Neuropathologic studies, I might affirm, are conspicuously absent in the literature. More recently Paterson and Greenfield review Acrodynia, in the *Quarterly Journal of Medicine*, for October, 1923. They describe five clinical cases and report their conclusions on neuropathological studies. They regard the disease as a clinical entity occurring between the ages of four and one-half months and three years. Characteristic symptoms are given as coldness, swelling, redness and irritation of the hands, feet, cheeks and nose, with desquamation of palms and soles; perspiration, with a mouse-like odor, of the whole body, with falling out of hair; extreme mental misery and irritability, insomnia, obstinate anorexia; muscular hypotonia, loss or diminution of tendon reflexes with relative or absolute anesthesia over the extremities. Etiologically, the disease occurs more frequently during and after influenza epidemics and is usually preceded by an "influenzal cold," but there is no evidence that the influenzal agent causes this disease. Pathologically they find evidence of peripheral neuritis and of chronic inflammatory changes in the spinal cord and nerve roots, in which sensory nerve fibres are affected more than the motor. Neither mental nor physical sequelae follow; the prognosis for life and health is given as being good in nearly all cases, as Dr. Taylor has illustrated by his case references.

Dr. William King gave an outline of "A Few Laboratory Kinks."

J. C. MICHAEL, M.D.

Secretary.

THE JOURNAL-LANCET

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THE MINNESOTA STATE MEDICAL ASSOCIATION

The various committees which have the Minnesota State Medical Association program in the making have nearly all reported, and the program is practically completed or will be by the time the next issue of THE JOURNAL-LANCET comes out, and it can then be given in full.

It is necessary that the men of Minneapolis be ready to offer their services to do everything possible in the way of entertainment and good fellowship toward the visiting men. This meeting must be a very successful one. When we say it must be, we mean exactly that; that every effort should be bent to draw the State Medical Association together in Minneapolis because of its program, and if the local men are not sufficiently interested, the program will suffer or the attendance will suffer.

The Minneapolis Clinic Week Committee have decided to offer one day of intensive clinics, and the Program Committee have already chosen fourteen men to give an intensive program beginning at eight-thirty in the forenoon and ending at five in the afternoon, with a luncheon hour at noon. This will consist entirely of dry clinics, given at the same meeting-place where the State Association holds its meetings—in one of the buildings on the University Campus. Programs

of both the state meeting and the Minneapolis Clinic Week day will be ready for circulation before long. This program is made up of dry-clinic material, and there will be no holding over of patients for operations unless it be done after completion of the Clinic Week day. We expect to circularize a very large number of doctors and we anticipate and expect that the members of the Association, which now number 1900 plus, will send out a larger delegation than it has heretofore. The idea of a registration of 350 at a state meeting is inadequately low. We should have between 500 and 600, and the men of the state should be sufficiently interested to turn out to their state meeting and get the benefit of the clinics and demonstrations and papers and incidentally to meet their fellow-men, for that, when you come down to it, is one of the important benefits of a medical society—to get acquainted with one another, to hear one another in debate or discussion or in a demonstration. The average man from out-of-town, and in town, too, for that matter, can quite adequately size up the man who gives a clinic or paper without getting very far out of line, and so it behooves the men who present the program to do their level best.

The entire program of both the State Medical Association and the Minneapolis Clinic Week day will be presented in the April first issue of both *Minnesota Medicine* and THE JOURNAL-LANCET, so there will be no excuse for the men to avoid or deliberately neglect attending the meeting. The editor is rather convinced at times that a fewer number of medical men look through their medical journals to find out what is going on in the medical profession. No one knows better than the editor of a medical journal how humiliating it is to write an editorial and then find out that a number of his friends have never even read it! The committee who have the whole matter in charge have realized for some time that the medical profession of Minnesota are still asleep and that they need a decided arousing and awakening. It is partly indifference, partly laxness, and partly their own idea of their superiority when they neglect their medical journals and their medical meetings.

DOES OVERWORK KILL?

The question has long been debated as to whether overwork often kills people. Unfortunately there are many sides to the question. But it is supposed by a few individuals, and those few are of the soft grade and spongy type, who

think they are overworking, that hard work shortens life. They probably are overworking, so far as they are concerned and from their point of view, because they, as a matter of fact, have their limitations, and to go beyond this point means destruction. The man who labors, who works hard, and particularly if he is a resident of the Orient or some other distant part of the world, is nothing but a bit of animal that has risen to manlike proportions. He has nothing to distress him mentally, he has few responsibilities, but he is obliged to work under the most trying circumstances and from that angle overwork, accompanied as it usually is by underfeeding, is destructive. But the average Oriental who basks in the sunshine, who lives on simple foods, or who even gorges himself to satiation and is then called upon to do a certain amount of work falls down under the job because he hasn't the foundation underneath. On the other hand, there is the man who suffers from a disordered chemistry of his body. Outwardly he is well; he lives a moderate life of activity and he works moderately, and then suddenly something snaps and he dies. He doesn't die from overwork, necessarily, but he dies from a disturbance of his chemical functions. They become either inactive or badly overcrowded. So very many sudden deaths are of this type, and yet people say that overwork is responsible.

Another question, too, is whether a man can overwork himself mentally and nervously. This is debatable. There are undoubtedly many people who do go to extremes, who are unfitted for the work they are obliged to do, who are neglectful and careless of their physical needs and who become worried and anxious from overcrowding, and thus may suddenly wear down—drop into a period of inactivity and without much provocation die from some indeterminate cause. There is no question, however, but that a man may overdo himself with incessant work which requires tremendous application, continuous effort, but this is only found in the man who either has a conscience or feels that his duty calls him to accomplish very much and he does it at the expense of his nervous system. The result then is acute nervous exhaustion or in some instances acute nervous depression that would account for his condition, perhaps. Under the stress and strain of these circumstances he does something to do away with himself, and his death is looked upon as due to over-worry and overwork, when, as a matter of fact, he may be perfectly sound in every physical organ of his body so far as can

be determined. Mental strains bring about mental stress, and they in turn bring about a queer attitude of mind, an abnormal state of mind which not infrequently leads to self-destruction. That can hardly be classed under the heading of this editorial, that overwork may kill, because the side-line injected here is only a cause rather than an effect.

From another point of view, take the man who has from boyhood been an out-of-door man. He works, probably because he is obliged to, or perhaps because he likes to. There are fewer of the latter class than of the former. At all events, he drifts into a routine of work. He grows and develops, but he continues in one line of occupation. Perhaps he is in the woods, exposed to all kinds of weather, heat and cold particularly, and after a time he shows the result of his continuous and long exposure. The first thing he realizes he has developed a worn-out arterial system, which in turn leads to other changes fundamentally arterial, secondarily to disordered visceral functions, and he dies. But his death is slow because he has always been sturdy, he has always had a good constitution behind him; and yet he doesn't appreciate the necessity of conserving some of his energies. A case in point is recalled of a man who has lived this sort of life, who considered himself very well until the beginning of the winter, when he was called upon and his own volition prompted him to try to rescue two men who were struggling with an overturned boat in a cold lake. He succeeded in reaching them and was in turn overturned himself. He was obliged to swim approximately 200 feet with all of his clothing on. The strain was too much and he suffered a decided breakdown. Yet to look upon him he seems like a well-balanced, well-nourished and sturdy individual. His turn may come at any time. Yet he laid the foundation for it himself in early life by his over strenuous methods. He thought he could do everything, and in doing it he succeeded up to a certain point. Then nature demanded a recourt and insisted upon a recession, and the outcome, when the man dies, is due to his over-taxation, his over-exposure, and the development of his insidious physical disorganization.

However, there is a more pleasant side to the situation because there are comparatively few men of the present day who overdo. And the tendency of the present generation and probably of the coming generation is to underdo, and they think they are going to live longer because they take more time off, they work less hard, most of

them accumulate less in physical comforts, and only time can tell what will happen to them. Our best guess is that they will not endure; that they will not be able to fight the fight that their demands require and they will peter out at a younger time than the generations of two or three decades ago.

A HISTORY OF MEDICINE IN NORTH DAKOTA—A LABOR OF LOVE

For a number of years Dr. James Grassick, of Grand Forks, N. D., has been collecting material for a history of medicine in that state, and at the last annual meeting of the North Dakota State Medical Association he presented his manuscript to the Association, which appointed a committee to supervise its publication in book form. It will make, probably, a volume of more than four hundred pages.

We congratulate the medical profession of North Dakota, and also South Dakota if the work shall include its pioneers in medicine, that such a history has been written at a time when few of the details of the subject will be lost; and we congratulate the profession still more heartily that it has been done by one so thoroughly capable as a historian, as a physician, and as a man of doing the work rightly. Dr. Grassick knows the men of the two states, most of them intimately, and he appreciates the work done by these pioneers on practically the last frontier of the United States in the sixties and seventies under conditions that demanded fortitude, courage, and self-sacrifice.

We venture to predict that this history of medicine of a time covered by the active lives of not a few men still living will be a notable contribution to the history of the Northwest.

Further notice of the details of the publication will be found in a news item on another page of this issue.

"THE RIGHTS OF THE CHILD"

The recent attempt to add a so-called "child amendment" to the constitution of the United States was overwhelmingly defeated in spite of the fact that the reform in child labor law ostensibly sought through the amendment is wanted by practically everybody. The power conveyed upon Congress by the proposed amendment was clearly the cause of its defeat.

The facts recited make opportune the publication of the rights of the child as defined by the Assembly of the League of Nations and published in a report of the Health Committee of the

League, to be filed with the Council of the League.

The definition is to be known as "The Declaration of Geneva." It is as follows:

I. The child must be given the means requisite for its normal development, both materially and spiritually.

II. The child that is hungry must be fed; the child that is sick must be helped; the child that is backward must be helped; the delinquent child must be reclaimed; and the orphan and the waif must be sheltered and succoured.

III. The child must be the first to receive relief in times of distress.

IV. The child must be put in a position to earn a livelihood and must be protected against every form of exploitation.

V. The child must be brought up in the consciousness that its talents must be devoted to the service of its fellow men.

NEWS ITEMS

Dr. Harold D. Nagel, of Waconia, was married last month to Miss Lillian Lawther, of St. Paul.

The Minnesota State Medical Association will hold its annual meeting on April 27, 28, 29 in Minneapolis.

Dr. L. J. Kassa, of Lake Mills, Iowa, has moved to Albert Lea and become associated with Dr. E. O. Vollum of the latter city.

Dr. LeRoy Larson has moved from Coleraine to Bagley. Dr. Larson is a graduate of the Medical School of the University of Minnesota.

Dr. F. A. Bennett, who formerly practiced in Brainerd and was married in that city, died last month in Auburn, N. Y., at the age of 37.

Dr. A. C. Strachauer, of Minneapolis, who has been spending several weeks in Florida, accompanied by his family, is expected home tomorrow.

The General Hospital of Minneapolis admitted approximately 10,000 patients in 1924, of whom 4,000 were received upon request of physicians not employed in the Hospital.

Dr. Martin Norland, of Minneapolis, has gone to Europe to spend five months in the study of thyroid diseases at the Inselspital, Bern, Switzerland, under Dr. F. DeQuervain.

Drs. Louis C. Jenson and John A. Seaberg, physicians in the Veteran's Hospital, Minneapolis, have been commissioned for service in the U. S. Reserve Officers Army.

Dr. J. Martin Sansby, who has been doing research work at the University of Minnesota,

has gone to Washington University, St. Louis, Mo., to do further post-graduate work in pediatrics.

Dr. John Madden, of Mankato, died last month at the age of 62. Dr. Madden was a graduate of the University of Michigan, class of '84, and was once an instructor in the school from which he graduated.

Dr. C. H. McDonell, of Winona, has assumed the duties of county physician of Winona County, to which office he was elected in January. Dr. McDonell moved to Winona from Hankinson, N. D., last September.

Dr. John H. Rishmiller, of Minneapolis, is spending a month at Palm Beach, Florida. Dr. Rishmiller celebrates this month the twentieth anniversary of his connection with the Soo Railway, of which he has long been surgeon-in-chief.

Dr. L. L. Rewald, a pioneer physician of Minnesota, who formerly practiced at Fulda, died last month at the age of 85. He died at Madison, S. D., where he had lived since retiring from practice in 1901. He was a Civil War Veteran.

South Dakota has no medical men in its Legislature and no medical legislation before it, except a bill in the form of an amendment permitting the State to reciprocate in the matter of licenses to practice with the National Examining Board. Happy State!

At the annual meeting of the Richland County (N. D.) Medical Society held last month, the following officers were elected: President, Dr. E. G. Sasse, Lidgerwood; vice-president, Dr. J. C. J. Wiig, Wahpeton; secretary-treasurer, Dr. C. A. Durkee, Lidgerwood.

Donald Campbell, of Butte, Mont., died last month at the age of 63. Dr. Campbell graduated from the Medical School of the University of Vermont, class of '91, and began practice in Montana in 1892. He had been president of the Montana State Medical Association.

The date of the annual meeting of the North Dakota State Medical Association has been changed from May 25 and 26 to May 18 and 19, a week earlier. This change was made because of the conflict of the former date with that of the meeting of the American Medical Association.

Practically all of the children in the public schools of Fairmont have been vaccinated against smallpox and a very large percentage of them

against diphtheria. The pupils in these schools are free from these two diseases. The cost of vaccination was paid for by the Board of Education of the city.

The Interstate Postgraduate Clinic Tour of American Physicians to Canada, England and France in May is now an assured success as to numbers, and it may be difficult to obtain accommodations on the White Star Line S. S. "Doric" much later than April 1. The boat has 602 berths, and over 500 of them have been engaged.

Dr. Richard Olding Beard, Associate Professor of Physiology in the University of Minnesota, will reach the age of retirement next summer. In view of this fact the Regents, at their last meeting, desirous of recognizing Dr. Beard's many years of efficient service, made him emeritus professor. Dr. Beard is the only remaining member of the first faculty of the Medical School of the University.

The Starck County (N. D.) Medical Society held its annual meeting last month when the following officers were elected: President, Dr. A. P. Nachtwey, Dickinson; vice-president, Dr. A. E. Spear, Belfield; secretary-treasurer, Dr. S. Char-nusek, Dickinson; delegate, Dr. J. W. Bowen, Dickinson; alternate delegate, Dr. A. F. E. Schierbaum, Beach; censors, Dr. G. A. Perkins, Dickinson, Dr. O. Smith, Kildeer, Dr. R. E. Werlich, Hebron.

At the regular Annual Meeting of the Sheyenne Valley (N. D.) Medical Society, held on January 29, the following officers were elected for the ensuing year: President, Dr. E. P. Kellogg, Rogers; vice-president, Dr. E. B. Crosby, Valley City; secretary-treasurer, Dr. Will H. Moore, Valley City; delegate, Dr. E. A. Pray, Valley City; alternate delegate, Dr. S. A. Zimmerman, Valley City; censors, Dr. A. C. McDonald, Valley City, Dr. C. E. Spicer, Valley City, and Dr. M. D. Westley, Cooperstown.

Dr. David L. Rundlett, of Sioux Falls, S. D., died last month at the age of 53. Dr. Rundlett was a graduate of Tuft's College Medical School, of Boston, class of '01. He was also a graduate of the Massachusetts College of Pharmacy. He was Superintendent of the New Haven Emergency Hospital for three years and practiced medicine in Connecticut for six years. He was a very active man, holding membership in many societies, professional and otherwise. He was in the Medical Corps during the World War.

The manuscript of Dr. James Grassick's "History of Medicine in North Dakota," is now in the hands of a committee on publication, of which Dr. G. M. Williamson and Dr. H. G. Woutat, of Grand Forks, N. D., are, respectively, chairman and secretary. It will make a volume of more than 400 pages, and the price per copy will be \$3.50. The Committee desire orders in advance, in order that they may decide how many copies to issue. Orders should be sent to the Committee at once. An editorial note of appreciation of Dr. Grassick's work and gift appears on another page.

At the March meeting of the medical staff of the Lymanhurst Hospital on Wednesday (March 18) Dr. Carl A. Hedblom, Chief of the Department of Surgery, University of Wisconsin Medical School, will speak on "Chest Surgery;" Dr. Ruth Boyton, of the Minnesota State Board of Health, will speak on "Types of Tuberculosis Causing Death in Minnesota Children;" and Dr. E. S. Platou, of the University, Department of Pediatrics, will speak on "Scarlet Fever Immunity: Results with the Use of Toxin and Status of This Question." All persons interested in these subjects are invited to attend. The meeting is at 7:00 P. M.

Technician Wanted

A hospital in small city in Minnesota wants a Laboratory Technician who can do both general laboratory and x-ray work. Address 188, care of this office.

Position Wanted

An office position wanted by a competent stenographer who is familiar with medical work. Best of references. Address 187, care of this office.

For Sale—A Burdick Lamp

At big reduction; ultra violet, water-cooled lamp with transformer, in perfect condition and very little used. Address 177, care of this office.

For Rent

The Rest Hospital located at 2527 2nd Ave. So., Minneapolis. Operated 20 years by present owner. Twenty-five rooms; 6 bath-rooms; beautiful grounds. Address 186, care of this office.

Physician Wanted

Excellent opening for physician. Fully equipped two-story hospital available. Hospital operated at present by registered nurse. Unlimited field. No doctor in county. Can get all Board of Health work. Write or wire A. C. Frohlich, Camp Crook, South Dakota.

Location Wanted

In a city of 5,000 to 10,000 population or association with a doctor intending to retire soon. Protestant, married, age 37, and has done special work in surgery and radiography. Address 176, care of this office.

Practice for Sale

In a modern progressive town in Southeastern South Dakota, graveled roads; office building of six rooms, at reasonable price. This practice is in the garden spot of South Dakota and Iowa. Address 178, care of this office.

Office in Good Location in Minneapolis Offered

For physician and surgeon in a modern new building at 3805 Nicollet Ave. Waiting-room in conjunction with dentist who is already located. No doctor on this corner. Special concession made to right man. If interested, call Colfax 2754.

Office Position Wanted

With physician or dentist by a young woman with some office experience. Can do typing and take care of books. Will work for moderate salary and give the best service possible. Age 26; best of references. Address 179, care of this office.

Practice and Small Hospital for Sale at a Bargain

Being obliged to retire from practice soon, I will sell at a bargain my practice and small hospital in a splendid Wisconsin town near the Minnesota line. Rich territory, large dairying interests, good schools. Address 181, care of this office.

Assistantship Wanted

To a general practitioner or a surgeon, preferably in a Montana city, by a graduate of a Class A medical school, aged 31, protestant, married, hospital experience, six months in general practice, capable, and ethical. Address Box 93, Bismarck, N. D.

Physician Wanted

For a lumber town in the Black Hills, South Dakota. Permanent position; good salary; six room modern house; good schools; and a church. Additional opportunity for private work. Give full qualifications in first letter. Address Dr. F. E. Clough, Lead, South Dakota.

A Practical Course in Standardized Physiotherapy

Under auspices of Biophysical Research Dept. of the Victor X-Ray Corporation, is now available to physicians. The course offers a highly practical knowledge of all the fundamental principles that go to make up the standards of modern scientific physiotherapeutic work. It requires one week's time. For further information apply to J. F. Wainwright, Registrar, 236 South Robey St., Chicago, Ill.

Minneapolis Office for Rent

Office space for rent together with a group of physicians with common waiting room and x-ray and clinical laboratories. New building constructed for physicians' offices. Located in the hospital center. Six minutes walk from the center of town. Two rooms with waiting room, \$50.00 to \$65.00. Free auto parking for physician and his patients. If specializing, state in what line. Address 183, care of this office.

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THE DIAGNOSIS OF ABSCESS OF THE LUNG*

By GEORGE DOUGLAS HEAD, B.S., M.D.

MINNEAPOLIS, MINNESOTA

The recognition of collections of pus within the lung rests primarily upon the skill and painstaking care with which the clinician approaches his diagnostic problem. The discovery of evidence of localized disease within the lung, the symptoms and physical signs of which are out of harmony with a diagnosis of lobar pneumonia, pulmonary tuberculosis, localized empyema, bronchiectasis, pulmonary embolism, or malignant disease, arouses his suspicion. A high leucocytosis and the presence in the sputum of large numbers of pus cells without tubercle bacilli, strengthen this suspicion and lead to an exploratory chest puncture. The needle plunged into the involved area at as many different points as are necessary to locate the focus establishes the presence of the abscess.

Acute abscesses, oftentimes multiple, which are pyemic in origin and are due to the softening of infarctions or to septic bronchopneumonia, are of small size and difficult to diagnose. A limited patch of pleural friction, increased fever, and cough, and a small amount of fetid expectoration are the only symptoms suggestive of their existence, and the physical signs are rarely sufficiently pronounced to differentiate the lung condition from the general infection with which the patient is suffering. I have not been able to recognize any of these cases prior to the post-mortem.

In a limited experience with malignant growths of the lung, both primary and metastatic, I have not seen this condition mistaken for abscess. As to lung infarct, I cannot remember of a single instance where it was mistaken for abscess, although I can readily see how such an error could be made, provided one were dealing with a pyemic infarct which later broke down and formed an abscess. One would be much more likely to make this error provided he had not been able to watch the disease process from the beginning and to study the physical signs at the time the embolus had formed and follow the gradations produced during the breaking down process.

Most of the cases of abscess which I have seen have been diagnosed either pulmonary tuberculosis, localized empyema, purulent bronchitis, or lobar pneumonia with delayed resolution. The fact that many patients with abscess of the lung are up and about, that they run a continuous temperature, and have a persistent, harassing, paroxysmal cough over long periods of time, naturally leads one to suspect a disease which is common, namely, pulmonary tuberculosis, rather than one which is rare, namely, abscess.

The two conditions are often confused if the chest examination is superficially made and little attention paid to a painstaking physical examination and to the working out of the leucocyte and differential counts, sputum findings, and x-ray studies, which should always be done in any case of obscure pulmonary disease. Some difficulty

*Read by invitation before the Minneapolis Clinical Club, November 20, 1924.

will be experienced, however, by most clinicians, even though care is taken in securing a proper history, and patience and diligence are exercised in working out carefully all of the findings in connection with the case, including exploratory puncture. I particularly urge the free use of the exploratory needle when abscess is suspected.

A history of exposure to tuberculosis is important and is usually given by tuberculous patients, while the preceding history of most cases of abscess points to a lobar or lobular pneumonia, influenza, or some preceding suppurative process in the tonsils, appendix, gall-bladder, prostate gland, or elsewhere. It must not be forgotten that abscess may follow tonsillectomy, or extraction of abscessed teeth, or the aspiration of foreign bodies. While pulmonary tuberculosis at its onset, especially if a lobe is involved, may simulate very closely lobar pneumonia, it is rare for a frank lobar pneumonia to be complicated by an infection of the lung with the tubercle bacillus, and a history of preceding pneumonia speaks for either empyema or abscess. A history of apical pneumonia in a child should be looked upon with suspicion. Many of these are tuberculous.

In abscess the lung area affected is usually in one base or the other, although the upper lobes may be involved. In tuberculosis the apices and mid portions are more often affected. The physical signs of abscess are those of a central, rather sharply circumscribed area of lung involvement, flat on percussion, in which distant tubular or distant amphoric breathing is heard. The tactile fremitus is diminished or lost over the area of absolute dullness. Coarse, crepitant râles will often be heard in the midst of the dull area. Surrounding this area of absolute dullness often will be found a wider area of less density involving a portion of the lobe, with impaired percussion note, many fine crackling râles, and atypical breath sounds. The signs of a diffuse infiltrating process, such as one usually encounters in pulmonary tuberculosis, with impaired percussion note, and fine râles with an occasional sibilant râle intermingled are wanting.

Furthermore, the sputum of abscess of the lung—and one must remember that sputum is not always present—is usually of the pure, purulent type, containing almost nothing but pus cells in large quantities, with no tubercle bacilli. The presence of elastic fibers is of little assistance in the differentiation. The absence of tubercle bacilli on repeated examination, in a highly purulent sputum, should always arouse one's suspicion

and speaks against pulmonary tuberculosis. Purulent bronchitis is the one other condition which gives a sputum of like character. The leucocyte count is also of assistance in that the vast majority of cases of abscess of the lung show a leucocytosis ranging between 15,000 and 25,000, even in the later course of the disease. Such a high leucocyte count in the uncomplicated case of pulmonary tuberculosis is rare. Negative tuberculin tests are also of value in ruling out tuberculosis. A case of persistent, harassing cough, with fever, reacting negative to tuberculin, calls for the serious consideration of abscess of the lung. X-ray studies of the chest are helpful when the abscess is sharply localized and the overlying pleura is not extensively involved. An associated pleuritis with a thick pleura so often overlies both tuberculous and septic processes in the lung that a clear picture of the intrapulmonary lesion is rarely secured. Stereoscopic plates of the chest should, however, be made in every case where the diagnosis between abscess and pulmonary tuberculosis comes into question.

The following case illustrates the diagnostic error frequently made in confusing these two conditions:

CASE 1.—In February, 1915, I saw a child, L. K., three years of age, female; family history, negative. She had had bronchitis for the last two winters, but otherwise well. One year before, in January, the child took a severe cold, which hung on all winter. A diagnosis of bronchitis was made. She was better during the early part of the following summer, but in June developed whooping cough(?). This cough never quite left her, and in the winter of 1914 she became ill, with high temperature (103°), prostration, and severe cough. She lost some in weight, but did not seem very sick. A diagnosis of bronchopneumonia was at first made. After some weeks in bed she improved, but continued to cough, lost weight, had fever, and developed signs in the base of the left lung.

Although no tubercle bacilli could be found in the sputum, a diagnosis of pulmonary tuberculosis was finally settled upon and a bad prognosis given. She was examined one month later. The child looked pale and decidedly sick. She was so weak that she could not stand and had to be carried. Her cheeks were flushed. She showed much emaciation. Her cough was loose but coming in paroxysms. Her temperature was 100.5°, and pulse 145. She coughed up a purulent, greenish-yellow sputum without odor.

A painstaking physical examination revealed no evidence of organic disease other than the trouble in the base of the left lung. Here, from about the angle of the scapula downward, the percussion note was decidedly dull. The upper border of this dullness extended around, forward and downward, meeting the diaphragm in the mid-axillary line. (See Chart Case 1.) On auscultation in the post-axillary line, at about the eighth interspace, there was tubu-

lar breathing over an area the size of a lemon. Fine crackling râles could be heard over the area of dullness and about it. Fluoroscopic examination showed a very marked shadow in the lower left lung over the area previously described. The leucocyte count was 10,500. The sputum was thick and green, without tubercle bacilli or elastic fibers, but large numbers of pus cells.

On February 17 the child was again examined. The physical findings in the left chest were much as before. Over the area of dullness the tactile fremitus was diminished and almost lost. Bronchophony was increased, as was also the pectoriloquy. Coarse crackling râles could be heard over the area of tubular breathing. The area of dullness did not change with the position of the child. The von Pirquet test was negative. A second sputum examination was negative for tubercle bacilli. The leucocyte count was 12,200. It did not seem probable that the child was suffering from a tuberculous lesion. A circumscribed collection of pus, either in the pleural cavity or in the lung itself was diagnosed. A large exploring needle was inserted in the eighth interspace posteriorly, over the area of most pronounced dullness, and a small amount of pus, so thick that it would not run through the needle, was secured. Examination of this pus showed a coccus growing in chains and groups. No cultures were made.

The following day the chest was opened by Dr. Archæ Wileox, directly over the point of puncture. The pleural cavity was free. The pleural surfaces were not adherent. The two pleural surfaces were then stitched together and the lung explored. An abscess was located in the lower posterior portion of the lung, fully 7 cm. into the lung structure, as measured from the surface of the visceral pleura. About 3 c.c. of thick, foul-smelling pus was evacuated. The patient's temperature dropped decidedly for a few days following the operation, but continued between 98° and 101° most of the time until the end of the fourth week. Then it began to rise again, reaching 103°. At this time the wound was discovered to have granulated over, and, upon reopening and establishing more free drainage, the temperature rapidly dropped and remained below 99° during the remainder of her stay in the hospital.

Three months after the operation the child was again examined. She looked wonderfully well and had gained five pounds in weight. A few fine râles could still be heard in the left base over the area of the operative scar. The breath sounds were still suppressed in this area. A small discharging sinus

was present. Six months after operation the parents wrote that the child had regained her lost weight and strength and was well with the exception of a slight cough.

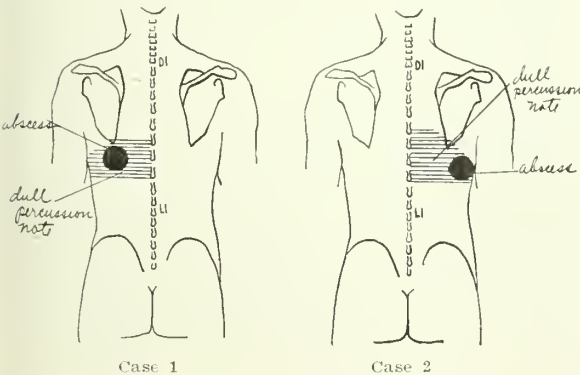
A second case in which abscess of the lung was mistaken for pulmonary tuberculosis I saw in April, 1915. In this case the coughing up of blood for two months prior to the physical examination further confused the clinical picture.

CASE 2.—Mrs. E., a married woman, 44 years of age, Jewish, housewife. Family and personal history, negative. No history of exposure to tuberculosis. Had always been well up to the onset of her present illness, which she dated from an anesthetic taken six or seven months previously, for the extraction of teeth. Since that time she had coughed, spat blood, lost weight, and had night sweats. Of late her voice had become hoarse. She had some pain in lower right chest on coughing. The cough was of a severe paroxysmal type and exhausted her. She coughed night and day. The patient was a stockily built woman, dark hair and eyes, very nervous and excitable. The knee-jerks were active and pupils reacted very slowly to light and accommodation. Her voice was husky. The pulse was 120, small and weak. The temperature was 101.3°. The tongue was thickly coated.

The examination of the chest revealed increasing dullness from the right mid-seapular region down to the base. (See Chart, Case 2.) The tactile fremitus was diminished over the dullness. Many coarse crackling râles were heard over the dull area. The fluoroscopic examination of the chest showed a diffuse shadow in practically the whole of the right lower lobe, with more density in the lower portion and a very limited excursion of the diaphragm on that side. The leucocyte count was 22,000. Exploratory puncture of the lower right chest over the area of dullness gave some thick pus which plugged the needle. Examination of the pus showed large numbers of polymorphonuclear leucocytes and a small diplococcus occurring in groups and small chains. A diagnosis of probable abscess of the lung was made.

The patient was operated on by Drs. Byrnes and Gordon, and a portion of the eighth rib in the post-axillary line was resected. No suppurative process was found in the pleura. The visceral and parietal layers were adherent. Following the course of the exploring needle into the lung a small circumscribed abscess in the upper part of the right lower lobe was found and drained. The lung tissue around the abscess was very friable. Two days later the patient developed a general subcutaneous emphysema over trunk and arms. This slowly cleared up. The temperature remained high, however, for thirty-one days following the operation, and on the thirty-first day the woman had a convulsion. Other convulsions followed. She then developed a left-sided hemiplegia and became semicomatose. She died two days later of probable abscess of the brain. There was no autopsy.

The third case was of unusual interest. It was diagnosed as advanced tuberculosis and referred into Thomas Hospital. An abscess was located



in the upper right lobe anteriorly, close to the mediastinum.

CASE 3.—Mrs. L., twenty-four years of age, married, housewife. Her family history was excellent. She had always been well. She was married at seventeen years of age and had one child. For about a year previous to the time I examined her, the patient had been troubled with a cough. To this she paid but little attention and continued at her work. The following fall the cough became worse; she had some fever, and was in bed a week, raising considerable sputum. Three weeks before I saw her she had had an attack of measles and had been in bed with marked weakness, high fever, and cough. She had been coughing up a foul-smelling sputum, which she said looked like pus.

She was a tall, thin woman, with high cheek bones, long chest and abdomen, slender limbs. Her cheeks were flushed. Her temperature was 104°. She had a sharp paroxysmal cough and coughed up exceedingly foul-smelling, thick, yellowish sputum which came up with considerable difficulty.

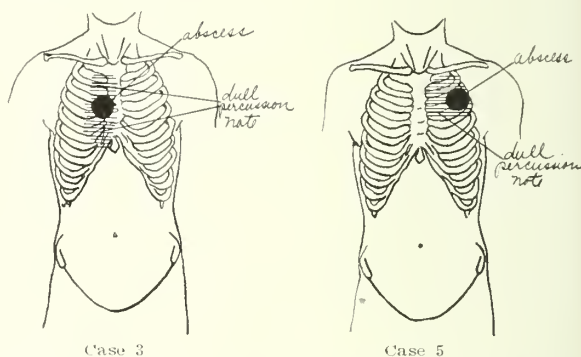
A careful physical examination was negative for organic disease outside of the lungs. Percussion of the anterior chest revealed an area of dullness about the size of an orange (See Chart Case 3), just to the right of the sternum, extending from the second interspace to the sixth rib and to the right about 6 cm. beyond the midsternal line. Over this area to the right of the sternum the breath sounds were suppressed and fremitus diminished. The fine crackling râles could be heard over the whole upper right chest, and at the level of the fourth interspace in the nipple line the breath sounds were amphoric in character in an area the size of an orange. Moist râles were present over the base of the left lung as high as the midscapular region. The breath sounds were suppressed, and the percussion note in this region was also somewhat impaired. The area of cardiac dullness was pushed to the left. Examination of the sputum showed a large number of pus cells but no tubercle bacilli. The leucocyte count was 16,000.

The patient was seen and examined daily from July 9 to July 14. The note of July 14 read as follows: "On examination to-day the region of dullness in the right anterior chest, previously described, remains much as before. Over this area, which is about as large as a good-sized orange, the breath sounds are suppressed, vocal fremitus is diminished, and no râles can be heard. This dullness and the fact that the heart seems to be pushed to the left, the foul odor of the sputum, and the absence of tubercle bacilli in it, suggest the possibility of an abscess, sharply circumscribed, either in the right lung or in the right pleura or in the anterior mediastinum close to the sternum, pushing the heart over to the left."

A needle was inserted into the dull area to the right of the sternum, and a small amount of thick, purulent fluid, containing some blood, was removed. This contained no tubercle bacilli. The following day Dr. Archa Wilcox removed a portion of the third and fourth ribs, close to the sternum, and opened up a foul-smelling abscess with necrotic walls, involving the right lung on one side and extending over to the pericardium. Some thick ex-

udate containing either fibrin or lung tissue, but very little pus, was removed. A drainage tube was inserted, but the drainage was very slight. It was very difficult for the surgeon to determine the exact location of the abscess. It extended into the anterior mediastinum up to the pericardium on the left, and to the right a necrotic, foul-smelling abscess occupied a small portion of the pleura and lung in the area previously described. In a few days the patient's cough lessened, and by the end of three weeks her temperature was normal, and she was feeling good. This patient was seen nearly three months later. She had gained ten pounds and was doing splendidly. The wound had completely healed. She had no cough.

A very interesting case in a baby, which I saw with Dr. Earnest L. Baker, and to whom I am indebted for the notes, illustrates further the difficulties of diagnosis between abscess and tuberculosis. In this case the exploring needle revealed pus, and the diagnosis of circumscribed empyema or abscess of the lung was made. Tuberculosis, which had been previously considered, was excluded. At autopsy, however, a tuberculous cavity in the left upper lobe, full of pus, was present.



CASE 4.—Baby S., three months of age. Mother living and well. Father living, a slender, sickly-looking, anemic man, had been examined several times for tuberculosis of the lungs, but no active lung trouble made out. He gave a negative Pirquet test. The patient has one brother, three and one-half years old, always well, strong, and robust. No history of tuberculosis on either side of the family. No history of exposure, other than that a tuberculous patient was living on the first floor of the duplex in which this child lived, and at the time the child had the measles and the cough, it was cared for a few times downstairs in the apartment occupied by the tuberculous patient, but not by the patient herself.

The baby was first seen in January, 1914. The mother had nursed it for six weeks. It did not seem to do well so the mother put it on artificial feeding. Upon this the baby did not thrive and about three months later was first examined. The child had a waxen appearance in the face and looked profoundly anemic. There was a peculiar, restless, whining cry. No cough. The physical examination was neg-

ative with the exception of ill-defined chest signs. The child was under observation and treatment for two months without any marked improvement. The latter part of March an *x*-ray of the chest showed the heart pushed over to the right of the sternum about three inches. From the fifth interspace to the apex, in the left chest, there was a dark shadow, the lower border of which was well defined. It seemed to coalesce with the shadow of the heart. Over the base of this area the percussion note was flat, over the apex anteriorly slightly resonant, and over the apex posteriorly dull. Dr. Baker was at a loss to explain this shadow shown by the *x*-ray, as was also Dr. Harrington. About this time a second von Pirquet test was given which showed a positive reaction.

About two weeks following the *x*-ray examination the child was seen with Dr. Baker, and because of the signs in the left chest an exploratory puncture for pus was suggested. A needle was inserted into the left chest in the pre-axillary line in the fifth interspace and pus was drawn out. A diagnosis of lung abscess was made. The child was taken to the hospital, and a rib was resected and drainage established. The drainage from the abscess during the next four weeks was not satisfactory. A small amount of pus would discharge some days, other days none. The pus examined at the operation showed no organisms present. The child gradually failed, in spite of forced feeding and an attempt to establish free drainage from the chest, and died about five weeks after the operation.

The autopsy showed a well walled-off empyema in the region of the interlobar fissure (left). It also showed an unmistakable pulmonary abscess in the apex of the left lung, which was as large as a small navel orange. This was walled off and separate from the empyema pocket. It had a thick wall studded with nodules. The center of this cavity was full of pus and caseous material. Examination of this discharge and caseous abscess material showed tubercle bacilli present. There were also tubercle bacilli present in the nodules lining the walls of the cavity. There were also small nodules around the opening in the chest wall made for drainage of the empyema pocket. These nodules also showed tubercle bacilli.

The diagnosis made by autopsy was, therefore, a localized, well-defined, walled-off, pulmonary abscess, in the apex of the left lung, tuberculous in nature. Also a well walled-off empyema pocket in the interlobar fissure, separated from the abscess by a thick wall of caseous and fibrinous deposit. This empyema was apparently tuberculous and, judging from the gross pathology, must have been secondary to the pulmonary abscess.

The differential diagnosis between lobar pneumonia with delayed resolution and abscess of the lung presents more difficulties, because one is here dealing primarily with a consolidated area in the interior of which an abscess is developing, and, furthermore, because a common complication of lobar pneumonia is empyema, which is often circumscribed in type and offers the most serious difficulties in the interpretation of the lung findings.

One's suspicion is first aroused when from day to day the expected resolution in the pneumonic lung does not take place, cough and fever continue, and in some part of the consolidated area a deep-seated, amphoric quality in the breath sounds, with coarse râles is heard. With the formation of the abscess, the tactile fremitus gradually diminishes, as does also the bronchophony, the involved area loses its high pitched, tubular breathing, and the bronchial breathing, if preserved at all, seems distant and far away. The difficulty in the correct interpretation of these cases is most often encountered in children, for in these patients all the rules and laws of physical signs in the chest may be violated. It is only after the diseased process has run on for a period of a month or six weeks, with continued cough, fever, prostration, and delayed clearing in the affected lung, that the clinician usually arrives at the conclusion that he is dealing with either a complicating, circumscribed empyema, or a lung abscess. An exploring needle is then put into the lung, over the area of deep-seated amphoric breathing, and pus found.

In most of the cases of this type which I have seen, the lobar pneumonia has occurred a number of months prior to the time when the patient was first observed and the cases have dragged on, with fever, marked paroxysmal cough, sometimes with and sometimes without purulent sputum, containing no tubercle bacilli. The leucocytosis was usually high and the signs present were interpreted as delayed resolution.

It is especially in this class of cases that the clinician should be particularly alert and on his guard, otherwise the life of the patient may be sacrificed. No stone should be left unturned to establish the exact pathological condition in every case of lobar pneumonia which continues longer than the twentieth day, including repeated sputum examinations, leucocyte counts, radioscopic studies of the chest, and, above all, the free use of the exploring needle in those areas where the physical examination shows dullness and abnormal physical signs. The sign of the most importance in differentiating abscess of the lung from circumscribed empyema is the sharply outlined focus, usually the size of a lemon or a small orange, in which distant amphoric breathing, with coarse crackling râles, can be heard. This sign should arouse one's suspicion that he is not dealing with a plain collection of pus circumscribed in the pleura itself.

In the following case, the diagnosis of delayed resolution was made, and the case allowed to

drag on for six weeks before serious attempts were made to determine whether or not an unresolved pneumonia really existed or a complicating condition had appeared:

CASE 5.—Chas. H., a boy aged six years, living with parents, both of whom were well. Six other children in the family and all well. About six months before examination this boy had had measles and since that time had not been as strong as before. Six weeks before examination he had pneumonia on the left side and was in bed for two weeks. A rash appeared over his entire body at that time, lasting a week or so. He did not regain his strength following the pneumonia. He got out of breath easily, had no appetite, and had some fever and sweats at night. He had a cough, but coughed up no sputum.

On September 6, 1915, I first examined him. He was a pale, rather poorly nourished boy, showing marked loss in weight. He was very weak and prostrated, but had almost no cough. His temperature was 101.2°, pulse 100. A searching physical examination was negative for organic disease outside of the condition in the chest. In the upper part of the left lung anteriorly, just below the clavicle and reaching down to the third interspace, was an area of dullness approaching flatness, which extended from the left margin of the sternum around to the anterior axillary line. (See Chart Case 5.) Over this area tactile fremitus was diminished but not lost, bronchophony diminished, breath sounds absent, whispered-voice sounds well transmitted. There were no râles heard. Behind, on the left, an area of dullness, reaching from the apex to a point about 3 cm. below the spine of the scapula, was made out. Over this area the tactile fremitus and bronchophony were diminished, breath sounds were lost, and there were no râles heard. On the right anteriorly, a rounded area of dullness occupying a space from the third to the sixth ribs and reaching out about 4 cm. from the right sternal margin was present. This dullness was considered to be caused by the displaced heart. The liver was also displaced downward and, on percussion, reached two finger-breadths below the costal margin. The right lung and the remainder of the left lung were free of abnormal physical signs. The von Firket test was negative. Leucocyte count, 17,000.

A diagnosis of either circumscribed empyema or abscess in the upper part of the left lung was made. A long exploring needle of good size was passed into the upper chest in the second interspace and over the area of most pronounced dullness. About 5 c.c. of thick, foul-smelling pus was obtained. The patient was referred into Asbury Hospital and on the day following a portion of the third rib anteriorly was removed and the chest opened close to the anterior axillary line. No pus was found in the pleural cavity. The two pleural layers were adherent. The lung was entered and no abscess found but, on again introducing an exploring needle along the course of the previous puncture, an abscess was located in the upper lobe of the left lung, corresponding to the area of marked dullness. About two ounces of creamy pus were evacuated, the odor of which was not particularly foul. A long drainage tube was inserted and kept in place about one week.

The discharge gradually lessened in amount and ceased in about two and one-half weeks. The boy's condition steadily improved, although his temperature continued up to 100° in the afternoon as long as he was under observation.

A note from his attending physician on October 29, 1915, states that about one month after his return home, the boy began running a fever and lost in weight and strength. A bulging occurred in the chest, where the previous resection had been made, which, on opening, discharged a considerable amount of pus. Since that time the patient had steadily improved.

CASE 6.—A second case, illustrating the difficulties encountered in differentiating between delayed resolution following lobar pneumonia and abscess of the lung, was a patient, Mr. S., who was admitted to my service at the University Hospital in September, 1913. He was a large-framed man, fifty-four years of age, and married; a stationary engineer. His family and personal history was excellent. In the spring of 1913 he had a severe illness, with cough, fever, but no chills, which was diagnosed as lobar pneumonia and which laid him up in bed four weeks. He then got up and about, but his cough persisted. He began to lose weight, became prostrated and weak. He was re-examined at various times and the diagnosis of delayed resolution of a previous lobar pneumonia was made.

On admission to the hospital, the patient had a fever of 101°, persistent, severe cough, and marked weakness and prostration. The physical examination showed a man past middle age, moderately anemic, and much undernourished. He was lying in bed in apparent comfort, except for his severe attacks of paroxysmal cough. The cervical, left axillary, and inguinal glands were palpable. There was a right-sided inguinal hernia. A careful physical examination was negative for organic disease outside of the chest. Here, in the right base, below the level of the eighth dorsal vertebra, was found an area of dullness extending around and downward through the axilla to the mid-clavicular region in front. (See Chart Case 6.) Over this area the breath sounds and whispered and spoken voice sounds were greatly diminished. Tactile fremitus was also diminished but not lost. Just above the level of the area of dullness in front was a wide area of hyperresonance with bronchophony and many moist râles. The tactile fremitus was increased over the entire upper right lung. There was a soft systolic bruit heard at the apex of the heart. The area of cardiac dullness was not enlarged and the cardiac area was in normal position. The urine contained a trace of albumin. The leucocyte count was 16,350, with 87.5 per cent polymorphonuclear neutrophils. The x-ray examination of the chest showed an area of increased density on the right with its borders at the level of the fifth or sixth rib and another area of the same appearance at the level of the eighth and ninth ribs. This latter was less distinct. The lower portion of the right lung showed variable degrees of density. (Bissell.)

The history of pneumonia, the continued paroxysmal cough, the presence of fever, the high leucocytosis and the physical signs in the chest, out of harmony with the physical findings of consolidated lung, justified the diagnosis of abscess of the lung.

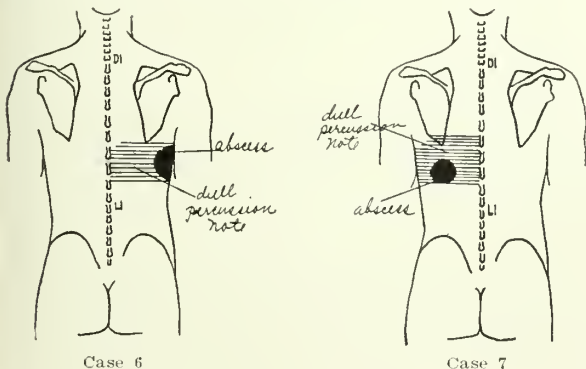
An exploring needle was inserted into the right axilla over the area of dullness, and about 500 c.c. of greenish, milky, foul-smelling pus was obtained. Cultures and smears showed no tubercle bacilli but many cocci and bacilli of various types.

The patient was referred to the surgical side of the service with the recommendation that the abscess be located and drained. Portions of the seventh and eighth ribs in the axillary line were resected under general anesthesia by Dr. Warren Dennis. The pleural cavity was free. A moderate amount of pus was evacuated from an abscess in the lung. The abscess cavity communicated with a bronchus. The patient lived for ten days following the operation, during which time he was very toxic and ran a high fever.

Those cases of lobar pneumonia complicated by the presence of pus as a circumscribed exudate in the pleura with a break in the visceral pleura and a discharge of pus through the lung into a bronchus, are oftentimes difficult of interpretation. Whether the abscess is primarily located in the lung under the visceral pleura or between the lobes, and the suppurative localized pleuritis is a secondary process, or whether the septic infection in the pleura is primary and the pus breaks through the visceral pleura establishing a secondary abscess in the lung which finally discharges into a bronchus is difficult in many cases to determine.

In most cases of primary suppurative pleuritis of any duration, both the visceral and the parietal pleurae become so thick and leather-like that it does not seem probable that the pus is able to break through into the lung itself and discharge through a bronchus. It would seem more reasonable to suppose that in many of these cases the abscess is originally located under the visceral pleura in the lung itself, that the pleura is infected secondarily, and the complicating picture of localized empyema with pus discharging through the lung into a bronchus is thereby produced.

A case which I saw in September, 1915, illustrates the difficulties which one may encounter in the diagnosis of this condition:



CASE 7.—G. K., aged twenty-six years, single, male, harness maker. Father and one brother died of tuberculosis. Had always been well up to the month of March, 1915, at which time he was taken sick with pneumonia in the base of the left lung and was in bed four weeks. Felt well after convalescing, until a month later, when he noticed he felt weak and was losing weight, and his cough came back. He soon began to raise large amounts of thick, yellow sputum and later great quantities of it. The sputum looked to the patient like pus. It never contained blood. He lost about fifteen pounds in weight and had begun to have sweats at the time of the examination.

The patient was a medium-sized, fairly well nourished man. Face heavily freckled. Tongue coated and geographic. Right epitrochlear gland palpable. Examination of the chest showed an area of flatness in the left base from the angle of the scapula to the diaphragm and passing around anteriorly to fuse with the cardiac area of dullness. (See Chart of Case 7.) There was hyperresonance throughout the right chest. Tactile fremitus was absent, and no râles could be heard over the area of absolute dullness. However, above, in the adjacent areas of diminished resonance, numerous moist and sibilant râles were present, and the breathing was tubular in quality, especially marked just inside the vertebral margin of the scapula. In the left apex, sibilant râles were heard, and the breath sounds were distant and suppressed. The lower border of the liver was 2 cm. below the costal margin and not tender. Temperature was 99°. Leucocyte count was 14,500. Sputum showed no tubercle bacilli.

A diagnosis of empyema with complicating abscess of the lung and pus discharging into a bronchus was made. A needle was inserted at the eighth interspace in the mid-scapular line and pus was secured. The puncture fluid contained large numbers of leucocytes. No tubercle bacilli were found.

The following morning a portion of the ninth rib was resected under local anesthesia. When the pleura was entered a large flow of pus was obtained and a break in the visceral pleura, leading into the lung, to an opening in a bronchus was found. The diagnosis was thus confirmed. Drainage was instituted, and the patient enjoyed an uneventful convalescence.

The condition which, in my own experience, has been most difficult to differentiate from abscess of the lung is empyema of the localized type, where the pus is well walled off in the pleural cavity and occupies a position so circumscribed that only a small portion of the pleural cavity is involved and the signs of free fluid are absent. In these cases the history of pneumonia, the area of sharply circumscribed dullness located anywhere in the lung, the long course, the paroxysmal cough, the marked prostration, the continued increase of temperature, high leucocytosis, diminished or lost tactile fremitus, absence of movable dullness and atypical breath sounds over the affected area, especially in children,

make a clinical picture closely allied to that of abscess of the lung. In this type of case, even the exploring needle is not able to determine with certainty whether the pus lies within the pleura or in the lung itself, and only at operation can the location of the abscess be determined with certainty. Of course, if the pus breaks through into a bronchus, which happens in a considerable percentage of the cases, one is then dealing with a mixed picture and has both abscess of the lung and empyema to deal with. With any sort of care that form of empyema complicating lobar pneumonia with a large collection of pus free in the pleural cavity has not been difficult to diagnose in my experience and should not be confused with abscess of the lung.

The sign of most importance in differentiating abscess of the lung from circumscribed empyema is the presence in the local area of dullness of a rather sharply outlined focus, usually the size of a lemon or a small orange, in which distant amphoric breathing, with coarse crackling râles can be heard.

In circumscribed empyema on the other hand, no such focus can be made out. Breath sounds are uniform, especially over the whole area of dullness, tactile fremitus is lost, bronchophony diminished, and the other typical signs of an exudate in the pleura present. One must, however, be on his guard in the examination of the chest and not place too much reliance upon the information which he secures from physical examination alone. The exploring needle should be used and radioscopic studies of the chest should be freely made in this class of cases.

The following case report affords a good example of this difficulty:

CASE 8.—Miss S., aged twenty, single, factory worker. Family and personal history, negative. No history of exposure to tuberculosis. She had com-

plained of cough for the past four months with fever and prostration and loss in weight. She had consulted various physicians, and the diagnosis of bronchitis had been made. On April 19 she was seen and examined by Dr. George Cutts, who found an area of involvement in the base of the right lung posteriorly, from the midscapular region downward. The girl was running a fever, had lost much in weight, and was having a severe cough. The sputum contained no tubercle bacilli.

The physical examination revealed nothing of importance outside of the base of the left lung. Here there was dullness from a point a little above the angle of the scapula downward to the base posteriorly, extending around toward the front and dipping down to the diaphragm at about the midaxillary line. Over the dull area were many fine crackling râles, but none of the sibilant type. Breath sounds were suppressed and tactile fremitus lost. In one small area just below the angle of the scapula and 3 or 4 cm. from the spinal column, there was an area of marked dullness with distant tubular breathing and coarse crackling râles of amphoric quality. There were no signs of movable dullness. The von Pirquet test was negative. The leucocyte count was 17,000. A second sputum examination showed no tubercle bacilli.

The area of dullness dipping downward toward the diaphragm in the axillary region, without movable dullness, the high leucocytosis and the fever and prostration suggested a circumscribed empyema. The presence within the area of dullness of a focus in which the râles were of the coarse crackling type and of amphoric quality clearly indicated a focus within the lung itself rather than that the pus was entirely in the pleura.

A needle was inserted just below the angle of the scapula over the area of most pronounced dullness and a small amount of thick, purulent fluid drawn off. Examination of this fluid showed the presence of large numbers of polymorphonuclear leucocytes with diplococci and streptococci and also some unidentified large cells probably of endothelial type. It was impossible to determine with certainty whether the pus was in the pleural cavity and circumscribed, or in an abscess within the lung itself. The needle passed a good distance into the chest before pus was secured. Drainage of the abscess cavity was advised but patient was subsequently lost sight of.

DIABETES*

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Definition:

Diabetes is a syndrome due to a disturbance in carbohydrate metabolism from various causes in which sugar appears in the urine, either as slight and transient glycosuria or as more severe

forms associated with thirst, polyuria, imperfect oxidation of fat with resulting tendency to infection and necrosis. (Osler.)

History:

1776—Sugar was demonstrated in the urine.

1779—Meat diet was used in diabetes.

1800—Rollo laid down dietetic bases for the treatment of diabetes.

*Presented at the Thirty-seventh Annual Meeting of the North Dakota State Medical Association, at Bismarck, N. D., September 10 and 11, 1924.

1857—The glycogenic function of the liver was advanced.

1862—Bruner attempted to remove the pancreas.

1886—Senn did total extirpation of the pancreas from animals. He failed to examine the urine. The animals died in 2-9 days eating and losing five pounds.

1889—Mering and Minkorski proved the pancreas functions in sugar metabolism. Lepine advanced the theory of internal secretion. Anatomists found the islands of Langerhans intimately related to a net work of capillaries, much as are the glomeruli of the kidney. The islands and ducts have a common origin. They separate, differentiate, and then retain their individuality. By careful sectioning no ducts were found. The preparation of extracts from other glands of internal secretion kept alive the hope that it would be possible to prepare pancreatic extract. Pancreas was fed to animals and man without effect. Animals, after removal of the pancreas, lived long with bits of pancreas grafted under the skin. This was not practicable in man, as grafts die when transferred from one species to another.

1900—Opie believed diabetes due to disease of the islands of Langerhans.

1906—Schultz, Dohrn, and Maixer treated sixteen cases of diabetes and ketosis with favorable results with pancreatic extract. The extract was impure and inconstant in strength. Allen and Joslin and Woodyatt have carried the knowledge of diabetic science across the difficult bridge to the patient himself, giving him the meaning of carbohydrate, protein, and fat calories.

Nov. 20, 1922—March 22, 1923—Banting, Best, McLeod, Campbell, and Fletcher put Insulin and its possibilities before the public.

Classification of Glycosuria:

Renal: The normal impermeability of the kidney is broken down so that sugar passes from blood containing a normal amount of sugar.

Alimentary: With more than 100 grams of glucose the conversion of sugar to glycogen (in the liver) breaks down. Injury to C. N. S.: Pressure or injury in the region of the fourth ventricle causes excess secretion by the adrenals. The liver becomes over-active in converting glycogen to sugar with resulting glycosemia and glycosuria. (Theory.)

Pancreatic: The muscles and other tissues cannot use the sugar. (Glycolysis breaks down.)

Pathology:

In 27 cases, with 15 post-mortem examinations, the liver was atrophied in 9 cases, fatty degen-

eration and calculi in 1 case. The pancreas was atrophied in 9 cases. Interstitial pancreatitis is common and hyalin degeneration has been found. The central nervous system has no constant lesion. Secondary multiple neuritis and late edema may occur. In the circulatory system arteriosclerosis is common. The lungs have important changes as broncho-pneumonia with gangrene. Tuberculosis is common, as caseating pneumonia. Fat embolism of the pulmonary vessels has been reported.

Physiology:

Carbohydrate is not oxidized in the diabetic. Fat can be burned only in a carbohydrate fire. The carbohydrate of protein is well taken, but there is not enough for complete oxidation of fat. The ketonuria develops, evident by the presence of acetone, diacetic acid, and oxybeta-buric acid in the urine. Ketonuria means an accumulation in the blood of the products of incomplete fat metabolism. These have acid reaction. They unite with the alkali of the blood. The CO_2 (which is acid and usually taken off by the alkali salts of the blood) remains in the tissues resulting in acid necrosis or gangrene. The normal blood sugar is .05 to .15. In diabetes the blood sugar is high, so it is not the lack of sugar, but the inability of the muscle to burn it. Enzymes of the intestine change the starch and sugar to monosaccharides (dextrose, galactose, and levulose). These go through the portal circulation to the liver, where they are stored as glycogen to be again changed to sugar in amount to keep a normal blood sugar. If the liver is removed the blood sugar drops, and the animal dies of hypoglycemia. If both pancreas and liver are removed, the blood sugar drops; therefore the liver is necessary to take the sugar from the intestine to the blood. Clark, in 1912, perfused the heart and pancreas of animals with glucose solution. The sugar disappeared into the heart muscles more rapidly with the pancreas in the circuit than when the heart alone was perfused. It would seem something had been added or something changed. Normally glucose rotates polarized light well to the right with a specific rotation of 52 degrees. The solution that had passed through the pancreas no longer rotated polarized light normally, though it still reduced Fehling's. Therefore, the pancreas "changes" the sugar, so the muscles can use it. In diabetics the sugar accumulates; the blood sugar rises, and sugar is thrown off by the kidneys, because the pancreatic solution is insufficient to "change" all the sugar. "It has not been proved that the

islets of the pancreas wholly monopolize the Insulin producing function." (R. T. Woodyatt.)
Diagnosis:

Diagnosis of diabetes is based on a history of symptoms and the laboratory findings:

Symptoms: Thirst, frequency of urination, pruritus, unexplained fatigue, a history of overweight with recent loss, glycosuria, ketonuria, dyspnea, sweet odor, and mental depression to coma. Complications are infection, gangrene, pneumonia, and tuberculosis.

Laboratory Findings:

Urine—sugar as high as 16.7 per cent; high specific gravity; diacetic acid; acetone and oxybetabutyric acid tests may be positive. *Alveolar air* CO₂ may be reduced to 7.5 per cent (normal—8.9 per cent). CO₂ is not being thrown off by the lungs. *Blood* CO₂ tension is reduced to 45 to 18 vol. per cent (normal 45-55 vol. per cent). Therefore, CO₂ is not being carried away by blood, but is collecting in the tissues and increasing the acidity.

The hydrogen ion concentration of the blood may be increased to PH 6.5 (normal PH 7.4). Oxygen saturation in diabetic venous blood is 59 per cent lower than normal. The systolic output is reduced and the blood stream is slow. Sugar is increased (normal .05-.16.) Blood sugar curves in 431 normal and diabetic patients based on 900 curves after 4000 determinations gave the normal fasting average as .09. (.05-.16.) Averages after a known meal:—.14 at ½ hour—.12 at 1 hour—.11 at 2 hours—.09 at 3 hours. In treating diabetes the blood sugar one-half hour after a known meal is desirable. In diagnosis the fasting blood sugar is desirable.
Blood sugar in diabetics when first seen:

1. If pancreatic diabetes is fairly certain by history, the blood sugar is taken before breakfast because:

(a) The lower the blood sugar (fasting) the more optimistic the prognosis.

(b) 83 per cent of those with abnormal fasting blood sugar are proved diabetic; while 43 per cent of those with abnormal blood sugar after eating are proved diabetic.

(c) Fasting blood sugar is useful in further comparative study.

2. If renal diabetes seems possible, blood sugar determination after a known meal is indicated.

A known meal: 100 grams of glucose or 50 grams of bread or 2 shredded wheat biscuits may be used with a glass of milk. Blood sugar at ½ hour should be .05 to .15; urine at ½ hour should not show sugar.

Blood sugar following intravenous injection of glucose:

The absorption of a test meal by mouth is variable in time and amount, so intravenous injection is used in some clinics. Here fasting is defined as sixteen hours rest in bed after eating.

1 gram per kilo over 30 min.

15 gram per kilo over 15 min.

35 gram per kilo over 10 min.

were used on fasting patients intravenously in 20 per cent solution.

It was found that .33 grams gave the characteristic curve without strain on a weak sugar metabolism. The normal curve gave a direct rise with a fall half way back to fasting at ½ hour, at fasting in 1 hour, below fasting at 2 hours, and at fasting in 3 hours.

Diabetic subjects gave direct rise in blood sugar with slight fall at ½ hour, above fasting 1 hour, above or at fasting at 2 hours. It may continue above or at fasting. Purified dextrose is used well dissolved and sterile. Forty-five hundred curves have been reported without accident. Renal glycosuria without nephritis has normal blood sugar. Renal glycosuria with nephritis has high blood sugar.

Antepartum subjects have higher blood sugar than post partum.

Acromegaly and hypopituitarism have blood sugar above the average normal. Hyperthyroid blood sugar was reduced by removal of the thyroid.

The treatment of diabetes divides itself into diet and the use of Insulin.

Diet: In 1779 a high protein diet was used. In 1900-19-20 the diet was high in carbohydrate and protein. From 1920-1923 the diet was high in fat. In 1924 a balanced diet is used and Insulin if necessary.

Any proper diet has three needs:

1. Protein in amount required to protect the structure of the body and keep resistance to infection. One to 1.25 grams per kilo is necessary.

2. Calories enough to meet the total heat production of the body. The total heat is basal heat (that at rest in bed 16 hours after eating) plus 10 per cent to provide for exercise and digestion.

3. Balance of carbohydrate, protein, and fat to avoid ketosis.

Carbohydrate and fat are the substances which on oxidation make calories. Carbohydrate is antiketogenic, while fat is ketogenic. If the available carbohydrate will burn the available fat completely, there should be no ketosis.

Available carbohydrate of the meal is 58 per

cent of the protein plus 10 per cent of the fat plus 100 per cent of the carbohydrate of the food.

Available fat is 46 per cent of the protein and 10 per cent of the fat of the food. The carbohydrate actually used is 100 per cent carbohydrate and 58 per cent of the protein of the food minus the sugar in the urine (grams in 24-hour amount.) The fat actually oxidized is total calories produced minus 4.1 times the protein plus 4.1 times the carbohydrate of the food divided by 9.3.

1 gram of protein gives 4.1 calories; 1 gram of carbohydrate gives 4.1 calories; and 1 gram of fat gives 9.3 calories on oxidation.

Those who fail to respond to a protein meal with elevation of the blood sugar curve seem to have nitrogen balance. They do not use their own protein for sugar, nor do they tolerate even a moderate amount of fat. While those who respond to a protein meal with a definite rise of blood sugar are prone to burn their body protein and tolerate diet high in fat. The apex after a protein meal appears in three hours. That after a carbohydrate within an hour.

The Allen starvation diet consisted of 11 days of fasting to clear ketosis and gain a normal blood sugar. Then followed 7 days on 100 calories and 14 days on 500 calories. Usually the sugar tolerance increased. He insisted on a loss of weight and on the patient's remaining sugar free with a normal blood sugar.

The Joslin low fat diet avoids the dangers of fasting by using a preparation diet of 1,400 calories. This method uses 1 gram of carbohydrate to completely oxidize 1 gram of fat. Test diets, composed of one-half the carbohydrate necessary to ordinary life, one gram of protein per kilo-gram of body weight, and no fat, are served to find the sugar tolerance of the patient. The calories are decreased, until fasting is established, if necessary, to render the patient sugar free.

Then the diet is gradually increased to raise the tolerance and build up the final diet. If sugar should appear in the urine, the carbohydrate is decreased,—the protein and fat increased. In case the patient becomes sugar free on test diet two or three, the "maintenance diet" corresponding in carbohydrate is used.

The Woodyatt diet is high in fat calories. Here 1 gram of carbohydrate is used to burn completely 4 grams of fat. This plan objects to the inanition of starvation and gives low carbohydrate with enough fat calories to maintain metabolism over a long period of time. The patient first uses 1,000 calories composed of fat

90 grams, protein 10 grams, and carbohydrate 14 grams. Then when the patient is sugar free, 1,400 calories of fat 140 grams, protein 28 grams, and carbohydrates 20 grams. Then the diet is increased to 1,800 calories composed of fat 170 grams, protein 40 grams, and carbohydrates 30 grams. When the carbohydrate tolerance is known it is possible to work out a caloric diet the patient can use without ketosis and containing 1 gram of protein per pound body weight.

Carbohydrate is 100 per cent of the carbohydrate plus 58 per cent of the protein plus 10 per cent of the fat. Fat to equal two times the carbohydrate plus half the protein in grams is the optimum diet of Woodyatt. Newberg, March, and Wilder use 1 gram of carbohydrate to oxidize 4 grams of fat completely.

In children we have a twofold duty: We must produce and maintain:

1. A normal blood sugar with freedom from ketosis and glycosuria.

2. A nitrogen balance and sufficient surplus for growth, activity, and a reasonable gain in weight. This is supplied by 1.25 grams of protein per kilo, and carbohydrate and fat to make a 24 hour total of 93 calories per kilo body weight.

Example: A child weighing 13 kilos needs 1,200 calories with 15 grams of protein per kilo in 24 hours. 20 grams of the carbohydrate are well within the tolerance of all, but the most severe. (Protein 15 grams and carbohydrate 20 grams) \times 4.1 (calories) = 145 calories. 1,200 calories—145 = 1,055 calories to be gotten from fat. 9.3 (calories from 1 gram fat) = 115 grams of fat. In protein 15 grams, carbohydrate 20 grams and fat 115 grams there are carbohydrate 39 grams and fat 112.5 grams—a ratio of 1-3, which is safely within the 1 gram of carbohydrate necessary to oxidize 4 grams of fat. Diet alone where starvation is necessary is an absolute failure in children. We must look to Insulin for help.

Insulin:

Banting and Best, of the University of Toronto, made extract of the pancreas of adult cows from the slaughter-house. They found two dangers:

1. A serum reaction if the Insulin were not protein free;

2. Hypoglycemia, due to inconsistency of strength of the extract.

For this reason patents were given to the University of Toronto and to Lilly in the United States with the University of Toronto supervising the process.

Thus Insulin of standard strength is now plen-

tiful, and with the increasing demand the price per unit is being reduced.

Standardization and dosage: The pan extract is a clear, colorless, protein free, aqueous solution in 5 c.c. ampules of 10 or 20 units. A unit is one-third of the amount necessary to cause convulsions, by hypoglycemia, in a rabbit of 2,000 grams after fasting 24 hours. One unit will account for 1.5 to 2 grams of sugar. In severe cases, 20 to 40 units may be necessary—seldom more than 60 units a day. In mild cases, if not sugar free, with dietetic management Insulin may be used. In severe cases treatment may be started with Insulin.

Gangrene, pneumonia, furunculosis, erysipelas, tuberculosis, acidosis, ketosis, surgical procedures, and old cases of faithful dieters who are losing ground are aided by Insulin. In a report of 150 cases of diabetes treated with Insulin, there were 20 cases of acidosis with blood CO_2 below 25 vol. per cent and in coma. Three died of sepsis and uremia, though Insulin made them sugar free. One is now a laboring man on 2,500 calories and 30 units per day. Only one is a semi-invalid.

In complete diabetics Insulin takes the place of the pancreas. In partial diabetics, Insulin allows the pancreas to rest. If there is enough pancreatic tissue, the patient can go on diet alone or with very small amount of Insulin. If the Insulin is withdrawn, the patient shows some rise in tolerance. The same is true of diet alone.

The Ideal Nutritional State: of 3,500 people 35 years of age and over, those over weight show an increasingly high death rate, those of a few pounds under weight show the lowest death rate. The average weight for 30 years includes most diabetics and gives good results.

5'-126 lbs., 5'-3"-133 lbs., 5'-6"-144 lbs., 5'-9"-156 lbs., 6'-170 lbs.

Of 220 cases three died in coma (these had been in coma 48 hours before treatment was established); three deaths from pulmonary tuberculosis with the diabetes controlled; one death from pneumonia; and one cardiorenal with the diabetes controlled.

At 1 year 13 were taking more food
 20 were taking same food
 1 was taking reduced food
 27 taking Insulin (2 taking more)
 (5 taking less)

Acute infection needs increase.

In a report of 150 cases of diabetes treated with Insulin there were 20 cases of acidosis with blood CO_2 below 25 vol. per cent and 4 cases

in coma, three died of sepsis and uremia, although the diabetes was controlled. One is now a laboring man taking 2,500 calories and 30 units of Insulin. Only one is a semi-invalid.

Indication for the use of Insulin: In severe cases with complications, the treatment may be started with Insulin. In mild cases, if the patient is not sugar free with dietetic management in 6 to 10 days, Insulin may be used. The safety limit in dosage may be found in three ways:

1. If the urine in 24 hours contains 20 grams sugar, 15 units is safe in 24 hours since 1 unit accounts for 1.5 grams of sugar.

2. If the blood contains 100 c.c. of sugar, the safe dosage can be figured out from the total blood sugar (using blood to equal 1/7 of the body weight).

3. Or one may begin with small dosage guarded by carbohydrate (as food or intravenous solution). Then by gradual increase in dosage reduce the sugar in the blood and urine. When a patient does not keep sugar free on a maintenance diet so balanced as to contain: protein, 1 to 1.25 grams per kilogram of body weight; carbohydrate, to the minimum amount necessary to oxidize fat enough to supply calories for basal heat, plus 10 per cent, then Insulin is indicated.

INSTRUCTIONS FOR PATIENTS

1. Qualitative test for sugar in the urine.
2. Use of food scales.
3. To summarize carbohydrate, protein, fat, and calories in diet three meals.
4. What to eat when traveling.
5. What to do if sugar appears.
6. Hygiene: daily rests; avoidance of infections; care of skin and nails.
7. Prevention and treatment of acid poisoning.
8. In reporting to a physician to submit:
 - a. Weight—State whether dressed or naked.
 - b. Record of urinary tests.
 - c. Diet—carbohydrate, protein, fat and calories.
 - d. Insulin—total units and how divided through the day.
 - e. Portion of mixed and measured twenty-four hour quantity of urine.

FOR PATIENTS TAKING INSULIN

9. Insulin is prepared in solutions of different strengths. Know your dose in units, (not in cubic centimeters) and how to measure the amount of solution to give that number of units.
10. Syringe and needle must be boiled each time before using. Cleansing of the skin and the top of the bottle with alcohol is also necessary.

Immediately after removing the needle cleanse it and the syringe with cold water.

11. An Insulin reaction usually occurs 1-2 hour, but may occur as late as 6 hours, after an injection, and can be recognized by the sudden onset of severe hunger, weakness, sweating, trembling, or pallor. The first dose of a new preparation should always be half the last dose of an old.

12. A reaction should be treated by eating an orange, or by taking the carbohydrate portion of the next meal.

13. At present it is not prudent to use Insulin without daily examinations of the urine.

14. If your usual exercise is not obtained, on that day reduce your diet.

15. Arrange for a supply of Insulin for ten days in advance.

16. If your supply of Insulin fails—

a. Notify your doctor by telephone or telegraph, and

b. Omit one-third of your diet.

REFERENCES

Archives of Internal Medicine: November, 1923, pp. 764-771; February, 1923, pp. 241-263; June, 1923, pp. 797-807; August, 1923, pp. 226-259; September, 1923, pp. 343-353; January, 1924, pp. 97-109; February, 1924, pp. 230-251; April, 1924, pp. 445-491, 5561557.
 Medical Clinics of North America: November, 1923, pp. 637-675; January, 1924, pp. 1127-1137.
 The Journal-Lancet: February 1, 1924, pp. 68-74.
 Journal of the American Medical Association: December, 1923, 2000-2006; February 2, 1924, 417-421.

CASE REPORTS

Case: Woman, 54 years of age who has had diabetes 5 years. Patient entered the hospital with a fractured hip and was seen first December 30, 1923.

| Date | Blood | | | Urine | | | Iletin | | Diet | | | | | Remarks |
|--------------------|-------------------|-------------|---------|---------------|------------------|---------------|---------------|------------|--|------|----------|-----|----------|---|
| | Blood Sugar | Urine Sugar | Acetone | Diacetic Acid | Specific Gravity | Albumin Casts | 24 hr. Amount | Units Tid. | | | | | | |
| Dec. 30, 1923 | .24 | +++ | + | 0 | 1.045 | ++ | 3000 | XX | Carbohydrate Free | | | | | Patient is thirsty. Patient has sweet breath. |
| Jan. 1, 1924 | | +++ | + | 0 | 1.040 | ++ | | | Plus Oatmeal and Milk | | | | | |
| Jan. 2, 1924 | | ++ | Trace | 0 | 1.035 | 0+ | 2500 | | | | | | | Urine examined twice daily and changes charted. |
| Jan. 3, 1924 | | + | 0 | 0 | 1.025 | 00 | 2000 | | | | | | | |
| Jan. 4, 1924 | | ++ | 0 | 0 | 1.020 | 0+ | | XXVI | | | | | | Breath normal. |
| Jan. 5, 1924 | Fasting .11 | + | 0 | 0 | 1.025 | 00 | | | Joslin Card Used. Diet in Grams. | | | | | |
| Jan. 7, 1924 | | 0 | 0 | 0 | 1.020 | 00 | | XX | | | | | | |
| | | | | | | | | | Joslin | | | | | |
| Jan. 7, '24, P. M. | | ++ | 0 | 0 | 1.025 | 00 | | | Test diet | C | P | F | Calories | |
| Jan. 10, 1924 | | 0 | 0 | 0 | 1.035 | 00 | 1800 | XII | I | 181 | 46 | 44 | 1308 | Patient on back rest. |
| Jan. 11, 1924 | | 0 | 0 | 0 | 1.025 | 00 | | VI | II | 101 | 35 | 43 | 931 | |
| Jan. 12, 1924 | | + | 0 | 0 | 1.030 | 00 | | | III | 66 | 24 | 39 | 693 | |
| Jan. 13, 1924 | | 0 | 0 | 0 | 1.020 | 00 | 1500 | 0 | Maintenance Diet | | | | | |
| Jan. 14, 1924 | | 0 | 0 | 0 | 1.020 | 00 | 1200 | 0 | C ₃ PF ₅ | 27 | 29.6 | 64 | 798 | Patient up in a chair. |
| Jan. 15, 1924 | | 0 | 0 | 0 | 1.010 | 00 | | 0 | C ₅ PF ₆ | 44 | 33 | 77 | 1001 | |
| Jan. 16, 1924 | Fasting .11 | 0 | 0 | 0 | 1.015 | 00 | | 0 | C ₆ PF ₇ | 52 | 32 | 66 | 1170 | Patient discharged. At home. |
| Jan. 19, 1924 | | 0 | 0 | 0 | 1.020 | 00 | 1200 | 0 | C ₇ PF ₇ | 74 | 56 | 88 | 1296 | |
| Jan. 26, 1924 | | 0 | 0 | 0 | 1.038 | 00 | | | C ₉ PF ₉ | 98 | 65 | 106 | 1606 | Patient taught to examine her own urine. |
| Jan. 31, 1924 | | 0 | 0 | 0 | 1.028 | 00 | 1000 | 0 | + | milk | VIII OZ. | | 1758 | Weight, 135 lbs. |
| Feh. 1, 1924 | 1/2 hr. P. C. .13 | 0 | 0 | 0 | 1.028 | 00 | | | | | | | | Walks about the house. |
| Feb. 10, 1924 | 1/2 hr. P. C. .12 | 0 | 0 | 0 | 1.030 | 00 | | 0 | C PF | 135 | 80 | 135 | 2000 | |
| March 18, 1924 | | 0 | 0 | 0 | 1.025 | | | | Substitute 5% Fruit for 1v eg. | | | | | Patient has a cold. Dental work. Tender mouth. |
| April 10, 1924 | | + | 0 | 0 | 1.020 | 00 | | | Increased Oatmeal | | | | | |
| April 19, 1924 | 1/2 hr. P. C. .15 | 0 | 0 | 0 | | 00 | | | Reduced Oatmeal | | | | | |
| May 17, 1924 | Fasting .13 | 0 | 0 | 0 | 1.020 | 00 | | 0 | | | | | | Patient has better color. |
| June 20, 1924 | 1/2 hr. P. C. .12 | 0 | 0 | 0 | 1.023 | | | | | | | | | Cares for her home. |
| July 20, 1924 | 1/2 hr. P. C. .11 | Trace | 0 | 0 | 1.020 | | | | | | | | | Weight, constant. |

| Diets | Total Diet | | | | | Carbohydrate (C) | | | | | Protein and Fat (PF) | | | | |
|------------|-------------------|---------|-----|---------------|-----------------------|------------------|--------------|------------------------|--------|--------|----------------------|-----------------------|-------|--------|------|
| | Carbo- hydrate | Protein | Fat | Carbo- res | 5% Vege- tables | Orange | Oat- meal | Shred- ded Wheat | Uneeda | Potato | Eggs | Cream (20% Fat) | Bacon | Butter | Meat |
| | | | | | | | | | | | | | | | |
| T. D. 1 | 101 | 35 | 43 | 931 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| T. D. 2 | 66 | 24 | 37 | 693 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| T. D. 3 | 34 | 15 | 30 | 466 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| C1 + PF1 | 14 | 15 | 30 | 386 | 300 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| C2 + PF2 | 22 | 19 | 37 | 497 | 300 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| C3 + PF3 | 32 | 24 | 37 | 557 | 600 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| C4 + PF4 | 42 | 29 | 52 | 752 | 600 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| C5 + PF5 | 52 | 32 | 66 | 930 | 600 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| C6 + PF6 | 64 | 44 | 88 | 1179 | 600 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| C7 + PF7 | 74 | 52 | 88 | 1296 | 600 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| C8 + PF8 | 84 | 61 | 91 | 1426 | 600 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| C9 + PF9 | 98 | 65 | 106 | 1606 | 600 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| C10 + PF10 | 109 | 66 | 119 | 1771 | 600 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| C11 + PF11 | 135 | 80 | 135 | 2075 | 600 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| C12 + PF12 | 159 | 84 | 135 | 2187 | 600 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |

Food Weight in grams. Approx. equivalent
 Orange... 300... Two of moderate size
 5 per cent vegetables... 300... Three moderate portions
 Potato... 120... One medium-sized potato
 Meat... 90... One moderate portion

Food Weight in grams. Approx. equivalent
 Oatmeal, dry wgt... 30... One large saucerrful
 Cream... 120... Eight tablespoonfuls
 Bacon... 30... Four crisp strips
 Butter... 30... Three medium portions

Water, clear broths, coffee, tea, cocoa shells and cracked cocoa can be taken without allowance for food content.
 Foods arranged approximately according to content of carbohydrates

| | 5% | 10% | 15% | 20% |
|---|---|--|--|---|
| *Reckon average carbohydrate in 5% veg. as 3%—of 10% veg. as 6% | | | | |
| | 1%-3% | 3%-5% | 10% | 15% |
| VEGETABLES (fresh or canned) | Lettuce Cucumbers Spinach Asparagus Rhubarb Endive Marrow Sorrrel Sauerkraut Beet Greens Dandelions Swiss Chard Celery Mushrooms | Tomatoes Brussels Sprouts Water Cress Sea Kale Okra Cauliflower Egg Plant Cabbage Radishes Leeks String Beans canned Broccoli Artichokes | Str. Beans Pumpkin Turnip Kohl-Rabi Squash Beets Carrots Onions Green Peas canned | Green Peas Artichokes Parsnips Canned Lima Beans |
| FRUITS | Ripe Olives (20% fat) Grape Fruit | | Strawberries Lemons Cranberries Peaches Pineapple Blackberries Oranges | Potatoes Shell Beans Baked Beans Green Corn Boiled Rice Boiled Macaroni Plums Bananas Prunes |

| | Calories | Protein | Fat | Calories |
|-------------------------------------|----------|---------|-----|-----------------------------|
| 1 gram protein, | 4 | | | 1 kilogram—2.2 pounds. |
| 1 " carbohydrate, | 4 | | | 30 grams g. or cubic centi- |
| 1 " fat, | 9 | | | 30 grams g. or cubic centi- |
| 6.25" protein contain 1g. nitrogen. | | | | 25 calories per kilogram. |
| 30 Grams 1 oz. | | | | |
| Contain Approximately | G. | G. | G. | Calories |
| Vegetables 5% | 1 | 0.5 | 0 | 6 |
| Vegetables 10% | 2 | 0.5 | 0 | 10 |
| Shredded Wheat (3 triscuits) | 23 | 3 | 0 | 104 |
| Uneedas, two | 10 | 1 | 1 | 53 |
| Potato | 6 | 1 | 0 | 28 |
| Bread | 18 | 3 | 0 | 84 |
| Oatmeal, dry wgt. | 20 | 5 | 2 | 118 |
| Oysters, six | 4 | 6 | 1 | 49 |
| Milk | 1.5 | 1 | 1 | 19 |
| Meat (cooked lean) | 0 | 8 | 5 | 77 |
| Fish | 0 | 6 | 0 | 24 |
| Chicken (cooked lean) | 0 | 8 | 3 | 59 |
| Egg (one) | 0 | 6 | 6 | 78 |
| Cheese | 0 | 8 | 11 | 131 |
| Bacon | 0 | 5 | 15 | 155 |
| Cream, 20% | 1 | 1 | 6 | 62 |
| Cream, 40% | 1 | 1 | 12 | 116 |
| Brazil Nuts | 2 | 5 | 20 | 208 |
| Butter | 0 | 0 | 25 | 225 |
| Oil | 0 | 0 | 30 | 270 |

CASE—REPORTS

A Man, 66 years of age, who has had diabetes for eight years. The great toe of the left foot was amputated in 1923 because of diabetic gangrene. The patient returned to the hospital on March 6, 1924, with an advanced nephritis and necrosis of the left foot, complicating a severe diabetes.

Joslin Card Used.

| Date | Blood | | Urine | | Hctin | Diet | | | | Remarks: | | |
|----------------|-------------|-------------|---------|---------------|-------|------------------|----------------------------------|-----------|----|----------|------|--|
| | Sugar | Urine Sugar | Acetone | Albumin Casts | | Specific Gravity | Units Tid. | Test Diet | C | | P | F |
| March 6, 1924 | .20 | ++ | 0 | ++ | 1.030 | VI | I | 101 | 35 | 43 | 931 | Necrosis of left foot, skin dry. |
| March 7, 1924 | | + | 0 | ++ | 1.030 | | II | 66 | 24 | 37 | 693 | Given continuous hot applications to the left foot. |
| March 8, 1924 | | + | 0 | +++ | 1.030 | XIV | Milk added | | | | 1000 | Foot bath, 110°F. daily, followed by oil rub. |
| March 9, 1924 | | + | 0 | +++ | 1.030 | | Maintenance Diet | | | | | Hungry. |
| March 10, 1924 | | + | 0 | +++ | 1.030 | | C ₆ P ₁₅ | 100 | 56 | 95 | 1503 | Given foot bath, Tid. 110°F. for 5 min., followed by 80° for 1 min. |
| March 11, 1924 | Fasting .15 | 0 | 0 | Less | | XV | | | | | | Given foot bath, Tid. 110°F. for 5 min., followed by 80° for 1 min. |
| March 12, 1924 | | + | 0 | +++ | 1.028 | XX | | | | | | Gangrene of toe. |
| March 14, 1924 | | 0 | 0 | +++ | 1.028 | | | | | | | |
| March 20, 1924 | Fasting .16 | + | 0 | +++ | | XXX | C ₄ P ₄ | 42 | 29 | 57 | 800 | Amputation of left foot. |
| March 25, 1924 | .14 | 0 | 0 | +++ | | | | | | | | Gangrene over end of Tibia |
| March 30, 1924 | | 0 | 0 | +++ | 1.030 | X | at bed followed by Milk OZ. VIII | | | | | Gangrenous area drying. |
| May 1, 1924 | hr P.C. .14 | 0 | 0 | 1.020 | XV | | | | | | | Amputated 2 inches of stump. |
| May 12, 1924 | | 0 | 0 | +++ | 1.020 | | | | | | | Stump healing slowly. |
| June 10, 1924 | Fasting .11 | 0 | 0 | + | 1.020 | XV | | | | | | Discharged, with diabetes controlled and general condition improved. |

Case Boy, age 19 years, who has had diabetes 4 years. Occupation: Mill hand, seen first February 20 1924 one week after Hemorrhoidectomy.

Jaslin Card Used.

| Date | Blood | | Urine | | | | Iletin | | Diet | | | Calories | Remarks: |
|-------------------|------------------------|--------------|---------|---------------------|-----------------------|---------------|--------------------------------|-----|------|-----|------|---|----------|
| | Sugar | Sugar +++ | Acetone | Specific Gravity | Albu- min Casts | Units Tid. | Test Diet | C | P | F | | | |
| February 19, 1924 | 5 P. M. .50 | +++ | | | | | | | | | | | |
| February 20, 1924 | Fasting .24 | +++ | Trace | 1.060 | 00 | VI | I | 181 | 46 | 44 | 1304 | Urine examined twice daily, changes charted. | |
| February 21, 1924 | | +++ | | 1.050 | 00 | XII | II | 101 | 35 | 43 | 931 | Pt. had a reaction. R orange juice. | |
| February 22, 1924 | | ++ | 0 | 1.020 | 00 | 0 | III | 66 | 24 | 37 | 693 | | |
| February 23, 1924 | | + | 0 | 1.025 | 00 | | Maintenance | | | | | | |
| February 24, 1924 | | Trace | 0 | 1.010 | | 0 | C ₅ PF ₅ | 52 | 32 | 66 | 990 | Pt. sat in a chair one hour. | |
| February 25, 1924 | ½ hr. P. C. .14 | 0 | 0 | 1.020 | | | C ₆ PF ₆ | 65 | 44 | 83 | 1179 | Pt. sat in a chair two hours. | |
| February 26, 1924 | | 0 | 0 | 1.010 | | 0 | C ₈ PF ₈ | 74 | 52 | 88 | 1296 | Given Lister bread. | |
| February 27, 1924 | | 0 | 0 | 1.020 | | 0 | C ₉ PF ₉ | 98 | 65 | 106 | 1606 | Pt. at home. Wt. 128 lbs. | |
| March 5, 1924 | | ++ | 0 | 1.020 | | 0 | C ₄ PF ₄ | 42 | 44 | 83 | 1091 | Pt. took a Ford apart. | |
| March 6, 1924 | | ++ | 0 | 1.030 | | VI | C ₆ PF ₆ | 65 | 44 | 83 | 1179 | Thirsty. | |
| March 9, 1924 | | + | 0 | 1.020 | | XV | | | | | | Pt. insists he keeps diet. | |
| March 15, 1924 | | Trace | 0 | 1.030 | | XVIII | | | | | | Wt. 130 lbs. | |
| March 17, 1924 | 4 hrs. P. C. .12 | + | | 1.020 | | XX | | | | | | Pt. had a violent reaction. | |
| March 18, 1924 | | ++ | | 1.020 | | X | | | | | | Pt. uses much snuff, advised to stop. Wt. 133 lbs. | |
| March 24, 1924 | ½ hr. P. C. .12 | 0 | 0 | 1.015 | | V | C PF | 135 | 84 | 135 | 2075 | Uses no snuff. | |
| April 12, 1924 | ½ hr. P. C. .11 | 0 | 0 | 1.020 | | 0 | | | | | | Pt. working 8 hrs. daily. Wt. 135 lbs. | |
| April 16, 1924 | ½ hr. P. C. .11 | 0 | 0 | 1.018 | | 0 | | | | | | Wt. 136 lbs. | |

THE DIET IN TUBERCULOSIS OF CHILDREN*

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The organism affected with tuberculosis almost uniformly presents one distinctive feature; namely, that of a steady, progressive decline of its state of nutrition. This is indicated not alone by marked loss of weight due to tissue destruction but also by dehydration of the tissue and possibly demineralization. The skin of the tuberculous subject is pallid and transparent. There is always secondary anemia. The muscular tone is diminished or absent, due probably largely to the loss of water and of minerals.

This decline in weight and change of physique is not solely due to the influence of the infection. A large contributory factor is the chronic anorexia, which manifests itself early in the tuberculous subject and remains a persistent and troublesome factor throughout the course of the disease.

Successful resistance of an organism to all forms of infection is closely bound up with the physical and structural state of its tissues. This is as true in tuberculosis as it is in all other forms

of infection. In general terms, it is known, or at least clinically quite definitely demonstrated, that tissue in a state of hydration is less resistant to infection than tissue in a state of concentration. The same thing is true of mineral content. Tissue adequately mineralized will resist better than tissue with deficient content of essential elements.

In the infant most tissues are much more hydrated than in the older child and the adult. The notoriously rapid and unlimited progress of the tuberculous infection in early infection—the frequent occurrence, for example, of miliary tuberculosis at this age—is probably directly ascribable to this fact.

Excellent clinical observations on older children and adults abundantly attest the fact that the pudgy, adipose, overweight individual with almost obvious tissue hydration is infinitely less resistant to the inroads of tuberculous or, for that matter, any other infection than is the thin, lean individual with a condition of concentration of his tissues and everything that this implies.

In this connection, some animal experiments

*Presented before the Lymanhurst Hospital Staff on November 26, 1924.

reported by Weigert, in 1907, are interesting. This author showed that hydration of tissue could easily be accomplished by high carbohydrate feeding and that high fat feeding increased the solid constituents and the ash.

He further reported the interesting observation that in the animal fed on high carbohydrate feeding with resulting hydration of tissue, a tuberculous infection would advance and disseminate itself with remarkable rapidity, whereas in the animal fed exclusively on high fat feeding, a tuberculous infection would make only slow and limited progress.

Another factor intimately influenced by the character of the food given is that of lung ventilation. Du Bois has pointed out that any large increase in diet will mean increased pulmonary ventilation. This increased pulmonary ventilation is higher on carbohydrates given as food than on fats. This fact furnishes additional argument for the predominance of fats over carbohydrates in the diet of the tuberculous child and for the contra-indication of high carbohydrate feeding.

An adequate mineral balance of the organism is of prime importance to its well being and the proper functioning of its tissues and fluids. This applies to the organism in health and even much more so to states of disease. Tuberculosis is no exception to this rule.

Whether actual demineralization takes place in tuberculosis or is one of the characteristics of the disease is not definitely proven by actual biological experiment. There is strong clinical evidence, however, that it is a factor and plays an important rôle. This applies particularly to such elements as calcium and phosphorus. The regulatory influence of these elements upon such important cell functions as water balance and proper physical states of body tissue and fluids is well understood, and it is known that therapeutic procedure and diet can modify their concentration in the organism. Any type of feeding that would be deficient in calcium or would by its nature or reaction cause deficiency of calcium in the tissues of the organism would, on theoretical grounds, at least, be contra-indicated in tuberculosis.

On the basis of such experimental evidence as is at hand and the knowledge that it is definitely possible to influence the concentration of fluids and elements in tissue at any age period, the dietetic therapy of tuberculosis must be established and carried out.

High carbohydrate feeding, particularly if this is accomplished by the use of mono-and di-sac-

charides, must be avoided on account of its immediate effect as expressed by hydration of tissue.

There is less objection to the use of starches. Their effect is less rapid and not quite the same as that of the simple sugars.

High fat feeding is commonly favored in the diet of the tuberculous subject. This is desirable in some respects. It is antagonistic to the hydration of tissue and its high energy value is most useful in the organism low in nutrition. There are, however, definite objections to an excessively high fat diet. It is not well taken in conditions where anorexia is a troublesome symptom and if forced may lead to complete disinclination to take food. There is the possibility of an unfavorable effect upon the mineral balance, notably upon the calcium and magnesium and phosphorus metabolism. An excess of fat in the diet will commonly leave the organism in the form of soaps, which, in the process of their formation, abstract these essential elements from the tissues and fluids of the organism. This is particularly apt to occur if the food given consists largely of milk or milk products. Milk is in every way a desirable food, but it has the disadvantage just indicated and also another in the younger child, namely, an excessive quantity, while readily taken by the child, will develop, in the course of time, complete anorexia and disinclination to take solid foods.

The excessive use of milk and milk products in the diet of the tuberculous child is, therefore, inadvisable and not recommended. A quart a day should not be exceeded. It must be noted that cod liver oil does not affect the organism as do other fats, and is, without doubt, one of the most useful remedies we have for the tuberculous child.

Fruit and all green vegetables, especially leafy vegetables, suitably prepared, are essential in the diet of the tuberculous child and are beneficial in many ways. They combat anorexia, they offer adequate mineral supply, add variety to the diet, and through their vitamine content favorably affect tissue growth.

Cereals and bread should be used in liberal quantity at every meal.

A substantial meat ration should be given once a day. Eggs can occasionally be used in place of it, but to the extensive use of eggs there is much the same objection that there is to the excessive use of milk or cream.

Simple desserts added to the foods indicated above will furnish an adequate diet for a tuberculous child and meet every requirement of its

nutrition and solve probably most of the difficulties connected with it.

For the nursing infant, only feeding with breast milk should be considered. The breast milk should be from healthy outside sources and not from the mother. The early feeding of semi-solid food along the line outlined above and in addition to the breast milk is desirable and gives the best possible results. Meat or eggs, of course, are not given before the fifteenth month.

Cod liver oil with creosote carbonate or with oil of phosphorus (ol. phosph. 1.0 c.c., ol. morrh. 100.0 c.c., or creosote carbonate, 3.0 gms., ol. morrh. 100.0 c.c.) should be given in liberal dosage twice a day between feedings.

The arrangement of the food schedule can be the same as it is for normal children of a given age. This applies also to the interval of feedings. It is not desirable or advantageous to bring about forced food intake in the tuberculous child by resorting to frequent meals or interval feeding. It is far more important to keep the child's desire for food keen, to avoid anorexia, and to aim at sound tissue structure rather than mere mass effect as expressed by rapid gain in weight.

PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of January 14, 1925

Dr. H. P. Ritchie, the President, Presiding

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town & Country Club on Wednesday evening, January 14, 1925, at 8:00 P. M. The meeting was called to order by the President, Dr. Ritchie. There were 26 members present.

The minutes of the December meeting were read and approved.

There were no papers read at this meeting, but the following members reported cases:

Dr. E. M. Hammes, of St. Paul, reported the following case:

Patient, boy, 15 years old. I saw him in consultation with Dr. Lepak on November 26, 1924. The family history is negative; he is the only child. He had the usual childhood diseases: pneumonia at 8; ruptured appendix, which was operated on, at 11.

Following the appendectomy he became very nervous, irritable, and restless at night. About this time he developed polyuria and polydipsia. He drank as much as six quarts of water during the night and about the same during the day. His mother stated that he voided gallons of urine. A diagnosis of diabetes insipidus was made, and there

were short periods of improvement, during which he would void about three quarts in twenty-four hours.

In June, 1924, he began to have frontal and bi-temporal headaches, and these continued until September, 1924. Then he started to school. He sat up late to study, and his headaches became more pronounced. He complained of disturbed vision. At this time Dr. L. A. Nelson examined his eyes and found the fundi normal. The patient became more irritable and restless. He would worry constantly about his father's work and everything around the house, etc. On November 15, while out walking, he became dizzy, his feet began to drag and he walked with a scissors-like gait. He became rigid and unconscious. His mother, who was nearby, grabbed him so that he did not fall. He soon regained consciousness and felt weak for a short while. From November 15 to November 26 he had eight similar attacks. Some of these attacks would begin by his repeating the figures 5, 6, 5, 6, several times. Then his head would turn to the left, his eyes would close, and he would appear semiconscious. This would subside within a few minutes. Since September, 1924, the father has noticed a marked development of pubic hairs and that the external genital organs are increasing in size. His downy mustache is becoming much heavier, and his voice deeper and coarser. Since this time the polyuria and polydipsia have become more pronounced. He had frequent vomiting spells. His thirst was excessive and painful. His eyesight failed so that he could not tell the time by looking at an ordinary watch. He was unduly irritable, extremely restless, and would sleep one or two hours at night. His gait was somewhat staggering.

The neurological examination on November 26 showed that the right pupil was slightly larger than the left; his vision was poor, but response to light was normal and to accommodation sluggish. There was a general narrowing of the fields of vision. He had a marked Rhomberg to the left and backward, and a tendency to fall similarly when he attempted to walk. His upper extremities were normal except for adiadokokinesis of the left hand. His lower extremities showed increased knee jerks and increased ankle jerks, a questionable Babinski on the right side. His thirst was so marked that in his hurry to drink he would spill water all over his mouth and face. His weight was 55 lb. He had lost 21 lb. in three weeks. His spinal fluid was normal throughout except that the pressure was moderately increased. Two x-rays of the skull were negative. The sella was normal. He had quite a downy growth of hair on his face, especially his upper lip, more pronounced than the average boy of his age. His external genital organs were much larger than the average.

He was placed on one-grain doses of luminal twice a day and daily hypodermics of 0.5 c.c. of pituitrin. By December 17 he had gained 5 lb. in weight. His sleep was better, and his nervous restlessness was subsiding. The medication was continued until January 5, when the patient complained that his breasts were enlarged and somewhat painful. His headache was returning. His sleep was poorer. His polydipsia and polyuria were more pronounced. He passed about six quarts in twenty-

four hours. However, his weight gradually increased and by January 12 he weighed 72¼ lb., a gain of 17 lb.

Because of the moderately dilated right pupil, the marked polyuria and polydipsia, and the precocious sexual development, we are evidently dealing with a marked internal glandular disturbance. The picture as a whole is very suggestive of a lesion of the pineal gland, probably cystic in character, and causing some pressure in the region of the hypophysis. This would explain his polyuria and polydipsia and his improvement under pituitary extract.

Dr. A. E. Benjamin, of Minneapolis, reported two cases:

CASE 1.—H. P., age 42 years, male, single, farmer. Three or four hours after meals he is quite distressed with gas, but comfortable immediately after eating; noticeable at nights on waking. Three or four attacks of pain and vomiting during the year. Soreness near umbilicus.

Father living and well; mother died at 81, of old age. Brother living and well; two brothers died in infancy, and one of ruptured ulcer at 32 (intestinal ulcer just below stomach); three sisters living and well. One sister died of ruptured gastric ulcer at age of 49. Three or four days before death she visited a doctor who operated on her, and died within a few hours after operation.

Has had pneumonia, influenza, scarlatina, measles, whooping cough; as a child had peritonitis, sick four or five days, some pain and vomiting, and was out of his head.

Bowels regular, considerable distress several hours after eating; great deal of gas in stomach.

Physical examination shows some postnasal catarrh. Sinuses and teeth, healthy. Dilated and prolapsed stomach; somewhat lax abdominal muscles. Has pain upon pressure over the appendix; appendiceal region was very sore.

Hemoglobin, 90 per cent. Urinalysis, negative. Evidence from x-ray examination (December 2, 1924) points to a chronic duodenal ulcer or a small diverticulum of the duodenum. The large retention indicates a partial obstruction at the pylorus.

Operative findings: Ulcer with indurated mass at pylorus 1¼ inches in diameter; anterior surface red and no adhesions except posterior surface; stomach more fixed to gastrocolic omentum, and one band extending to ulcer from base of gall-bladder, which was normal. Appendix thickened and chronically diseased. Hard to control bleeding of gastro-enterostomy.

Operative technic: Right rectus incision. Posterior gastro-enterostomy. Pagenstecher for inside; chromic for outside; opening 3 inches long, angles and special areas supplemented by third row. Mesentery stitched to stomach around opening. Appendix removed, covering stump with mesentery of appendix. One Penrose drain; two skin, and three stay sutures; chromic cat-gut for peritoneum, and posterior sheath of rectus turning it out. Chromic cat-gut for fascia and skin.

Comment: This case is interesting on account of the family history. It demonstrates the advisability of not postponing the operative treatment as the last resort.

CASE 2.—Mrs. E. W., aged 35 years, married, Scandinavian, housewife, complains of dull aching pain through pelvic region and back; no soreness of abdomen, but is constipated.

Family history: No cancer or tuberculosis in others. Father and mother living and well; three sisters living and well. Two children living, one dead from ether pneumonia. Husband living and well.

Patient has had measles, chicken-pox and mumps. No severe complications. Seven years ago had acute appendicitis with drainage. One year ago in April one-third of each tube removed.

Bowels constipated; uses mineral oil and cathartics.

Menses began at thirteen years of age. Regular every twenty-eight days, moderate flow, no pain.

Physical examination shows slight visceroptosis in erect position. Tenderness over lower part of scar, uterine fundus and remnants of tubes. Both ovaries enlarged and prolapsed. Fundus uteri in normal position, but some increase in size. Hemoglobin, 75 per cent.

Findings at operation: Rectocele; loops of small intestines and omentum adherent to whole of abdominal scar area and beyond; also in pelvis to remnant of tubes. Ovaries somewhat cystic; previous fixation of fundus.

Operation and technic: Repaired perineum; adhesions carefully separated; raw surfaces covered. Remnants of both tubes dissected out of horn of uterus; ovaries resected; round ligaments fastened over fundus, sterile vaseline on raw surfaces; three Penrose drains.

Comment: The points of interest about this case are the adhesions around the imperfectly removed tubes at former operation. If the tube is sufficiently diseased and requires its removal there is less likely to be any trouble following its removal by removing a portion of the tube, and purse-stringing this area and covering it with the round ligaments for support, and to prevent subsequent adhesions. The second interesting point in connection with this case is the presence of adhesions in and around the peritoneal wound from the former operation.

We must endeavor to prevent these adhesions as much as possible and one definite way of obviating the condition found in this case is by turning the peritoneum outward in closing the abdomen, thereby maintaining a smooth surface within the abdomen, and no raw surface or chance for the omentum to escape between the stitch lines. Plain cat-gut may absorb too readily in some of these cases, therefore I have used a No. 0 chromic cat-gut double for this purpose, and in a thinned-out condition of the peritoneum the fascia above may be caught with the suture for additional support, and thereby prevent rents in the peritoneum.

Dr. Arnold Schwyzer reported the case of a man with arthritis of the hip on which arthroplasty had been performed.

The meeting adjourned.

JOHN E. HAYES, M.D.
Secretary.

THE JOURNAL-LANCET

Represents the Medical Profession of
Minnesota, North Dakota, South Dakota and Montana

The Official Journal of the
North Dakota and South Dakota State Medical Associations
The Hennepin County Medical Society
The Soo Railway Surgical Association
and The Sioux Valley Medical Association

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APRIL 1, 1925

THE PROGRAM FOR THE MINNESOTA STATE MEDICAL MEETING

The program in full is printed on another page and is not subject to much change although the Minneapolis Clinic Week day program may be altered, but not very materially. The attention of the medical men is called particularly to the evening meetings at which there will be some very excellent speakers, men of national reputation and men who will give us something to think about. The only evening which is reserved for the entertainment of our guests is Wednesday evening, when the Committee on Arrangements from the Hennepin County Medical Society expect to put on a corking good show. This evening will not be taken up with speeches, but will be devoted to entertainment from the various vaudeville houses, and something more in the nature of a surprise will be added in the early part of the evening.

We call attention, too, to the fact that these meetings, all of them, are to be conducted on the University Campus. The Anatomical Building auditorium will probably be the place of resort for most of the work, but the building also contains another auditorium which may be used for other meetings. The Council and the House of Delegates will have their meetings in the faculty room of the Anatomical Building. However, there will be signs posted over the University

Avenue end of the buildings in which the various meetings will be held so there can be no mistake. It is perhaps unnecessary to announce again that all of these clinics, including the morning and afternoon work of the State Medical Association, will be dry clinics, demonstrations, or short talks; that the Minneapolis Clinic Week day will be entirely of dry clinics and will meet in the Anatomical Building in one of the same meeting-places in which the State Association meeting takes place. So there will be no going about from place to place until Friday and Saturday, when the hospitals will be opened for clinical demonstrations, operations, and other forms of medical and surgical demonstrations.

The printed program will not be out until the fifteenth of April, but will be in the hands of everyone on the first day of the meeting, April 28.

THE PERIL OF THE UNIVERSITY FUND

Our readers will remember that Mayor Leach of Minneapolis appointed a committee of six to investigate the conditions at the General Hospital, the question of a change of the hospital site, and also to discuss the fund of \$1,500,000 which was to be given by the General Educational Fund, a branch of the Rockefeller Foundation. This matter was brought up before a special meeting of the Hennepin County Medical Society, and a large majority were in favor of the change in the site of the General Hospital to the University Campus. There was a great deal of discussion, and most of the men who were present hoped that the University could have another and a larger teaching hospital. The Mayor's Committee, however, finally submitted a report and the majority report was adopted in a four to two vote. The majority report was led by Dr. Roan, and was accepted, and the minority report by Dr. C. B. Wright. Both were presented to the Welfare Board of Minneapolis, and the final disposition of the case has not been made public. However, the action of the Committee has imperiled the gift from the General Educational Fund, and it is probable that the University authorities will have to go before the Board again and ask for a new sum, and the result of this consultation is, of course, very much in doubt.

It will be remembered, too, that with the fund of \$1,500,000 the University was to raise \$3,600,000, and, as it is improbable that the Legislature can be of any great service, it was hoped that a large part of this might be raised by subscription and donations from moneyed people. But at this

time with so much economy and less taxation and uncertain legislation in the air, the whole question looks very dubious. Further than this, the majority of the Mayor's Committee recommended that the old Judd property be purchased for additional hospital buildings. This raised a protest from the minority members of the Committee, and it was said that the Council does not favor, by a large vote, the purchase of this property for hospital purposes. It is rather unfortunate that the matter has been given so much publicity because it is quite evident that people very soon tire of a new thing, and it may be very difficult to resuscitate and reanimate the problem which was undertaken in good faith.

ANOTHER SENSATIONAL MYSTERY CASE

Chicago seems to be the plotting ground for mystery stories or, at best, mystery crimes, and the last one which has been heralded all over the country is the celebrated McClintock-Shepherd case. Mr. Shepherd is being held for the death of his millionaire ward on the basis of a story of Charles C. Faiman, a man who was running a bacteriological laboratory. Before he became a so-called bacteriologist in the bacteriological school he had been most everything, from a grocer's clerk to a chauffeur and had followed several other unscientifically professional occupations. This man was never graduated from an accredited school of medicine, but somehow he wormed himself into a business that required an intelligent and highly trained man. He was, for instance, making typhoid cultures, and, if there was any legitimacy in his work, it was for the purpose of manufacturing bacterins for sale, to be injected into people to prevent typhoid. It hardly seems possible that a man of this stamp, an out-and-out quack, could have interested any chemical house or a house that distributes bacterin products, or could have secured sufficient opportunity to carry on his business; yet apparently he did, and he also had a school connected with his business in which he trained (?) people in bacteriology. He also was starting a training-school for nurses, but, fortunately, he had never issued any diplomas. At all events, here is a man who admits (or at least it is so reported by the press) that he was in consultation with this lawyer, Shepherd, and was conspiring with him to deliver live typhoid bacteria in order that he might, as supposed, poison his ward, McClintock. It is an appalling situation at best to think that such things can exist in a city of such magnitude

and in such a medical center as Chicago. They doubtless exist in many other places.

The American Medical Association does not hesitate to brand this man as a quack. Probably the trial of this case will be very much like the trial of Loeb and Leopold, a sensational and contradictory and hair-splitting one with a lot of testimony. Doubtless physicians will be called in to give opinions on the reliability of testimony from various witnesses, and perhaps some men will form judgments and conclusions for one or the other side, or both. The state is evidently determined to prosecute this case to an issue, and probably for the next few months our newspapers will be loaded down with the story of the Chicago typhoid fight.

It is refreshing to see in the daily press an editorial, such as a recent one in the *Minneapolis Tribune*, on this whole question, and we are glad to quote from it to cover the various points made. At all events it recognizes the fact that the medical profession is far above the numerous quacks who infest the country. It is about time that the people were awakened to the true state of affairs—that science and scientific training and education conducted under the auspices of medical societies or a state board of health are really of value, whereas our quacks are turned out in large numbers, badly and perhaps poorly educated in the fundamentals; yet the people patronize them to an astounding degree. We are glad to quote *The Tribune* editorial:

The high standard of ethics of the American medical profession is as important a public protection as is our police force, and this unquestionable fact is nowhere better illustrated than in the McClintock-Shepherd case, Chicago's latest contribution to criminal melodrama. The murder indictment under which William D. Shepherd is being held for the death of his millionaire ward, William Nelson McClintock, is based on the story of Charles C. Faiman, whom the American Medical Association brands as a quack, that he gave the indicted lawyer typhoid germs to administer to the unfortunate boy.

Faiman, on his own story, was the type of quack upon whom the medical profession has made unremitting warfare. He was never graduated from an accredited school of medicine and was not entitled to the degree of doctor, much less to be head of a school such as he was conducting.

For years the American Medical Association has been waging a determined and largely successful fight for higher requirements in accredited medical schools, and against the "diploma mills," which turn "graduates" upon the public after six-month courses in this and that. Through the national association, and its state and county branches, such as our own Hennepin County Medical Society, reputable doctors have warned the public against the imposters who claim cures for diseases that scientific advancement has not yet conquered. When we consider that our

very lives are in the hands of our health officers, which includes every responsible doctor, for the purity of the air we breathe, the water we drink, and a thousand and one other health safeguards, we shudder when we think what might happen if the medical profession was not composed of men of the highest ideals.

There is no law in Minnesota which prevents a quack as Faiman from starting a diagnostic laboratory and distributing typhoid bacilli. But our State Board of Health, with the co-operation of the medical profession, prevents poison peddling by constant watchfulness. Sometimes the lengths to which members of the medical profession and its scientific branches carry their rigid code of ethics makes us a trifle impatient. Then something like the present case arises to prove that those same unbending requirements they impose upon themselves are framed for our protection. It is a comforting thing to consider—the character and high standards of our medical profession.

THE DRUG ADDICT

We have read, in the February number of the *American Mercury*, under the department of sociology, an interesting article on the drug addict, by Robert A. Schless, in which he says a drug addict looks and behaves no more like his stage impersonator than a theatrical Irishman or German or Jew is like his prototype. Then he goes on to discuss the diagnosis of the man who is addicted to narcotism. There is no certainty about it at all, and there are probably any number of drug addicts who are given to the continuous use of narcotics but in measured quantities and they do not, as a rule, go beyond it unless by some very forceful circumstance. They may be, as Mr. Schless says, very quiet, easy-going men and women who do not in any way resemble the commonly accepted delineation of a "doper," and it may be there are many who are associating with people in society and public places who would go absolutely unrecognized. Of course, there are a number of men who are more or less criminal in their tendencies, and doubtless many of the robberies of to-day are committed by men who use narcotics. They are desperate at times, and they must have their medicine no matter what the cost may be. These people rob drug stores, hospitals, and people for small sums of money in order that they may satisfy their cravings.

The so-called sex crimes, Mr. Schless says, which are commonly regarded as the natural result of drug taking, are myths, for no addict is sexually competent if he is a confirmed user of drugs. Schless also believes that the indirect criminal result of drug addiction has been caused by the unscientific and illogical methods taken to stamp out the habit. This is probably quite true,

and, if the Government could control the situation and make "drug-legging" a poor business proposition and supply the addicts with whatever narcotics they may need, and do so under supervision, the peddler would become a thing of the past, and the addict would be sent to a properly organized institution to recover from his illness.

It is rather queer that many people who have been addicted to narcotism for years make such sudden recoveries. The writer recalls one instance of a woman who had eaten opium for forty years, and when the Harrison Law was passed she believed that it would be impossible for her to get any more of the drug and she voluntarily stopped its use without the slightest inconvenience. Another case that came to the writer's notice was that of a woman who had used morphine for more than thirty-five years, supplied to her by her physician so that he knew definitely how much she took, still she took it in large quantities. And yet she, at the age of eighty, was relieved of her habit by a reasonably rapid reduction, practically in a period of eight weeks. There must be something, then, in the fact that most of these drug addicts, and particularly people who take increasing amounts, are simply suffering from a state of mind, and that is why they recover so well. Perhaps they are fundamentally of strong character, able to resist temptation, to overcome their habits. But the mental attitude of any drug taker is really his state of mind. Many drug addicts were accepted in the army, their habit being later incidentally betrayed. It is said that among the blacks the use of narcotics has been encouraged by some Southern plantation owners in order to keep the negroes from immigrating northward. At all events, they seem to suffer much less from their narcotism than do the whites.

Usually the addict can be relieved of his drug taking by ordinary hospital methods. He is put in bed, drugs are taken from him, and his dose is given him at regular intervals, but in rapidly diminished amounts, and the probabilities are that under this treatment the man or woman recovers from the addiction without ever knowing when the drug was withdrawn. The old method of slow withdrawal is a thing of the past, and once the writer heard a man state before a medical society that in the slow withdrawal of the drug he finally reduced his dose down to 1/200 of a grain,—an utterly absurd position for any doctor to take. The rapid withdrawal is much better, much safer, and does not continuously bring back to the patient's mind the use of the hypodermic syringe. In some instances the full with-

drawal is made at once. But this method is not as successful as the moderate withdrawal method.

It is rather strange to admit that there are a number of addicts among children, school children particularly; and how a man can approach a child with a suggestion that he take something to make him feel better is incomprehensible, but it is done, nevertheless. These peddlers believe that once a user always a customer, but that is not true because there are many of the drug users who are only too glad to be rid of their troubles, to get away from the constant injury to their pride and also other mental fears that surround their addiction.

Schless also says that addicts meanwhile who are committed to corrective and reformatory institutions to be built up physically by fresh air, out-of-door work, and total deprivation of narcotics, after months of vigorous training of the body and building-up of the weakened morale that made the habit possible, have commonly gained fifteen to fifty pounds in weight, are sound in wind and limb, and glow with new health; they step out of the reformatory, vigorous and restored, and—ready to be accosted by another peddler.

MEDICAL RESEARCH SOCIETIES

There has been formed in New York, the first meeting of which took place in 1920, an association for research in nervous and mental disease, and it has published, so far, three volumes of report, and two additional volumes are in preparation. The first volume was on "Acute Epidemic Encephalitis," published in 1920; the second volume, on "Multiple Sclerosis," was published in 1921; and the third volume, which is before the writer, is on "Heredity in Nervous and Mental Disease," published in 1923. These volumes embody very carefully prepared papers by prominent men in medicine, and the volumes also include the discussions participated in by members of the Association. The present volume contains a preface which explains that this book is published not in any sense as a complete investigation of this most interesting group of laws, but in order to introduce a little maturity of vision and clarity of thought into the consideration of these questions by physicians and especially by those physicians who are so often asked to pass judgment on these questions, the neurologists and psychiatrists.

Reading this volume is like reading some of the other publications on heredity, for example, Morgan's "Physical Basis of Heredity," some-

thing of Pearl's work in Baltimore, and the recently brought out books of Wiggam, "The New Decalogue of Science," and "The Fruit of the Family Tree," which deal with the beginning of things, as it were, going back as far as possible into research, history, and accumulated knowledge, which include hereditary factors, environment, and studies in eugenics. For instance, in this present volume the first chapter is on "General Considerations: The Rôle of the Cell and the Chromosomes;" "The Significance of Exogenous Factors in Heredity." This chapter is prepared from various works which have been published from time to time and which are almost always considered in other books on heredity, yet from this point of view it presents a little different aspect because it deals with the nervous and mental side of life. The discussions are particularly interesting because of the doubts and queries that come up from the various men who discuss the paper. The next chapter is "The Parts of the Central Nervous System Which Tend to Exhibit Morbid Recessive or Dominant Characters." The third chapter deals with "Pathological Aspects of Heredity in Nervous Disease," and includes in its scope the nervous system, the extraneural systems, and works in experimental degeneracy. Chapter IV is on "Heredity in the Psychoses; The Factors in Its Development and Its Pathology." Chapter V is, for the time being, an interesting feature of the book, "Heredity in Literature," and was written by Dr. Joseph Collins and published in a former book of his called "Taking the Literary Pulse."

Heredity is still a much discussed subject, and there are a number of people who believe in it in its entirety, and some who do not believe in it at all, while others are receptive or doubtful about its value. But it seems to the writer, at least, that the study of it is a part of every medical man's education. Dr. Collins writes, in one of his paragraphs on "Heredity in Literature," that "Professor Lotsy writes 'of heredity we know nothing.' Professor J. H. Morgan says, 'The problem of heredity may be said to be solved.'" Take your choice, but study the subject one way or another.

This book is published by Paul B. Hoeber, Inc., of New York, and the principal and only picture in the book is that of Gregor Johann Mendel, an Austrian monk who was born in 1822 and died in 1884. But he was the man who started and put on the scientific map the term "heredity," and to him much credit must be given for the establishment of the Mendelian law.

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| NEWS ITEMS |
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Dr. E. M. Clay has moved from Renville to Hutchinson.

Dr. C. E. Remy has moved from Yankton, S. D., to Omaha, Neb.

Dr. R. A. Scott has moved from Drayton, N. D., to Detroit, Minn.

Child Guidance Clinics are being conducted in many parts of Minnesota.

The Southern Minnesota Medical Association held a one-day's session in Owatonna on March 18.

Dr. W. E. H. Morse has moved from Morris-town to Altura, where he will take up community practice.

Dr. W. K. Jacobey, of Mobridge, S. D., has purchased a hotel building in that city to be used for hospital purposes.

Dr. E. S. Bell, of the University Medical School, presented a paper on "Bone Tumors" at the March meeting of the St. Louis County Medical Society at Duluth.

Dr. W. Stuart Leach, of Roseau, has a paper in the March issue of *Mercury* on "The 'Peculiar Essence': Observations on Blood, Planetary Influence and Painless Parturition."

The Friedrich Memorial Hospital, of Red Wing, the gift of Mr. and Mrs. C. E. Friedrich, was dedicated and opened last week. It is a very attractive building, and its equipment is complete.

Dr. A. C. Strachauer has resigned as Chief of the Department of Surgery in the Medical School of the University of Minnesota to become director of Institute of Cancer Research of the University.

Dr. H. L. Crane, formerly of Lead, S. D., is now employed by a large mining company at La Oroya, Peru. He retains membership in the Black Hills District Medical Society of South Dakota.

Dr. F. W. Schlutz, Chief of the Department of Pediatrics, University of Minnesota, who has been visiting the hospitals and medical schools of South America for several weeks, will return next week.

The Powell Hospital of Sisseton, S. D., has re-opened. This hospital building, with a capacity of eighteen beds, was erected in 1820, and has remained unoccupied because of the financial depression.

Dr. Charles C. May, of Adrian, died last month at the age of 65. Dr. May was a graduate of

the Medical College of the State University of Iowa, class of '86, and had practiced in Adrian for thirty-nine years.

The annual meeting of the South Dakota State Medical Association will be held at Sioux Falls on May 21 and 22; and the annual meeting of the North Dakota Association occurs on May 25 and 26 at Fargo, N. D.

The bequest of \$36,000 left by the late Dr. Hugh F. McGaughey, of Winona, for the building of a tuberculosis hospital, has passed into the hands of the Winona General Hospital under the conditions of the will.

Dr. C. C. Cowin, who was formerly associated with Dr. W. R. Murray, of Minneapolis, and of late with the Jamestown (N. D.) Clinic, is now located at 205 Southwestern Ave., Los Angeles, California. He is a specialist in eye, ear, nose, and throat work.

It is announced by the Minneapolis assistant city health commissioner, Dr. W. F. Reasner, the death rate from pneumonia in Minneapolis is less than the rate for the same disease in many so-called health resorts in milder climates far South of this latitude.

The Medical Alumni of the University of Pennsylvania of Southern Minnesota have organized a unit of the Pennsylvania University medical graduates. Dr. A. W. Adson and Dr. P. N. Jepson, of Rochester, were elected president and secretary-treasurer, respectively.

Dr. Eugene L. Mann, of St. Paul, died last month at the age of 64. Dr. Mann graduated from the Hahnemann Medical College and Hospital of Philadelphia in the class of '86, and began practice in St. Paul the next year. He later specialized in eye, ear, nose, and throat work.

At the March meeting of the Seventh District Medical Society of South Dakota, held at Sioux Falls, plans for the meeting of the State Medical Association at Sioux Falls on May 20 and 21, were taken up. Dry clinics will prevail, some prominent outside men will be present, and all in attendance will be given a good time.

The March meeting of the Grand Forks (N. D.) District Medical Society took up the subject of infantile paralysis. The different phases of the subject were discussed by Prof. H. M. Banks, of the Medical Department of the University of North Dakota; Dr. I. G. Wiltrout, of Oslo, Minn.; Dr. C. J. Glaspel, of Grafton, N. D.; and Dr. F. E. Wood, of Park River, N. D. Cases were presented by Drs. John H. Moore, J. E. Engstad, H. G. Woutat, J. E. Hetherington, and H. D. Benwell, of Grand Forks.

The estimated cost of treating the water supply of Minneapolis with sodium iodide is over \$6,000 a year, and the use of the mineral in this form is recommended by Dr. F. E. Harrington, the City Health Commissioner. The addition of five parts of sodium iodide to one billion parts of water would restore the iodine content of the Minneapolis water to normal and would make it the same as the waters of the Atlantic Coast, while the waters of the Pacific Coast contain ten parts of iodine to one billion parts of water.

Dr. R. D. Alway, Secretary of the South Dakota State Medical Association, informs us that the only bill before the Legislature of that state fathered by the Association, a bill to grant licenses by reciprocity with the National Board, was passed. Two antimicrobial bills were killed. One was introduced by the Osteopaths permitting them to do major surgery; and the other was introduced by the Chiropractors, which would exempt from taxation hospitals in the state admitting all licensed doctors of the state, meaning, of course, Chiropractors and Osteopaths.

Dr. C. M. Johnson, Chairman of the Legislative Committee of the Minnesota State Medical Association, informs us that the Malpractice Bill which changes the time for bringing suits for malpractice from six years to two years has been recommended by the Judiciary Committee of the Senate, passed the Senate without a dissenting voice, and is now up to the House, and the expectations are that it will pass without any difficulty. This is quite different from the state of affairs four years ago when this matter was brought up. The bill is now on general orders and will doubtless be brought out very soon.

THE INTER-STATE POST-GRADUATE ASSEMBLY CLINIC TOUR OF AMERICAN PHYSICIANS TO CANADA, BRITISH ISLES, AND FRANCE

Leaving Chicago on May 17, a group of several hundred medical men and their wives will make a very notable tour as indicated in the caption of this announcement. Dr. Charles H. Mayo, of Rochester, Minn., will be the presiding officer of the tour, and Dr. William B. Peck, of Freeport, Ill., will be the managing director.

This tour is made in response to an invitation extended to American physicians by the leading universities and medical institutions of Canada, the British Isles, and France. It is organized by the Inter-State Post-Graduate Assembly. Visits will be made to Toronto and Montreal in Canada, and to London, Liverpool, Manchester, Leeds, Dublin, Belfast, Glasgow, Edinburgh, Newcastle-upon-Tyne, Paris, and other cities; and the distinguished medical men of these cities will take part in the programs at each place. The list of men of world-wide repu-

tation who will be met and heard by the visitors is a long one. The great hospitals, colleges, and clinics along the route of the tour will contribute their best efforts to the instruction and entertainment of the visitors.

The social side of the tour will be all the cities visited can offer.

Two ships have been chartered to carry the tourists, the Ansonia, of the Cunard Line, and the Doric, of the White Star Line, each a new one-cabin ship of excellent appointments.

The cost of the trip for each person will be under \$1,000. An advance reservation fee of \$65.00 is required.

On March 20, 400 physicians had registered, in addition to 224 members of their families, making a total of 624 persons registered for the tour. Forty-one states are represented.

The following people have registered from Minnesota, the Dakotas, and Montana:

Minnesota

Albert Lee: Dr. H. D. Burns.
 Bemidji: Dr. and Mrs. E. H. Marcum, Mrs. Andrew Warfield, Miss Mary C. Warfield.
 Duluth: Dr. and Mrs. John A. Winter.
 Mankato: Dr. A. E. Solmer.
 St. Paul: Dr. and Mrs. George A. Geist, Dr. F. C. Schuldt.
 Rochester: Dr. and Mrs. G. B. Eusterman, Dr. and Mrs. H. Z. Giffin, Dr. and Mrs. Charles H. Mayo.
 Minneapolis: Dr. and Mrs. George G. Eitel, Dr. and Mrs. C. N. Spratt.

Montana

Butte: Dr. Caroline McGill, Dr. and Mrs. H. D. Kistler.

North Dakota

Bismarck: Dr. and Mrs. C. W. Schoregge.

South Dakota

Mobridge: Dr. and Mrs. G. H. Twining.

PROGRAM OF THE ANNUAL MEETING OF THE MINNESOTA STATE MEDICAL ASSOCIATION AND MINNEAPOLIS CLINIC WEEK DAY, APRIL 28 AND 29, 1925, MINNEAPOLIS

An unusual and valuable feature of the meeting to be held at the University Medical School, Minneapolis, will be the "Medical Economics" session, to be held at the Anatomical Auditorium the opening night of the meeting, April 27.

"Periodic Examinations," which at the present time are being advocated by the health organizations of the country, will be discussed from the standpoint of the physician by Dr. Frank Billings, former president of the American Medical Association.

The rest of the Monday night program will be given over to discussion of the various phases of medical defense by national and state authorities, including Dr. W. C. Woodward, chairman of the Judiciary Committee of the American Medical Association, Dr. E. Starr Judd of the Mayo Clinic, and Mr. Fred E. McLucas, attorney for the Medical Protective Company, Fort Wayne, Indiana. The complete Monday night program follows:

Periodical Medical Examinations. Dr. Frank Billings.

Medical Defense. Dr. W. C. Woodward.
 Don'ts for Malpractice. W. H. Oppenheimer of the
 State Association's Legal Firm.
 National Defense. Major Irving M. Madison.
 Corrective Legislation. Fred E. McClucas.
 State Legislation. Dr. H. M. Johnson.
 Substitute Medical Defense. Dr. E. Starr Judd.

The usual meeting of the Council of the Association will be held Monday morning and of the House of Delegates in the afternoon.

Dr. W. D. Haggard, Nashville, Tenn., president of the American Medical Association, will be among the out-of-state speakers on the program. He will give a clinical demonstration in the Medical and Surgical Joint Section to be held Tuesday morning, and will be the principal speaker at the Tuesday night banquet to be held at the Radisson Hotel, Minneapolis. Other speakers at the banquet will be: Dr. W. J. Mayo, who will act as toastmaster; Dr. Frank Billings; Governor Theo. Christensen, Mayor George Leach of Minneapolis and Dr. Willard L. Burnap, president of the Minnesota State Medical Association.

Hotel headquarters for the meeting will be at the Radisson where the visiting physicians will be entertained at a smoker Wednesday evening by the Hennepin County Medical Society.

Thursday, April 30, will be Clinic day and a series of Clinics, part of Minneapolis Clinic Week, will be conducted by members of the Hennepin County Medical Society. A golf tournament to be held Monday is an additional feature.

Special effort has been made this year to work out a well-rounded program which will be of value and interest to every physician in the state, and a large attendance is urged. That physicians make a special effort to arrive for the Monday night meeting is the request of those in charge of the program.

Roll-call of the secretaries of the Component Societies will be held Monday night.

The program of the scientific section of the meeting follows:

Tuesday Morning, 8:00 A. M., April 28, 1925

Joint Session, Medical and Surgical Sections.

The University Campus.

1. Clinic on Tumors of the Lymph Glands.
 - (a) Clinical Presentation—Medicine. Dr. J. P. Schneider, Minneapolis.
 - (b) Surgical Demonstration. Dr. Harry B. Zimmerman, St. Paul.
 - (c) Roentgenologic and Radium Treatment. Dr. A. S. Fleming, Minneapolis.
 - (d) Pathological Demonstration. Dr. E. T. Bell, University of Minnesota, Minneapolis.
2. Clinic on Bone Tumors.
 - (a) Clinical Presentation. Dr. H. W. Meyerding, Rochester.
 - (b) Pathological Demonstration. Dr. W. C. McCarthy, Rochester.
3. Tumors of the Breast.
 - (a) Clinical Demonstration. Dr. W. D. Haggard, Nashville, Tenn.
 - (b) Pathological Demonstration. Dr. W. A. O'Brien, University of Minnesota, Minneapolis.

Wednesday Morning, 8:00 A. M., April 29, 1925

Joint Session, Medical and Surgical Sections.

1. Diabetes Mellitus.
 - (a) Clinical Demonstration. Dr. A. H. Beard, Minneapolis.
 - (b) Surgery in the Diabetic. Dr. A. A. Law, Minneapolis.
2. Diseases of the Thyroid.
 - (a) Clinical Demonstration. Dr. H. S. Plummer, Rochester.
 - (b) Surgical Consideration. Dr. J. deJ. Pemberton, Rochester.
3. Diseases of the Other Glands of Internal Secretion. Dr. H. L. Ulrich, Minneapolis.
4. Clinic on Neurology.
 - (a) Nervous Disorders in Pernicious Anemia. Dr. A. S. Hamilton, Minneapolis.
 - (b) Early Diagnosis of Tabes Dorsalis. Dr. J. C. McKinley, Minneapolis.
 - (c) The Sequelæ of Encephalitis. Dr. E. M. Hammes, St. Paul.
 - (d) Surgery in Spinal Cord Tumors. Dr. A. W. Adson, Rochester.
 - (e) Clinic on Speech Defects. Dr. Smiley Blanton, Minneapolis.

Tuesday Afternoon, 2:00 P. M., April 28, 1925

1. The Medical and Roentgenological Management of Hyperthyroidism. Dr. M. J. Kern, St. Cloud.
 Discussor: Dr. E. T. F. Richards, St. Paul.
2. Effect of Environment Upon the Upper Respiratory Tract and Clinical Significance. Dr. H. I. Lillie, Rochester.
 Discussors: Dr. J. A. Pratt, Minneapolis; Dr. Horace Newhart, Minneapolis.
3. Observations on the Chlorine Treatment of Acute Respiratory Infections. Dr. H. S. Dichl, University of Minnesota, Minneapolis.
 Discussors: Col. E. B. Vedder, Washington, D. C.; Dr. J. A. Myers, Minneapolis; Dr. E. D. Anderson, Minneapolis.
4. Discussion of the Care and Treatment of the Psychoneurotic. Dr. W. A. Jones, Minneapolis.
 Discussion: Dr. Arthur Sweeney, St. Paul; Dr. Frederick Mersch, Rochester.
5. Congenital Syphilis and Its Treatment. Dr. E. F. Robb, Minneapolis.
 Discussors: Dr. C. O. Kohlbray, Duluth; Dr. D. D. Turnacliiff, Minneapolis.
6. Phases of the Smallpox Epidemic, with Lantern Slide Demonstrations. Dr. S. E. Sweitzer, Minneapolis.
 Discussion: Dr. O. N. McDaniel, Minneapolis; Dr. H. E. Mienelson, Minneapolis.
7. Pathology and Diagnosis of Pulmonary Tuberculosis. Dr. Lewis Gregory Coles, (N. Y. City). Moving Picture Film, presented by Dr. H. Longstreet Taylor, St. Paul.

Wednesday Afternoon, 2:00 P. M., April 29, 1925

1. Public Health—A Challenge to the Medical Profession. Dr. O. E. Locken, Crookston.
 Discussion: Dr. C. H. Mayo, Rochester; Dr. O. W. Lindsay, Winona.
2. The Dick Test, Immunization and Treatment of Scarlet Fever. Dr. Woodard Colby, St. Paul.
 Discussion: Dr. E. S. Platou, Minneapolis; Dr. E. J. Huenekens, Minneapolis.

3. The Use of Novasurol as a Diuretic. Dr. Harry Oerting, St. Paul.
Discussor: Dr. Norman Keith, Rochester.
4. Psychology of Compensation Neurosis. Dr. Arthur Sweeney, St. Paul.
Discussion: Dr. A. S. Hamilton, Minneapolis; Dr. W. E. Hengstler, St. Paul.
5. Postoperative Pulmonary Complications. Dr. Paul G. Boman, Duluth.
Discussion: Dr. H. Richardson, St. Paul; Dr. Norman Keith, Rochester.
6. Management of Toxemia Associated with Gastric Stasis, Obstructive and Non-obstructive. Dr. C. S. McVicar, Rochester.
Discussion: Dr. D. C. Balfour, Rochester; Dr. E. L. Tuohy, Duluth.
7. Causes of Death in the Fetus and New-born, Based on 450 Necropsies. Dr. F. L. Adair, Minneapolis.
Discussion: Dr. W. A. O'Brien, University of Minnesota, Minneapolis; Dr. Roger Kennedy, Rochester; Dr. J. C. Litzenberg, Minneapolis.

SURGICAL SECTION

Tuesday Afternoon, 2:00 P. M., April 28, 1925

1. Embryology of the Upper Urinary Tract: Anomalies, with Report of Cases. Dr. F. E. B. Foley, St. Paul.
2. Ureteral Stone. Dr. John M. Culligan, Rochester.
3. Kidney Tuberculosis. Dr. Gilbert Thomas.
4. New Antiseptics: Their Value. Dr. W. F. Braasch, Rochester.
Discussion opened by Dr. Oscar Owre, Minneapolis, and Dr. Franklin R. Wright, Minneapolis.
5. The Grading of Cancer. Dr. A. C. Broders, Rochester.
6. Cancer of the Intestinal Tract. Dr. A. C. Strachauer, Minneapolis.
Discussion opened by Dr. C. B. Lewis, Saint Cloud, and Dr. Charles Bolsta, Ortonville.
7. Tumors of the Thymus. Dr. John A. Evert, St. Paul.

SURGICAL SECTION

Wednesday Afternoon, 2:00 P. M., April 29, 1925

1. The Streptococcus in its Surgical Aspects. Dr. E. C. Rosenow, Rochester.
2. The Treatment of Acute Appendicitis. Dr. Theodor Bratrud, Warren.
Discussion opened by Dr. O. W. Parker, Ely.
3. Perforated Gastric and Duodenal Ulcer. Dr. J. S. Holbrook, Mankato.
Discussion opened by Dr. Roland Gilmore, Bemidji.
4. Production and Healing of Peptic Ulcer: An Experimental Study. Dr. F. C. Mann, Rochester.
5. The Surgery of the Spleen. Dr. Archa Wilcox, Minneapolis.
6. The Lowering of the Mortality Rate in Toxic Adenoma of the Thyroid. Dr. T. L. Chapman, Duluth.
Discussion opened by Dr. Harper Workman, Tracy.
7. Clinical and Roentgenological Differentiation of Some Apparently Similar Bone Lesions. Dr. Wallace Cole, Saint Paul.

BANQUET

Tuesday Evening, April 28, 1925

Radisson Hotel

Toastmaster, Dr. W. J. Mayo, Rochester.
Welcome, Mayor George E. Leach.
The State Association, Dr. W. L. Burnap, Minnesota, Governor Theo. Christensen.
The Medical Profession, Dr. Frank Billings.
The American Medical Association and the Future of Medicine, Dr. W. D. Haggard, President of the American Medical Association.
Wednesday Evening, April 29, 1925
Smoker and Entertainment given by Hennepin County Medical Society
Radisson Hotel
"A Good Time for All"

PROGRAM OF CLINIC WEEK DAY

Thursday, April 30, 1925

Anatomical Auditorium, University of Minnesota
Goiter Clinic, with Operated Cases and Demonstration Cases. Dr. Gustav Schwyzer.
The Maxillary Sinus as a Focus of Infection in Childhood: Presentation of X-Rays and Patients. Dr. E. J. Huenekins.
Functional Diseases of the Colon. Dr. E. L. Gardner.
External Eye Diseases: Presentation of Clinical Cases. Dr. W. R. Murray.
"The Acute Abdomen": Diagnosis and Surgical Treatment, Illustrated by Patients. Dr. Archa Wilcox.
Obstetrical and Gynecological Clinic. Dr. J. C. Litzenberg.
A Case of Aerodynia. Dr. F. C. Rodda.
"A Series of the More Unusual Gastro-Intestinal Lesions": Patients and Lantern Slides. Dr. J. P. Schneider.
Presentation and Demonstration of Common Forms of Skin Disease. Dr. S. E. Sweitzer.
Prostatic Cases: Their Management and Treatment. Dr. Franklin R. Wright.
(a) Dislocation of the Carpal Semilunar Bones.
(b) Volkmann Contracture. Dr. Emil S. Geist.
Congenital Brain Defects: Demonstration Cases. Dr. W. A. Jones.
Surgery of the Stomach and Bowel. Dr. Arthur Strachauer.
Neurological Surgery with Demonstrations. Dr. J. Frank Corbett.
Some Phases of Plastic Surgery. Dr. R. E. Farr.
Hospital Clinics in the various hospitals of Minneapolis on Friday and Saturday, May 1 and 2, will be announced in a later program, probably by April 15.

Position Wanted

An office position wanted by a competent stenographer who is familiar with medical work. Best of references. Address 187, care of this office.

Sanitarium for Sale

In the pines of Northern Minnesota, in the lake regions; fully equipped and all modern. Address 194, care of this office.

Laboratory Technician Wants Position

Can do all the work required in the laboratory of

a physician, hospital, or clinic. Will work for a moderate salary. Address 192, care of this office.

Technician Wanted

A hospital in small city in Minnesota wants a Laboratory Technician who can do both general laboratory and x-ray work. Address 188, care of this office.

Office Position Wanted

By a graduate nurse who can do routine laboratory work, book-keeping, stenographic work, etc. Salary moderate for work in the Twin Cities. Address 190, care of this office.

Position Wanted

By a young woman who is a graduate of the occupational therapy course of the University of Minnesota. Can give the best of references. Address 197, care of this office.

For Rent

The Rest Hospital located at 2527 2nd Ave. So., Minneapolis. Operated 20 years by present owner. Twenty-five rooms; 6 bath-rooms; beautiful grounds. Address 186, care of this office.

Fine Practice for Sale

Good practice in a county-seat town of 700 in Southwestern Minnesota. Good farming community. Plenty of work and good pay. Good residence, completely modern. Good reason for selling out. Terms very reasonable. Address 195, care of this office.

Work as Associate Physician Wanted

By a graduate of Vienna who has taken, also at Vienna, the following postgraduate courses: 4 months in dermatology; 13 months in general surgery; 20 months in gynecological surgery; 4 months in obstetrics; 5 months in infectious diseases of children; and 6 months in rhinology and laryngology. Applicant will accept moderate salary or percentage of business until he can take the State Board examinations in October. Good references. Address 189, care of this office.

Office in Good Location in Minneapolis Offered

For physician and surgeon in a modern new building at 3805 Nicollet Ave. Waiting-room in conjunction with dentist who is already located. No doctor on this corner. Special concession made to right man. If interested, call Colfax 2754.

Minneapolis Practice for Sale

Practice, books, instruments, office furniture, etc., of a Minneapolis physician who is retiring on account of poor health. Many years in present location. Price very moderate. Address 191, care of this office.

A Practical Course in Standardized Physiotherapy

Under auspices of Biophysical Research Dept. of the Victor X-Ray Corporation, is now available to physicians. The course offers a highly practical knowledge of all the fundamental principles that go to make up the standards of modern scientific physiotherapeutic work. It requires one week's time. For further information apply to J. F. Wainwright, Registrar, 236 South Robey St., Chicago, Ill.

Position Wanted by X-Ray and Laboratory Technician

In doctor's office or clinic. Six years experience in doctor's office. Understands all secretary and book work in connection with office or hospital. Has had several months experience in physiotherapy. Desires position where efficiency and dependability mean a permanent position and advancement. Address 196, care of this office.

Established South Dakota Practice for Sale

The practice and office equipment of the late Dr. David L. Rundlett, of Sioux Falls, S. D., are offered for sale.

Complete equipment for diagnosis and treatment in practice of internal medicine. Includes a Victor X-Ray outfit, clinical laboratory, basal metabolism apparatus, large library, etc. Will sell at a sacrifice. Address Mrs. David L. Rundlett, Box 205, Sioux Falls, S. D.

PHYSICIANS LICENSED AT THE JANUARY (1925) EXAMINATION TO PRACTICE IN NORTH DAKOTA

The North Dakota State Board of Medical Examiners held an examination for licenses on January 6 to 9. The following persons were granted licenses:

| Name | School and Date of Examination | Address |
|--|--|-------------------|
| UPON EXAMINATION | | |
| Cumming, John F. | U. of Toronto, 1922 | Abercombie, N. D. |
| Halliday, D. J. | U. of Manitoba, 1924 | Mohall, N. D. |
| Thorlakson, H. F. | U. of Manitoba, 1924 | Crystal, N. D. |
| Hoskins, James H. | U. of Illinois, 1924 | Rolla, N. D. |
| McCartney, O. D. | U. of Manitoba, 1924 | Carpio, N. D. |
| LICENSE BY RECIPROCITY | | |
| Thane, Benjamine | U. of Minn., 1916, Recip. with Minn. | Hankinson, N. D. |
| Seibel, John J. | U. of Minn., 1920, California | Harvey, N. D. |
| Findlater, A. J. M. | Royal Col., Phys. & Surg. Edin., 1924. | Center, N. D. |
| LICENTIATES OF THE NATIONAL BOARD OF MEDICAL EXAMINERS | | |
| Bohnsack, Eleanor | U. of Minn., 1923., Minnesota | Fargo, N. D. |
| Cameron, Angus L. | U. of Rush, 1916, Illinois | Minot, N. D. |

LICENSES REVOKED

Licenses of W. R. Shortridge, Flasher, N. D. and P. W. Shortt, Sanish, N. D., were revoked.

PHYSICIANS LICENSED AT THE JANUARY (1925) EXAMINATION TO PRACTICE IN
MINNESOTA

BY EXAMINATION

| Name | School and Date of Graduation | Address |
|------------------------------|--|---------------------------------------|
| Alexander, Clifford Eugene | U. of Minn., M.B., 1924 | 3244 5th Ave. So., Minneapolis |
| Arestad, Fritjof H. | U. of Minn., M.B., 1924 | Sacred Heart, Minn. |
| Bardon, Richard | N. W., 4 yr. Cert. Med., 1924 | St. Mary's Hospital, Minneapolis |
| Berg, Henning Milton | U. of Minn., M.B., 1924 | Minneapolis General Hospital |
| Berkwitz, Nathan Joseph | U. of Minn., M.B., 1924 | University Hospital, Minneapolis |
| Bittner, Joseph Eric | N. W., 4 yr. Cert. Med., 1924 | St. Mary's Hospital, Minneapolis |
| Blackford, Launcelot Minor | U. of Va., M.D., 1923 | Rochester, Minn. |
| Boe, Aslak Milo | U. of Minn., M.B., 1924 | 329 Union St. S. E., Minneapolis |
| Bomberger, Charles Benjamin | U. of Minn., M.B., 1924 | Mapleton, Minn. |
| Dunne, Gerald Peter | McGill, M.D., 1924 | Isle, Minn. |
| Dunlap, Earl Hammond | U. of Minn., M.D., 1924 | 1033 Met. Bk. Bldg. Minneapolis |
| Edstrom, Henry | U. of Minn., M.B., 1924 | Swanville, Minn. |
| Ellingson, Abel Rudolph | U. of Minn., M.B., 1924 | Minneapolis General Hospital |
| Emerson, Edward Charles | U. of Minn., M.B., 1924 | 835 Geranium, St. Paul |
| Ericksen, Lester Gabriel | U. of Minn., M.B., 1924 | University Hospital, Minneapolis |
| Fisch, Herbert Matthew | Georgetown U., M.D., 1924 | St. Mary's Hospital, Minneapolis |
| Francis, David W. | U. of Minn., M.B., 1924 | Ancker Hospital, St. Paul |
| Fried, Louis Alexander | U. of Minn., M.B., 1924 | University Hospital, Minneapolis |
| Gaalaas, Alban Felix | U. of Minn., M.B., 1924 | 3500 Park Ave., Minneapolis |
| Giesen, Allan Francis | U. of Minn., M.B., 1924 | 4251 Vincent Ave. So., Minneapolis |
| Grose, Frederick Nicolay | U. of Minn., M.B., 1924 | Minneapolis General Hospital |
| Gullikson, John Wendell | U. of Minn., M.B., 1924 | N. P. Hospital, Tacoma, Wash. |
| Hand, John Redmond | U. of Minn., M.D., 1924 | Rochester, Minn. |
| Hansen, Arild Edsten | U. of Minn., M.B., 1924 | 3957 12th Ave. So., Minneapolis |
| Hilbert, Eunice Helen | U. of Minn., M.B., 1924 | Minneapolis General Hospital |
| Heidner, Frederick Carl | Rush, 4 yr. Cert. Med., 1924 | Ancker Hospital, St. Paul |
| Hilton, James Marion | U. of Minn., M.B., 1924 | Ancker Hospital, St. Paul |
| Johnson, Carl Edwin | U. of Minn., M.B., 1924 | 831 Thomas, St. Paul |
| King, George Lynn | U. of Minn., M.B., 1924 | 2627 Chicago Ave., Minneapolis |
| Kohl, Harold Willis | U. of Minn., M.B., 1924 | 2112 25th Ave. No., Minneapolis |
| Mueller, Gustav Gottlieb | U. of Minn., M.B., 1924 | Ancker Hospital, St. Paul |
| Neubeiser, Ben Lawrence | U. of Minn., M.B., 1924 | St. Mary's Hospital, Duluth |
| Orlob, William | Frankfurt Univ., Prussia, Ger., Dr. of Medicine, 1920 | Renville, Minn. |
| Potter, Edith Louise | U. of Minn., M.B., 1924 | 3305 Oakland Ave., Minneapolis |
| Quale, Victor Sigvald | U. of Minn., M.B., 1924 | University Hospital, Minneapolis |
| Rucker, Charles Wilbur | U. of Minn., M.B., 1924 | 1525 16th Ave. No., Seattle, Wash. |
| Schild, Emmett L. | U. of Minn., M.B., 1924 | Care of N. P. Hosp., St. Paul |
| Stoesser, Albert Valentine | U. of Minn., M.B., 1924 | 495 Aurora, St. Paul |
| Stuurmans, Sheldon Harry | U. of Minn., M.B., 1924 | Care of General Hospital, Minneapolis |
| Swenson, Arnold Oliver | U. of Minn., M.D., 1924 | Marine-on-St. Croix, Minn. |
| Ude, Walther Herman | U. of Minn., M.B., 1924 | Minneapolis General Hospital |
| Vaaler, Torvald | U. of Minn., M.B., 1924 | Minneapolis Swedish Hospital |
| Whelan, Anna | U. of Pa., M.D., 1921 | 517 Essex St. S. E., Minneapolis |
| Wickham, Mont Cecil | U. of Minn., M.B., 1924 | 5009 Tireman Ave., Detroit, Mich. |
| Wohlrahe, Clarence Frederick | U. of Minn., M.B., 1924 | Minneapolis Swedish Hospital |
| Wohlrahe, Edwin John | U. of Minn., M.B., 1924 | Care of Gen. Hosp., Philadelphia, Pa. |
| Zachman, Albert Herbert | St. Louis U., M.D., 1924 | St. Mary's Hospital, Minneapolis |

THROUGH RECIPROcity

| | | |
|-------------------------------------|--|---------------------------------------|
| Blanton, Smiley | Cornell, M.D., 1914 | Lymanhurst Hospital, Minneapolis |
| Burman, Guy Elmer | U. of Neb., M.D., 1918 | Rochester, Minn. |
| Busby, James Leslie | Starling, Ohio, M.D., 1913 | Rochester, Minn. |
| Combacker, Leon Clinton | U. of Mich., M.D., 1909 | 225 7th Ave. S. E., Minneapolis |
| Graves, Waldo Neil | Rush, M.D., 1924 | 1645 Hennepin Ave., Minneapolis |
| Hall, Henry Homer | Hamline, M.D., 1908 | Webster, Wis. |
| Kenefick, Emmett Vincent | U. of Ia., M.D., 1923 | Church Club, St. Paul |
| McKnight, Roy Bowman | U. of Pa., M.D., 1920 | Rochester, Minn. |
| McManus, Clara | Sioux City Col. Med., M.D., 1902 | 525 University Ave. S. E. Minneapolis |
| Morton, Charles Bruce | U. of Va., M.D., 1922 | Rochester, Minn. |
| Schulz, Irwin Wm. Paul | Marquette, M.D., 1924 | Rochester, Minn. |
| Scott, Robert Andrew | Queens, M.D., 1907 | Detroit, Minn. |
| Shippey, Stuart Hunter | Emory U., M.D., 1923 | Rochester, Minn. |
| Wiese, Henning Frithjof Blomberg | U. of Kristiania, Norway, Dr. Med, 1915 | 6th St. So. at 23rd Ave., Minneapolis |

NATIONAL BOARD CREDENTIALS

| | | |
|--------------------|-------------------------|--------------------------------------|
| Fink, Walter Henry | U. of Minn., M.D., 1921 | 301 Phys. & Surg. Bldg., Minneapolis |
|--------------------|-------------------------|--------------------------------------|

THE JOURNAL LANCET

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New Series
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INFECTIONS OF THE GALL-BLADDER AND BILE-DUCTS*

BY E. STARR JUDD, M.D.

ROCHESTER, MINNESOTA

So much has been said about infections in the gall-bladder and biliary tract in recent years that it is difficult to bring up a new idea for consideration. Because of the frequent occurrence of these infections and the serious nature of many of them, it may not, however, be amiss to consider them repeatedly, with the hope that we may thereby extend our knowledge and so be able to render better service. Considerable advancement has been made in recent years, owing to the combined efforts of investigators and clinicians, especially along the lines of conditions associated with infections of the gall-bladder and bile-ducts. We no longer think of these infections as indicated by stone formation alone, for we have seen not only cases of inflammation in the gall-bladder without calculi, but also many cases in which the disease in the gall-bladder was a minor part of a much more extensive infection in the hepatic and pancreatic parenchyma. It is doubtful whether infection can occur in one of these regions without extending in some degree to the others, and often we find more signs of trouble in the liver or pancreas than in the gall-bladder. Knowledge of the intimate association of all of these tissues through the blood and lymph streams clarifies the clinical picture, and points the way to more effective treatment.

While the gall-bladder is seldom, if ever, alone involved, it is frequently the center of the infection, and apparently the place where the organisms are retained in a quiescent state during

the interval between attacks. The gall-bladder is the one part of the biliary system which can be completely destroyed by disease, or removed by operation, without any noticeable change in the individual's well-being.

FUNCTION OF THE GALL-BLADDER

The gall-bladder does not arise from the same group of cells as the liver; it is formed from the group of primitive cells from which the pancreas, stomach and duodenum originate. From the embryologic standpoint it will be seen that the gall-bladder is important, and from the physiologic viewpoint its functions have been widely discussed. The most definite proof that we have that the gall-bladder has a specific function or functions was brought out in some experiments performed at the Mayo Clinic a number of years ago. The results of these experiments tended to show that when the gall-bladder was removed or destroyed, definite changes occurred in the extra-hepatic biliary system, which were interpreted as an effort to compensate for the loss of the organ.

More recently Sweet has shown that after the gall-bladder is removed, small saccules connected with the intrahepatic ducts become distended. Attention had been called to these saccules before, but the idea of their beginning to function after loss of the gall-bladder is rather new. The older idea that the gall-bladder functioned as a reservoir has been rather thoroughly discredited, but it does not seem to me that we can discard the conception of its function as a tension bulb. We know that bile is secreted continuously and that the intraduct pressure is maintained by the

*Presented at the Thirty-seventh Annual Meeting of the North Dakota State Medical Association, at Bismarck, N. D., September 10 and 11, 1924.

secretion and by the resistance of the sphincter muscle at the lower end of the duct. If bile is not needed in the duodenum, it is withheld by contraction of this sphincter, and, if the gall-bladder is functioning, the increased pressure as a result of this contraction of the sphincter muscle is equalized by some of the bile escaping into the gall-bladder. One of the interesting theories regarding the function of the gall-bladder is that presented by Rous and McMaster, which has to do with the concentration of the bile. They demonstrated that bile remaining in the gall-bladder for a number of hours became many times more concentrated than normal bile; the concentration was estimated by the amount of bile pigment. This theory is confirmed by the observation, so often made at operation, that the bile in the gall-bladder is almost always much darker than that in the biliary ducts. Continuing along this line, Sweet considers this concentration of bile by the gall-bladder merely part of the process of absorption, which he believes is the most important function of the gall-bladder. He thinks that the manner of the origin and development of the duct system of the liver indicates that the membrane lining of the system may possess the power of absorption, and the position of the gall-bladder, the provision of two valvular structures at its outlet, which are mechanically designed to permit inflow and to hinder outflow, lead him to the conclusion that, under normal conditions, whatever passes into the gall-bladder through the cystic duct never passes out again through this duct. The bile contained in the gall-bladder is eventually absorbed, and in the process of absorption there passes into the blood or lymph an unknown something which has to do with the breaking up of the esters of cholesterol. Sweet also believes that the gall-bladder may have an important function in the metabolism of fats, and that the so-called strawberry gall-bladder, which shows the deposits of lipoid tissue within the cells, is evidence of this function.

I call attention to these several important physiologic functions in which the gall-bladder may play an important part, to emphasize the importance of giving very serious consideration to each case before any procedure is undertaken which may interfere with these functions. It is well known that many a person is living just as happily with his gall-bladder destroyed by disease or removed by operation as he did before, but the mere fact that life can be enjoyed without a gall-bladder is not a good reason for removing the organ. Most gall-bladders which are removed

have already been completely destroyed by inflammatory processes, so that any changes attendant on loss of the gall-bladder have already taken place.

SOURCE OF INFECTION

In early studies of the manner in which infection enters the biliary tract, the bile stream was regarded as the most probable channel. More recently this has been practically disproved, and most observers believe that infection nearly always enters by way of the blood vessels, and that in most cases the infection involves the tissues and not the bile. An interesting conception of the source of infection in some of these cases has been given by Graham, who showed that when organisms were liberated in the portal vein, they could be recovered in large quantities, not only from the hepatic tissue but also from the tissues of the gall-bladder. This theory of infection through the portal circulation is gaining more support at the present time. Such a mode of infection would account for the fact that the infection is general, involving the whole biliary tract, and not limited to any one region.

CLINICAL FEATURES

The clinical symptoms presented depend on the part of the biliary system most involved. We have long recognized cases of clear cut cholecystitis, and we have learned, to a certain extent, to distinguish between cholecystitis with, and without, calculus formation. We know that many patients have sharp, short, severe attacks of pain with typical radiation, and we also know that when a patient has associated jaundice, or chills and fever, the infection extends into the common and hepatic ducts. In spite of the fact that the gall-bladder is very richly supplied with lymphatics, it is unusual for a patient with suppurative cholecystitis to have a high temperature, or evidence of systemic infection.

The diagnosis of cholecystitis is usually easily made by the clinical history. Until very recently we were pessimistic about the value of the x-ray in the diagnosis of these conditions, but we now have undertaken a study of the roentgenographic diagnosis of these lesions after the introduction of a dye into the general circulation. This is known as the Graham method. After the introduction of the sodium salt of tetrabromphenolphthalein, the gall-bladder can be visualized, much as the stomach is after a barium meal. This method apparently has some very distinct advantages, and, when perfected, will undoubtedly be

of great value, but at present the necessity of introducing this salt into the general circulation occasionally results in a rather severe reaction.

It has been the tendency of clinicians to lay great stress, in the diagnosis of cholecystitis, on an antecedent typhoid. I noted with considerable interest the diagnosis of cholecystitis from very meager, indefinite symptoms in a recent patient, in view of the fact that he had had typhoid fever some time before. Only very rarely in such cases can the typhoid bacillus be recovered from the gall-bladder, and often it is difficult to demonstrate the presence of cholecystitis. I have watched these cases very faithfully for many years, but only recently encountered my first case of a well developed cholecystitis following typhoid, which later required treatment for the cholecystitis. The history of this patient is of sufficient interest to present at this time.

REPORT OF CASE

A man, aged fifty-three years, was first seen at the Clinic in March, 1922. He had been in good health until November, 1918, when he contracted what was called influenza, and had an elevated temperature for nine weeks. During the third week of the illness a positive Widal test for typhoid fever was obtained. Early in January, 1919, he began to have persistent severe pain in the lumbar region, which incapacitated him for four months. In November he suddenly developed diplopia, and a few days later weakness of the left arm, with coarse tremor in both arms. The diplopia disappeared in two months, and the tremor has gradually improved.

On physical examination March 17, 1922, the tonsils were fibrous, and there was periapical infection at the roots of three teeth. X-ray examination revealed hypertrophic changes in the lumbar spine, and a diagnosis of typhoid spine was made. Aspirated duodenal content showed bacillus typhosus. Examination of the spinal fluid was negative for Wassermann and Nonne tests and cell count.

Septic tonsils were removed April 5, 1922. A vaccine was prepared from cultures taken from the tonsils, and administered at intervals until the patient returned for examination in July, 1924. There had been gradual improvement in his condition, although tremor still persisted to some extent. July 6 he had had a severe attack of epigastric pain lasting several days, accompanied by an elevation in temperature to 103° and 104°, and his local physician reported a leukocytosis of 16,000. Jaundice was not noted.

Re-examination July 30 showed improvement in articulation, gait and tremor of the upper extremities. While under observation the patient had a second severe attack of pain over the gall-bladder area. Cultures made from pharyngeal smears produced encephalitis in animals, but cultures made of typhoid bacilli from this patient did not produce encephalitis.

August 6 cholecystectomy, removal of a specimen from the liver for culture, and appendectomy for inflammatory disease were performed. A very marked

infection was evident in the gall-bladder and surrounding tissues, and there were stones in the gall-bladder. The stomach was fixed to the infected tissues, and its surface was mottled. It had a leather-bottle appearance, but we believed that its condition was the result of the infection in the surrounding tissues and biliary tract.

Cultures made from the tissues of the gall-bladder and the liver yielded the typhoid bacillus, and from the appendix, the colon bacillus.

The patient had an uneventful convalescence, and was dismissed much improved.

Of all conditions in the upper abdomen, chronic cholecystitis is one of the most difficult to diagnose. Dyspepsia occurs more often as a result of chronic inflammation of the gall-bladder than of any other lesion, not excluding ulcer. The belching of gas and the complaint of gas in the stomach and intestine are often associated with cholecystitis. It requires very careful and detailed analysis of the chronic cases to distinguish the types and to select cases suitable for operation. We have been endeavoring for some time to establish a clinical syndrome by which we could recognize cases in which hepatitis predominated. We are convinced that there is such a group of cases, and are classifying them at the time of operation as primary hepatitis with associated cholecystitis. The same may be said of the cases of chronic pancreatitis. If the pancreas is acutely inflamed, the evidence of its involvement is very clear cut, but chronic pancreatitis associated with cholecystitis is not so clear. In operating we recognize a definite change in the pancreas in certain cases of gall-bladder disease, and these should be classified as pancreatic infections. Many times, after removal of a fairly normal-looking gall-bladder, all symptoms subsided, which would seem to indicate that these were cases of hepatitis or pancreatitis. On the other hand, some patients have had a continuation or recurrence of their symptoms after removal of the gall-bladder. This seems to suggest a residual infection in the liver or pancreas.

Some of the most serious conditions that the surgeon is called on to treat are those in which infection exists in the common or hepatic ducts, or ampulla. Most of these cases are associated with stones in the ducts. The resulting biliary cirrhosis and jaundice make the condition most serious. There can be no question but that the proper attitude in these cases of deep jaundice is to postpone treatment as long as there is any hope of relief from the jaundice. Fortunately, in most cases in which infection or stone is the etiologic factor the jaundice will be intermittent. But if the jaundice deepens and is continuous, this almost certainly indicates that a neoplasm is

the cause of the trouble. Some jaundiced patients can be operated on with much less risk than others, and preliminary treatment has been outlined which is of considerable value. Functional studies of the liver are of importance in determining the prognosis in certain cases, but thus far nothing has been discovered which tends to simplify the treatment of the deeply jaundiced patient.

The results of the surgical treatment of infections of the gall-bladder and bile passages have improved, but are not what we hope they will be in the near future.

Removal of the infected gall-bladder in all cases in which the operation can be carried out with comparative safety has tended to give much better results than were obtained by drainage. Developments in the surgical technic have accomplished much. Operations are now carried out in such an accurate fashion that in many instances it is not necessary to provide abdominal drainage. In view of the fact that abdominal drainage in clean cases sometimes results in serious consequences, this can be considered an accomplishment.

Continuous efforts must be made to develop better plans in the management and treatment of cases of acute pancreatitis as well as those of biliary cirrhosis and jaundice.

DISCUSSION

DR. J. W. BOWEN (Dickinson): Dr. Judd has covered the subject very thoroughly, and I want to emphasize only one point he has made, and that is the diagnosis. The greatest point in the diagnosis is the clinical history. If you get a good history you can easily determine what condition the patient has. For instance, you ordinarily can diagnose gall-stone colic without any trouble, but when it comes to cholecystitis, with or without stones, it may be a different story. There is only one point aside from a history of dyspepsia and feeling below par, and that is every once in a while, if you go back and take a careful history, you will find that the patient has had pain once in a while. That is the most common thing in cholecystitis. If you get a history without any pain then you can have some doubt. If you get a history of cholecystitis and have some pain with it follow it up closely. I think that is a very important point and if you will follow it up closely you will bear me out.

DR. R. E. WEIBLE (Fargo): It gives me very great pleasure to discuss Dr. Judd's able and interesting paper.

Our present intense interest in cholecystitis received its stimulus from the essay by Sudler on the lymphatics of the gall-bladder and liver and Graham's demonstration of the accompanying hepatitis.

Rosenow's work on the etiology has been very important as has also Peterman's. Lastly, Richter has made popular the operation without drainage.

We are all interested in the diagnosis of cholecystitis. For a long time we were content with affirming the presence of the disease when sharp colics were present. We have now a larger view since many patients do not have a real colic. We think of the chronic type of patient as having dyspepsia, but the patient may come complaining of other symptoms rather than dyspepsia, and it is only in the taking of a careful history that any hint of dyspepsia is brought forth. These patients may complain of migraine, rheumatism, or neuralgia in any part of the body. Many will tell you that they are often chilly. Some show skin pigmentation. Then, a cholecystitis which has produced a neurasthenia is probably the most difficult of all to diagnose.

I noted with special pleasure the slides shown by the essayist of visible liver changes sometimes present in chronic cholecystitis, since I have been very much interested in this phase of the subject the past three or four years and presented to you in my paper at our last meeting the first description of these lines on the liver, so far as I knew, in the literature.

Dr. Judd's pictures show irregular lines, branching, deepset, scar-like, near the gall-bladder. If you find these present and will turn to the upper surface of the liver, the area directly opposite to the gall-bladder will often present similar phenomena. Instead of these scar-like changes many fainter interlacing lines flush with the liver surface close to the gall-bladder or extending to either side to various distances, or in a few diseases of long standing, well toward the lateral margins of the liver, are often present. The rule is the same for the convex surface of the liver, although the inferior surface has them the more often.

The great value of the recognition of these lines when present in the liver comes up when the intra-abdominal diagnosis is uncertain. Their presence about the gall-bladder site on either surface of the liver always means cholecystitis.

DR. H. M. ERFELD (Minot): In connection with Dr. Judd's mention of infections of the gall-bladder I want to report a case which was extremely interesting.

Over a year ago there was an epidemic of typhoid in a little village near Minot. The epidemic was traced to a typhoid carrier. This carrier suffered from chronic cholecystitis with stones for which he was operated on. Typhoid bacilli were recovered from both bladder and stones. If the gall-bladder does not let in anything from the intestinal tract, then how would the bacilli make their entrance? At the time of discharging the patient, he was negative as far as typhoid bacilli were concerned.

DR. JUDD (closing): I have nothing further to say except to thank the men who discussed the paper. Dr. Bowen brought out an important point about the diagnosis of gall-bladder disease, and that is the pain. What I said about x-rays refers to only 20 or 30 per cent of the cases. These diagnoses were nearly all made by the clinical symptoms.

PEPTIC ULCER*

BY CHARLES BENJAMIN WRIGHT, M.D.

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In this short paper I wish to discuss, very briefly, three phases of the peptic ulcer problem: (1) diagnosis; (2) treatment; and (3) the question of healing.

A few years ago the diagnosis of peptic ulcer was made in only the most extreme cases, usually at autopsy. Surgeons first called our attention to the frequency of this condition, particularly the duodenal type; in fact, one is almost safe in saying that Moynihan and the Mayos discovered it. We must not forget, however, that the surgeons, at least those from whom we have any statistics, have always operated only on cases where, as a rule, their chronicity or gravity have been unquestioned.

Ivy was able to produce something resembling peptic ulcer in dogs after he had kept the ulcer open for a considerable length of time. In other words, it takes time to produce the ordinary peptic ulcer as we know it. I exclude the acutely perforating type because, in its history and rapidity of healing, it acts more like an ordinary wound.

Since the introduction of the *x*-ray, however, we are inclined to build the diagnosis of ulcer on the flimsiest clinical foundation. Many of the brilliant medical cures belong in this class. I think I am quoting John B. Murphy when I say that "real diagnosis is made by brain cells and not by machinery." I do not wish to minimize the value of *x*-ray in this field. I do think it is time to emphasize the fact that the diagnosis of an acute abdominal disease is a clinical and not an *x*-ray diagnosis.

That a defect of filling in the cap means ulcer in a large percentage of cases is unquestioned. That it may, however, mean gall-bladder disease or may accompany any irritation in the gastrointestinal tract is also true. Neither will it in all cases decide the question of early cancer or ulcer of the stomach, as any careful surgeon can testify. Neither will it always show the lesion. One sees cases examined repeatedly over a long period of time before the *x*-ray will demonstrate any defect. The *x*-ray findings must be co-ordinated with the clinical findings by some one, not by the roentgenologist asking a few questions and palpating the patient over the suspected area as he waits for his eyes to accommodate, but by

some one, either surgeon or medical man, who will take a careful and painstaking history, who will make a careful physical examination including gastric analysis, and who will not accept an *x*-ray diagnosis unless it fits into the clinical picture, but will draw conclusions of his own, and, when in doubt, will repeat the examination.

In the treatment of peptic ulcer we are handicapped by our indefiniteness as to its cause. A number of theories have been advanced, each of them supported by a certain amount of evidence, but none of which explains the cause of ulcer in all cases. That hydrochloric acid and pepsin have something to do with the pathology of this condition, is borne out by the fact that this type of lesion is found in no other situation than the stomach and duodenum; further, by the fact that, although this condition is not known in the normal jejunum, it does occur there following gastro-enterostomy. That there must be some other factor in the production of ulcer, however, is generally agreed, because an ordinary wound of the stomach heals readily even in the presence of acid and pepsin.

A number of theories have been advanced as to the inciting causes, such as trauma by foreign body; disturbance in the nervous mechanism, causing local spasm of the vessels; arteriosclerosis, with the interference of the blood supply; some toxin in the blood stream, as illustrated by the association of the ulcer with superficial burns; and, lastly, the bacterial theory brought so conspicuously forward by Rosenow, who would consider peptic ulcer a localization found in a general systemic infection, modified of course by its location.

That any one of these theories may have some bearing on the individual cases cannot be disproved. That the nervous system may play a part in the causation of ulcer has been the view of some men for a long time. Stahnke has recently shown that by stimulation of the vagus nerve of the stomach he could not produce local spasm of the musculature and ischemia, but he could produce, in dogs, marked hyperemia of the gastric mucosa with marked increase in the secretion of acid and pepsin, and that, carried far enough, actual destruction of the epithelium could be produced. Furthermore, there has been a feeling among many men that there is a certain type of individual more prone to develop

*President's Address, read before the Hennepin County Medical Society at its Annual Meeting, January 5, 1925.

ulcers, the type classified by Eppinger and Hess as "vagotonic." That we find disturbances of the nervous system in ulcer is unquestionably true; whether this relationship is causal, or whether it is a by-product, is difficult to determine. The beneficial effects, however, of the treatment of the nervous system in some cases of ulcer is striking.

The effects of ulcer may be grouped under two main headings: First, secretory, as shown by the marked increase as a rule in the production of acid and ferments; second, disturbance of motility, causing the characteristic abdominal pain and interfering with the normal emptying time of the stomach. Associated with this, we get disturbance of the entire gastro-intestinal tract manifested by a condition of hyperirritability and disturbed peristalsis.

A number of treatments have been devised which have theoretically for their purpose the "so-called cure" of ulcer, but practically their immediate and most important result is the relief of disturbances of function. Most of them are based on the idea of neutralizing the acid and in this way inhibiting digestion and promoting healing of the ulcer. There is a good deal of evidence to show that the most serious disturbances are the disturbances of motility and not secretion. In other words, if the pylorospasm could be relieved there is reason to believe that the increased secretion would be taken care of, to a large extent at least by the normal gastroduodenal mechanism, and the explanation of the beneficial effects of frequent feeding of bland substances, such as milk, olive oil, and cereals, is that it tends to relieve the hypermotility of the stomach and also indirectly the hypersecretion.

Undoubtedly the treatment of ulcer devised by Dr. Sippy fulfills very well the requirements as laid down by physiologists: 1st, the introduction of small amounts of bland foods at frequent intervals, thus quieting the peristaltic activity; 2d, the high caloric intake rapidly reached in this treatment, which tends to improve the nutrition of the patient, and a rich protein value which is best to promote healing, as was shown by Whipple and others; 3d, diet which is sufficiently unappetizing to do away with the appetite secretion. In addition to this, giving alkalis, which, although their action is not entirely understood and therefore irritates physiologists, undoubtedly help clinically. They also act as a mild laxative so necessary on a diet with a small residue. Added to this is frequent lavage, particularly in cases of muscular decompensation and some degree of retention.

That this treatment will give prompt relief of symptoms has been well demonstrated. So true is this that if any one is treating an ulcer and relief is not prompt, he is justified in assuming, first, that there is complicating pathology which dominates the picture, or, second, that there has been a mistake in the diagnosis.

In surgical treatment of simple ulcer an attempt is made to do the same thing which is accomplished by medical treatment. Of course there are certain complications of ulcer which can be relieved only by surgical means. These, of course, are definite organic obstructions, acute perforations, and extensive ulceration, which have little tendency to heal. In the uncomplicated cases the surgeon does away with the effects of the overactivity of the pyloric sphincter, first, by incision; secondly, by drainage with gastro-enterostomy, although the word drainage is unquestionably a misnomer as the stomach empties itself by peristalsis and not by gravity.

In addition to the relief of symptoms, attempts should of course be made to eradicate the cause, and, on the basis of the infective theory, attempts should be made to clear up any foci of infection that can be determined. However, the indiscriminate removal of tonsils and teeth has not produced results which were so optimistically expected. One sees ulcers developing where there is no ascertainable focus of infection, and, although many cases can be definitely traced in their beginning to some infectious disease, there are many others in which no such etiology can be determined. The latest addition to our treatment of ulcer is the use of foreign protein therapy, which, I am informed, is being tried in Germany with promising results. If infection is admitted to be the devitalizing agent which precedes the action of hydrochloric acid and pepsin, then this seems a rational procedure.

Our third problem is to determine when the ulcer is healed. That many ulcers heal without treatment, is unquestionably true; pathologists frequently find healed ulcers. Finsterer found 1,500 healed ulcers in 55,000 autopsies. Rarely, indeed, is an open ulcer found postmortem in patients dying of other causes than the ulcer itself. Occasionally we find in a patient dying from other causes a fairly recent ulcer, which has been treated, entirely healed at postmortem.

The proof of healing in the living, however, is another matter. The criteria we have on which to pass judgment of healing are, 1st, the physical condition of the patient—the freedom from symptoms; 2d, x-ray examination; and 3d, changes in the gastric secretion.

The longest history of ulcer which was continuous enough to lead me to believe that it was the same ulcer is forty years. In this patient the ulcer was still uncomplicated. On the other hand one sees large perforations of the stomach with practically no previous warning which, after suture, remain entirely well, with or without treatment. The physical examination is of value because the epigastric pain point disappears soon after the relief of symptoms. In addition we see cases with definite spring and fall recurrences, which indicates a continuous ulcer, with no tenderness during the stage of quiescence. In a comparatively small group of cases we can definitely say the ulcer is healed. These are cases where the patient is entirely well on ordinary diet, where his acid values are persistently low on a fasting stomach, and where the *x*-ray findings are persistently negative on repeated examinations. In only the comparatively rare cases, however, does the defect of filling, as seen by the *x*-ray, disappear. In fact it disappears so seldom that one is inclined to be skeptical as to whether or not it was a real ulcer. Probably only a very superficial ulcer will do this, or possibly it is a duodenitis which, as you know, gives a definite picture of ulcer, although there is no loss of mucous membrane.

The most brilliant cures of ulcer medically, undoubtedly, are cases of acid dyspepsia, possibly accompanied by simple erosions. In the penetrating types of ulcer one can follow the closing of the defect in the gastric wall very well by *x*-ray. When the ulcer actually heals, however, cannot definitely be determined. A group of cases in which the *x*-ray follow-up is of great value is where the ulcer is undergoing carcinomatous degeneration. Any lesion that is increasing should at once be suspected. That this is a much more infrequent occurrence than has been supposed is now fairly well established, although there is still great difference of opinion in regard to this point. Instead of the *x*-ray helping us in a majority of cases to decide the question of healing, it may be a positive hindrance. After a patient has gone two or three years and is feeling comparatively well on an ordinary diet, an *x*-ray diagnosis of duodenal ulcer is positively disconcerting, but it is more disconcerting to have this patient come back complaining of his stomach with all the earmarks of an active ulcer.

Following gastro-enterostomy or pyloroplasty, the *x*-ray report may still continue positive although the patient may be entirely well. Then, again, after a shorter or longer period of time, the gastro-enterostomy opening may cease to

function, and the patient returns with his old ulcer symptoms, or after a similar length of time he may come back with a new ulcer developing somewhere else. Nor does the excision of the ulcer give immunity against further trouble, as there seems to be a fairly well-marked tendency for ulcers to recur in patients who have had them once; in fact, where ulcers are excised, some plastic operation on the sphincter—if it could be done without increased mortality—would tend to prevent recurrence.

That the results of gastro-enterostomy are very satisfactory from the standpoint of permanency is borne out by a review of a list of 237 ulcers in the University Dispensary, which showed only 7 disfunctioning gastro-enterostomies. Cases with satisfactory results do not come to us. In only one of these cases was it necessary to release the gastro-enterostomy, and that was in a patient in whom we could not find, either before the first operation or at the time of the second operation, any evidence of ulcer, the first operation having been performed elsewhere.

Moynihan's recently published results on his ulcer operations are interesting on this point—500 gastro-enterostomies without a death and 1.5 per cent mortality in gastric resection. What a goal for the young surgeon! Ninety per cent cures by the first operation, and all cured by the second except one that died, yet he operated on less than half the gastric ulcers brought to him. The percentage of duodenal ulcers operated on, I did not find. How instructive it would be if he had also followed that other and larger half to find out what became of them. Conservative medical men do not question the splendid results of surgery. What they wish to know is: In what cases is surgery necessary? In other words, what are the indications for surgery aside from the opinion of the surgeon or the whim of the patient?

I believe the amount of acid on the fasting stomach, where it is continuously low or absent, is unquestionably of some value in determining whether or not the ulcer is healed. Great things were expected of Rehyfus' fractional analysis in gastric diagnosis, but since Gorham and others have shown that one could place several Rehyfus' tubes at the same time at different levels and get different acid values from each of them, this procedure has lost favor. For four years we have been doing the aspiration on the fasting stomach and after an Ewald, and this combination is excellent. This is the method Brown uses at Baltimore. There is no doubt that the secretion on the fasting stomach is of much more

value in the diagnosis of ulcer than the digestive secretion; the digestive secretion is of importance, however, in all cases with no fasting acid.

In summing up the results of treatment from the standpoint of relief, they are exceedingly satisfactory. From the standpoint of cure, meaning the healing of the ulcer in the present state of our knowledge, they are problematical.

The attitude of life insurance companies on peptic ulcer is of some interest in this connection. They accept cases of ulcer without limitation which have gone five years after medical or surgical treatment, where there has been no recurrence of symptoms on ordinary diet. It would be interesting to know how many of these cases were accepted. This information I could not obtain.

The conclusion seems obvious. Medical treatment should be long and painstaking, with frequent examination, medical, clinical, and x-ray,

to determine as far as possible what the result has been. One should be just as careful as in the treatment of diabetes, for instance. The length of treatment is a matter on which to decide in each case. Then, after both medical and surgical treatment, the patient should be told of the possibility of recurrence, and how to live to prevent recurrence or new ulcers. These rules, so far as we know them, are common knowledge and need not be dwelt upon. At the slightest return of dyspepsia, he should be instructed to return for examination.

In conclusion, the diagnosis of ulcer is a clinical problem. Second, the so-called "cures of ulcer," both medical and surgical, are often but incidents in the life history of an ulcer. Third, although it is always difficult, often impossible, to tell the time of healing, it should be seriously attempted in every case.

THE TREATMENT OF CERTAIN GROUPS OF ULCER OF THE CORNEA*

BY JOHN F. FULTON, M.D.

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This paper is not written to bring out anything new or to refute that which has been written on this subject but, rather, to point out the more recent methods of treatment, and to obtain the experience of this Academy in regard to their successes or their failures in the use of the same, which I think will be of great value to every member of our Society.

The clinical classifications of ulcers of the cornea are very numerous and most unsatisfactory. In fact, every one who writes on the subject seems to be ambitious to establish a classification of his own. About the best and most practical one for teaching and working purposes that I am familiar with is that given by De Schweinitz. He classifies them in thirteen groups, too numerous to be analyzed here.

In this brief paper I intend to deal mostly with primary ulcers, not those caused by conjunctiva diseases, such as trachoma, phlyctenular conjunctivitis, nor, in particular, the ulcers caused by the different varieties of pathogenic germs because the remedies which I am about to recommend and am in the habit of using, fortunately, apply, in their usefulness, to all of these. Nor

shall I attempt to enter into the form of ulceration caused by constitutional diseases, such as syphilis or tuberculosis, for the same reason.

Ulcerative diseases of the cornea constitute a large percentage of the number of cases that come before the oculist and are worthy of his most careful consideration on account of the vast aid that he can give to his patient by proper treatment on the one hand, and the extreme danger of this class of diseases to sight on the other hand.

No matter how small or insignificant a corneal ulcer may appear, it is always a source of danger as to visual acuity and even to the integrity of the eyeball. The oculist must always bear in mind that every fraction of a millimeter of cornea saved is of vast importance to his patient.

In treating ulcer of the cornea it is always encouraging to remember that under favorable circumstances corneal substance, destroyed by the ulcer, will be replaced. This is brought about by the multiplication of the fixed corneal cells and the proliferation of the epithelium.

Hypopyon is always an indication for prompt action. It is interesting and important for us to know the source from which the pus is generated. It was originally taught that it came

*Presented before the Minnesota Academy of Ophthalmology and Oto-Laryngology, December 14, 1923.

from an abscess in the cornea and opened into the anterior chamber by passing through the posterior corneal lamellæ. (Horner.) It is now known, however, that it originates at the angle of the iris or from the iris itself and sometimes from the ciliary body.

As pointed out by Parsons, Descemet's membrane is impermeable to leucocytes. The cells which make up hypopyon sometimes contain pigment obviously coming from the uveal tract. If the ulcer has not perforated, the hypopyon is sterile. This is a matter of great practical importance for us to remember. It shows that the accumulation of material in the anterior chamber is due to toxins and not to the invasion of bacteria which cannot pass through the normal Descemet's membrane. This accounts for the rapidity with which hypopyon absorbs, and demonstrates the uselessness of attempts at evacuating it as we do with pus in other parts of the body. It is only when the hypopyon is very large and a fibrous network forms that removal becomes necessary. I shall review briefly the old treatment and compare it with the new.

Of course, we assume in the treatment of all ulcers of the cornea that atropin, moist heat, and antiseptic solutions have been used. These failing, other measures were taken up, such as paracentesis. The idea of doing this, I suppose, originated from the fact that sometimes when the corneal ulcer perforates, healing processes immediately start in. Then comes the application of actual cautery. Never was I more enthusiastic over any remedy than I was with the actual cautery when I first began its use. While I cannot agree with Burleson in condemning it altogether, the necessity for using it now rarely ever occurs.

The introduction of the thermophore, by Shahan, has done much to put this form of treatment on an accurate basis. I have not had any practical experience in its use, but shall be delighted to hear from those who have.

The Saemish incision I mention only to condemn, and I have the same feeling in regard to the covering up of any septic process by conjunctival flap. Although I am well aware that this has been strongly recommended by such excellent authorities as De Wecker and De Schweinitz, I believe in keeping the enemy in the open so that we can attack him whenever he dares to advance.

One of the most unfortunate results of corneal perforation by ulcerated processes is a remaining fistula. In dealing with this, I think the cautery of great value.

Although I have some local remedies to recommend, in which I have great confidence, I am not one of those who have ever seen a well-established ulcer of the cornea cured by a single application of any remedy, notwithstanding that men of high reputation have reported such cases.

Sieghest reports the cure of a rodent ulcer following a hordeolum which yielded to a solution of zinc and a current of two milliamperes for two minutes, after all remedies had failed.

And now for the up-to-date remedies, as I understand them:

In recommending these so highly I have not permitted myself to drop into the pitfall that Jackson warned us against in regard to new remedies in the following quotation: "The lively expectation of important results which is the cause of such exaggerated estimates of the therapeutic value of new remedies."

First and most important is the foreign protein treatment, the greatest of which is boiled milk.

I arrived at this conclusion not only from my own experience and observation of the treatment of others, but also from the vast and reliable evidence obtained from medical literature. The popularity of this remedy seems to be increasing every day.

From recent literature I quote the following: "De Andrade, of Rio Janeiro, reports some cases of postoperative iridocyclitis, three cases of gonococcus conjunctivitis, and cases of other ocular lesions in all of which prompt recovery followed parenteral injection of 8 to 10 c.c. of freshly drawn milk, boiled for three or four minutes. The intramuscular injection was repeated the following day and again after a pause of two or three days. The results were always highly gratifying whether there was a febrile reaction or not. He usually combines it with the ordinary local measures, but in one of these cases, under the protein therapy alone, the pain from the gonococcus conjunctivitis subsided completely, three hours after the first injection, the urethritis and an old suppurating otitis media promptly healed at the same time. The good effect is generally produced by the second injection. He never made more than eight injections, and never witnessed any untoward by-effects except in one case in which the needle had evidently entered a vessel."

Under the title of "Parenteral Protein Therapy in Disease of the Eyes," Bufill published twenty cases in 1921, and he says that he has been growing more enthusiastic on the subject ever since. He usually injects 2 gm. of the milk, repeating this daily. The injection is made in the gluteal

muscle, and suppuration has never occurred in his experience. He gives thirty case histories, and extols the prompt benefit in syphilitic papillitis, traumatic iridocyclitis, etc. In two of the cases described enucleation would have been inevitable otherwise, but he succeeded in saving the eye in one case and in saving partial vision in the other. These patients were children; the eye had been hit with a stick.

This remedy is especially useful in all traumatic cases and all cases where there is severe inflammation of adjacent structures.

Next to this comes the antidiphtheritic serum from which most satisfactory results have been obtained in treating this class of cases.

For the tubercular cases and under this group comes a large percentage of the phlyctenular ulcers, tuberculin is the remedy that has given the profession as much satisfaction as any therapeutic agent ever introduced into ophthalmology.

There are certain cases, however, of ulcerative vascular keratitis that are so extremely sensitive even to the minutest dose of tuberculin that the reaction is so severe as to reach the danger limit. I have seen the most happy and most miraculous results obtained in such cases in changing from the tuberculin to the boiled milk protein.

One case that I refer to was unquestionably a most severe tubercular infection of the anterior structure of the eyeball. He was examined and treated by many members of this Academy.

The two local remedies that I am now depending upon with the greatest satisfaction are mercurochrome and holocain,—the former for severe ulceration, the latter for the superficial ulcers on any part of the surface of the cornea. Holocain has the advantage of being both an antiseptic and an anesthetic.

The attention of the profession has been attracted to mercurochrome by a very satisfactory and important paper written by Lancaster and read at the New Orleans meeting of the American Medical Association. Lancaster recommends it chiefly for conjunctival infections and pointed out its powerful germicidal effect on the pathogenic germs which attack that membrane. We now know that it acts with equal efficiency upon the same germs which attack the cornea.

Traves, of Chattanooga, in discussing the paper, said that mercurochrome was just as effective

against the streptococcus as against the gonococcus.

The application of from 5 per cent to 10 per cent should be applied to the ulcerated surface by the surgeon and 1 per cent solution to be used by the patient.

Ulcer serpens, the so-called creeping ulcer, is unquestionably the one that gives the greatest amount of trouble. It is usually the result of a pneumococcus infection, but very frequently other pathogenic germs are associated with the infection, thus making it a mixed process. The most effective remedy for this form of ulceration is optochin. Recently I found mercurochrome of great value in the treatment of this most obstinate form of ulceration. If these remedies fail, there is but one therapeutic agent that will stop the progress of the ulcer and that is the actual cautery.

Gilbert reports a most interesting case of corneal ulcer following the application of the tonometer. Every precaution had been taken to avoid any such action by the use of protargol and holocain preliminary to the use of the instrument, and yet it resulted in the formation of a corneal ulcer. He had the good judgment to use a 1 per cent solution of mercurochrome, and the eye recovered. This patient was seventy-six years of age, so Gilbert refers to Elliott's suggestion that elderly people be kept under observation for at least twenty-four hours after the use of the tonometer. For the exposed ulcers I have found mercurochrome most effective, and for the indolent, non-infected ulcers, likewise satisfactory. It is not only a most powerful germicide, but it seems to act as a stimulus to the repair processes which fill up the gap caused by the destructive ulcer.

I know also that iodine is a powerful and useful agent.

Gifford has recently made some suggestions in regard to adding crystals of iodine to the tincture, thus making it more stable and permanent.

Carbolic acid, of course, has its field of usefulness. The suggestion made by Jackson to allow a solution of this to dry on the end of a match and thus apply it to the ulcerated surface is a very good one.

After all, no matter how potent the remedy used, much depends on the judgment, the skill, and the perseverance of the operator.

VACCINATION*

DR. J. M. LAJOIE, M.D.

MINNEAPOLIS, MINNESOTA

In the short time allotted to me, it would be impossible to give you even a synopsis on vaccination. Therefore, I shall give you, practically verbatim, some of the interesting things I have found in looking over the literature on the subject, more especially those of which many of you have perhaps never heard.

Bruce, in his "Voyage to the Sources of the Nile," in 1790, says he found that inoculation as a protection against smallpox had been practiced in Nubia from time immemorial by the negroesses, the Arab women, and the Nubians. The method was by contact. A woman would bind a piece of cotton material around the arm of someone suffering from smallpox which, when impregnated with the virus, she would apply to the arm of her child.

Bowditch states that a method of inoculation as a preventive of smallpox has been known and practiced among Moorish and Arab tribes in northern Africa from ancient times. In other parts of Africa explorers have recorded that they found inoculation known to and practiced by the natives. Among the negroes in Senegal the practice of inoculating children on the arm against smallpox was a common one.

From the evidence that has been gathered from various parts of the world, the practice of inoculation appears to have originated with smallpox, a disease regarding which the early history is somewhat obscure. The antiquity of the disease in the Far East appears to be without doubt, but documentary evidence concerning its first appearance is uncertain. According to tradition, smallpox appears to have had its origin in India, where inoculation is said to have been practiced over one thousand years before the Christian era. Dhanwantari, the Vedic father of medicine, who lived in India about 1500 B. C., is said to have written the following: "Take the fluid of the pock on the udder of the cow, or on the arm between the elbow and the shoulder of the human subject, on the point of a lancet and lance with it the arms between the shoulders and the elbows until blood appears. Then, mixing this fluid with the blood, the fever of smallpox will be produced."

The method of inoculation practiced by the

Brahmins of India is interesting. "The button, which he preserves in a double calico rag, is saturated with matter from the inoculated pustules of the preceding year; for they never inoculate with fresh matter, nor with matter from the disease caught in the natural way, however distinct and mild the species * * * * Early on the morning succeeding the operation, four collons (an earthen pot containing about two gallons) of cold water are ordered to be thrown over the patient, from the head downwards, and to be repeated every morning and evening until the fever comes on (which usually is about the close of the sixth day from inoculation), then to desist until the appearance of the eruptions (which commonly happens at the close of the third complete day from commencement of the fever), and then to pursue the cold bathing as before through the course of the disease, and until the scabs of the pustules drop off. They are ordered to open all the pustules with a fine sharp-pointed thorn as soon as they begin to change their color, and whilst the matter continues in a fluid state. Confinement to the house is absolutely forbidden, and the inoculated are ordered to be exposed to every air that blows, and the utmost indulgence they are allowed when the fever comes on is to be laid upon a mat at the door; but, in fact, the eruptive fever is generally so inconsiderable and trifling as very seldom to require this indulgence. Their regimen is ordered to consist of plantains, sugar-canes, water-melons, rice, gruel made of white poppy-seeds and cold water, or this rice gruel for their ordinary drink. These instructions being given, and an injunction laid on the patients to make a thanksgiving, Poojah, or offering to the goddess on their recovery, the operator takes his fee, which from the poor is a 'pund of cowries,' equal to about a penny, and goes on to another door down one side of the street, and up on the other; and is thus employed from morning to night, inoculating eight or ten in a house."

Francis Xavier d'Entrecalles, a Jesuit missionary in China in the 17th century, states definitely in a letter written from Peking, in May, 1726, that the practice was known in China for a century before that date. He further states that the Emperor of China sent physicians from Peking in 1724 to Tartary, the inhabitants of which

*Presented before the Minneapolis Clinical Club, January 15, 1924.

country were suffering from smallpox, in order to inoculate the children. Success resulted as they returned to Peking laden with presents of horses and skins.

Marius, a Catholic bishop who died A. D. 590, writes: "In 570 a powerful scourge with flow from the abdomen and pox spread extensively over Italy and France, and oxen in the mentioned country were * * * *." This is the first record of pox in Europe.

The earliest physician to describe smallpox was Ahrun, an Egyptian by birth and a Catholic priest, who died 641 A. D. He wrote thirty books on physic entitled "Pandectæ Medicinæ," now lost, in which he is said to have described smallpox.

In 1701 Constantinople had a serious outbreak of smallpox. Timoni, a medical man, who was there at the time, recommended the employment of inoculation as practiced by the Circassians and other Asiatics. He describes it as follows: "For this purpose they make choice of some boy or young lad, of a sound healthy temperament, that is seized with the common smallpox (of the distinct, not flux, sort) on the twelfth or thirteenth day from the beginning of his sickness; they, with a needle, prick the tubercles (chiefly those on the shins and hands), and press out the matter coming from them into some convenient vessel or glass, or the like, to receive it. It is convenient to wash and clean the vessel first with warm water. A convenient quantity of this matter being thus collected is to be stopped close and kept warm in the bosom of the person that carries it, and as soon as may be brought to the place of the future expecting patient. The patient, therefore, being in a warm chamber, the operator is to make several little wounds with a needle in one, two or more places of the skin until some drops of blood follow, and immediately drop out some drops of the matter in the glass and mix it well with the blood issuing out; one drop of the matter is sufficient for each place pricked. These punctures are made indifferently in any of the fleshy parts, but succeed best in the muscles of the arm or radius. The needle is to be a three-edged surgeon's needle; it may likewise be performed with a lancet. The custom is to run the needle transverse and rip up the skin a little, that there may be a convenient dividing of the part, and the mixing of the matter with the blood more easily performed; which is done either with a blunt stile or an ear-picker. The wound is covered with a half walnut shell or the like concave vessel and bound over, that the matter may not be rubbed off by the garments, which

is all removed in a few hours. The patient is to take care of his diet. In this place the custom is to abstain wholly from flesh and broth for 20 or 25 days. This operation is performed either in the beginning of the winter or in the spring."

In 1771 De La Motraye gives the following account of an old woman vaccinating a Circassian girl: "She took three needles fastened together, and pricked first the pit of the stomach; secondly, directly over the heart; thirdly, the navel; fourthly, the right wrist; and, fifthly, the ankle of the left foot, till the blood came. At the same time she took some matter from the pocks of the sick person and applied it to the bleeding part, which she covered, first with angelic leaves dried and, after, with some of the youngest lamb-skins; and, having bound them all well on, the mother wrapped her daughter up in one of the skin coverings which, I have observed, compose the Circassian beds, and carried her thus packed up in her arms to her own home; where (as they told me) she was to continue to be kept warm, eat only a sort of pap made of cummin flower, with two-thirds water and one-third sheep's milk, without either flesh or fish, and drink a sort of tisan, made with angelica, bugloss roots and licorish, which are all very common throughout this country, and they assured me that with this precaution and regimen, the smallpox generally came out very favorably in 5 or 6 days."

A serious and fatal outbreak of smallpox in Paris, in 1763, was attributed partly to inoculation, with the result that the practice was prohibited by the Government. But, five years later, this decree was rescinded.

In England there is no credible record of the practice of inoculation before its introduction by Lady Montague, the wife of the British Ambassador to the Ottoman Court in 1717. Both her zeal and the position she held in society resulted in numerous persons being inoculated.

It is of record in literature and on tombstone inscription in the churchyard at Worth Matravers in England that Benj. Jetzy, a farmer "particularly noted for having been the first person (known) that introduced the cow-pox by inoculation, and who, from his great strength of mind, made the experiment from the cow on his wife and two sons in the year 1774." This was fifteen years before Jenner inoculated his son Edward, who was about 18 months old, with swine-pox matter. No harm resulted to the boy.

On the advent of vaccination, direct inoculation by smallpox matter was finally forbidden by an Act of Parliament in 1840.

Edward Jenner of Berkeley, Eng., who gets

the credit for our knowledge of the great blessing of vaccination, became acquainted at a very early period of his life with traditionary accounts of the security afforded against smallpox by the casual introduction into the system of a disease occasionally present among the cows of that country. In a short paper like this I can not do justice to a description of his work. It is worth one's while to read some books on this subject. Accordingly, on the 14th of May, 1796, Jenner made his first vaccine inoculation by transferring cow-pox from one individual to another with good results.

During the past one hundred and twenty-five years it would be difficult to estimate the millions of persons who have been saved from disease or untimely deaths by the practice of vaccination. Unfortunately, during this period there have been groups of wild-eyed individuals, known as "anti-vaccinationists," who, as a result of their misinformation, have urged people not to be vaccinated. Their success is measured in proportion to the number of persons who die from smallpox.

I will not trouble you with statistics showing the value of vaccination. You all are more or less familiar with them. But, may I say that at the General Hospital in Minneapolis during October, 1924, there were 54 cases with 19 deaths; during November there were 100 cases with 30 deaths, and during December there were 153 cases with 82 deaths, making a total of 307 cases for the three months with 131 deaths (42+ per cent). In the 131 deaths only one person had a scar of a successful vaccination, and he was an old chronic who had been in the hospital a few times before. No doubt his chronic condition was a large factor in causing his death.

Vaughn* states that in Detroit, Mich., in 1920, out of 482 cases of smallpox, no case was discovered in which there had been a successful vaccination within eight years.

I wish to say something about the proper method of vaccination. One method, which is practiced too much at present, I wish to condemn. It is where the patient comes to the doctor, and says, "I want you to scratch my arm, 'Doc,'" and the "Doc" scratches his arm and does not see the result of his scratching. My idea of a

proper procedure is somewhat as follows: The physician feels his responsibility and does not just vaccinate. He sees to it that the patient is properly protected from smallpox with the least possible inconvenience. The method I use is as follows: Sponge the outer arm between the elbow and shoulder with alcohol or ether. When the skin is thoroughly dried, apply a small amount of the virus. Then, through the virus make a short cut or scratch, not deep enough to cause bleeding, and attempt to work some of the virus into the base of the scratch. Have patient wait until serum has well dried, when he is dismissed without applying any dressing. Dressings at this time do more harm than good. I am sure that celluloid shields are contra-indicated. The patient should be seen on the second, fifth and seventh days after the application of the virus; on the second day to study the local reaction, as there may be a reaction of protection; on the fifth day to apply a sterile dressing, and on the seventh day for the same purpose. If there is likelihood of a severe reaction it is often advisable to stop the action of the virus as soon as a vesicle has developed. This is done by applying a pack wet with alcohol or a solution of bichloride of mercury.

Before closing I wish to mention a few things we should keep before our mind when vaccinating people:

1. Our best judgment should be exercised if applicant for vaccination has severe diabetes mellitus, a "take" may adversely affect their carbohydrate tolerance.
2. Children should be prevented from scratching the area of vaccination lest they carry the virus to other parts of the body, where the skin may be broken, as in some skin affections, and produce several areas of vaccination, which would be quite serious.
3. Try always to protect the individual against smallpox with the least inconvenience to him.
4. The extent to which a person may enjoy protection as a result of previous vaccination can only be determined by revaccination.
5. Any vaccination which "takes" is proof that the person so vaccinated was not sufficiently protected against smallpox. (For discussion, see page 192.)

*Victor C. Vaughn. *Epidemiology and Public Health*, 1922. C. V. Moseby Company.

PROCEEDINGS OF THE MINNEAPOLIS CLINICAL CLUB

Meeting of January 15, 1925

The regular monthly meeting of the Minneapolis Clinical Club was held at the University Club on Thursday evening, January 15, 1925. Dinner at 6:00 P. M. The meeting was called to order immediately after the dinner by Dr. Peppard, President.

Dr. J. M. Lajoie then read a paper entitled "Vaccination." (See page 189.)

DISCUSSION

DR. KING: I have here some specimens taken from arms of patients that have been vaccinated. These patients had been vaccinated about three weeks previously to the time that these specimens were taken.

The vaccinations were done by the scratch method and were all in patients never vaccinated before. The vaccinations were followed by a vigorous reaction, but not excessive in degree, and the resultant scab was perfectly dry, and you might say normal in external appearance. There was, however, a certain amount of purulent discharge from alongside the dried scab. These vaccinations had all been taken care of by the method of not allowing any dressing over the wound. It was evident from careful examination of the local lesion that there was an abnormality in reaction. By gentle traction on the central core, these plugs were removed. As you can see, the general shape of each plug is similar in type to a collar button, which accounts for the inability to slough the necrotic mass out. These two larger specimens (exhibiting specimens), as you can see, extend rather deeply into the tissues; as a matter of fact, they extended down through the entire thickness of subcutaneous fat and rested upon the muscles beneath.

After removing these plugs, which are made up of dead tissue, the wounds healed very readily.

Dr. Lajoie's paper stopped at the point where my discussion will start. It seems to me reasonable, inasmuch as a patient is vaccinated as a preventive measure, to use the utmost precaution to avoid any unnecessary suffering, especially secondary infection in the wound, so as to avoid the reactions which give rise to the laymen's conversations with each other concerning ill effects following vaccination. The treatment I have found most satisfactory in my own practice, and which has apparently not interfered to any extent whatsoever in the production of immunity, is as follows:

Inasmuch as the local skin injury has for its function the introduction of virus into the system, the local sore can serve no useful purpose after the virus has passed beyond the layers of the skin; by the time the vesicle has reached the size of 0.5 cm. (which occurs about the fifth to eighth day) enough virus has been introduced into the system to complete the immunization. At about this time I paint the local area with tincture of iodine and keep a dressing over the local sore at all times until it is healed. I prefer to use the compound resorcin ointment (N. F.) on this dressing continuously because it is soothing and mildly antiseptic and somewhat stimulating

to the healing process. Under this type of treatment there is no appreciable change in the general reaction to the vaccination and the patient runs the usual course of fever and malaise. The local sore, however, does not spread at all beyond the limits of the vesicle at the time of the iodine application. This consequently limits the size of the scar to an area very much smaller in extent than if it were allowed to progress with simple dressings applied. Under this treatment practically every vaccination will have completely shed its scab by the end of the third week, and I have not seen such plugs as shown here from the arms of patients treated in this way. I have had occasion to re-vaccinate a large number of patients previously vaccinated by this method, and none of them have shown a second primary "take." This would indicate the resistance built up under this method was not interfered with in any way. It seems to be reasonable that any vaccination which is not entirely well at the end of the third week, has something as a complication which needs attention. Usually this is a secondary infection of such foreign bodies as demonstrated to-night.

Another thing I would like to bring out is, that patients previously vaccinated or re-vaccinated who show the reaction of a primary "take" have lost the resistance built up by the first vaccination, and, as far as susceptibility to smallpox is concerned, they are practically in the same class as patients who have never been vaccinated. This same condition might also apply to patients who have had mild smallpox and have had a second attack. By re-vaccination of all persons previously vaccinated, we are able to make a practical test of whether or not the resistance is still good. The immunity reaction shows resistance, and a "take" shows that the patient previously vaccinated has lost his protective power and is again susceptible to the disease.

DR. TAYLOR: I would like information as to natural immunity from smallpox and vaccination.

DR. SOUBA: When this epidemic first came out we began vaccinating our pregnant women at the General Hospital and in our private work. I thought this might be a good way to see whether immunity is transferred from mother to child. We vaccinated at all stages of pregnancy, and there was no effect at all on the pregnancy in our cases. Then we began vaccinating the new-born babies. This was done during the first three days after delivery. There have been 92 new-borns vaccinated up to this time, and we have had positive takes in 69, which is 65 per cent. The babies that showed positive takes where the mother had had a recent vaccination (within a month or two of her delivery) were 42, or 61 per cent. Positive takes in new-borns whose mothers had smallpox within one to ten years, 6 positive takes and only 6 such cases, that is, 100 per cent. Positive takes in new-borns whose mothers had negative reactions 19, or 27 per cent. Negative in new-born and recent positive in mother 13, or 19 per cent. Negative results in mother and baby 1, or 2 per cent. The method used was the puncture method on the arm. Age of baby, one to

three days. Reaction invariably appeared on the fifth day after vaccination. Reaction was typical; no induration, no enlargements of glands, did not prolong inanition loss, no secondary infection, no temperature which could be attributed to vaccination, no red zone. Credit for this work is due to Dr. Urner of the resident staff. He kept accurate observations of these cases.

It is interesting to read some French authorities who did some work on this subject. One authority reports 350 babies. Sixty-eight per cent of cases by puncture method showed positive takes. In 95 per cent, by the scarification method, they got takes. They do not think that there is any immunity transferred in smallpox, but certain antibodies, as in diphtheria, are transferred from the mother to the child.

Our conclusions thus far would be that there is no immunity transferred to the baby at all.

Dr. LAJOIE (closing): Possibly I was misunderstood about the application of dressing. I always ask the patients to come back to have dressing applied. If you use the shields and tell the patients to take them off in a few hours they do not do it. They come back with the shield pressing against the edge of the wound and the skin broken, and underneath the shield is a mass resembling moss with a very bad odor.

If you can be sure that the patient will take the shield off, I do not see any objection in using it.

Dr. Warren Bell read a paper entitled "Vital Capacity during Pregnancy." A number of charts were shown. Following are the conclusions of Dr. Bell's work:

1. Full term pregnancy is compatible with vital capacity of from 1,000 c.c. to 4,500 c.c.
2. Twin pregnancy need not affect the vital capacity of the individual.
3. There is no constant change in the vital capacity in pregnancy as compared with the published standards for women of the same height, weight, age, trunk, chest or surface area measurement.
4. A study of these standards shows height to be a very useful basis for comparison between pregnant and non-pregnant women.
5. A long severe labor may reduce the vital capacity considerably, and it may take several days to return to normal.

The knowledge of the patient's past vital capacity and a complete physical examination are the best guides for intelligent interpretation of vital capacity observations.

Marked reductions in vital capacity in pregnancy, as elsewhere, should point to some pathology in the heart or lungs.

In pneumonia, the vital capacity may be reduced as low as 500 c.c. and yet the patient may live.

The vital capacity is frequently reduced in those cases of pregnancy with generalized edema and elevated blood pressure. Rest in bed aids the patient in regaining normal vital capacity.

Study of the vital capacity in cases of "toxemia of pregnancy" calls our attention to diseased hearts.

DISCUSSION

Dr. LAVARE: We use one of these instruments (spirometer) at the General Hospital. One woman with a decompensated heart came in with a vital capacity of 1,700, and after delivery it went up to about 3,000 as the heart condition improved. It is a big question whether it should be put in every obstetric office. I wonder if you learn any more from this method than from the ordinary physical examination.

As to the question of toxemia; you almost never have a severe toxemia of pregnancy that you do not get heart murmurs. One finds signs of a mitral lesion which clear up afterwards. I am not prepared to say that all cases that are toxemic and show these changes are decompensations due to blood pressure. You can look for it and get it every time in a severe toxemia. When the toxemia clears, you can't find anything at all in these hearts.

Dr. Bell has done a fine piece of work and it has taken a lot of time.

Dr. SCHAAF: As far as I know, the only help we do get from vital capacity readings is in cases where there is actual cardiac decompensation, and in those cases we are able to demonstrate the condition by the ordinary physical examination.

Dr. LAVARE: I would like to ask if in all the cases of toxemia you have, you find any that you would attribute to the heart. Are there cases of toxemia where the heart shows no disturbance whatever? I do not believe you will find one. I came to the conclusion that the heart signs were due to blood pressure plus the effect of toxins on the heart muscle. I do not believe that these hearts are at fault, yet there are always clinical signs of heart derangement at the height of the toxemia, which signs pass away with the toxemia.

Dr. WITTICH: I was very much interested in this subject of vital capacity four or five years ago. At that time Drs. Jennings and Myers and myself made some observations. Then I was very enthusiastic about vital capacity, but I do not think there has been very much of value added to our information of this subject by subsequent work. Vital capacity is really an index of the functional handicap of the patient, whether due to heart, lungs or toxemia of any kind. After my observations, it appeared that there was nothing vital capacity could give that our ordinary methods of examination (laboratory, x-ray, physical, and other methods of diagnosis) did not provide, but that it was valuable confirmatory evidence. My enthusiasm waned somewhat when I realized it was not a great help in diagnosis, but aided more in classifying and observing the progress in tuberculosis, as well as controlling the treatment. Many have made very extensive observations since then. It has been shown that there is such a normal variance that after establishing the vital capacity

of the individual patient, if there is a decided drop in it, we usually find something to account for this drop. After looking at a lot of stereoscopic plates, I think one can tell within 200 or 300 c.c. of what the vital capacity is.

At that time we did some work in cases of pregnancy, and it seemed to be just a matter of fatigue or any complicating pathologic progress in the pregnant woman that influenced the spirometer, otherwise the vital capacity was practically the same before and after delivery, and the vital capacity dropped in proportion to the amount of exhaustion or pathological complication present.

I think Dr. Bell's work is very valuable, inasmuch as it brings out many of the points we would like to have confirmed, as well as additional observations. He has cleared up many points on the subject in relation to pregnancy. Our original observations were very meagre, but subsequent reports of all respiratory conditions have borne out the conclusions of that first article.

DR. BELL (closing): I think there is no disagreement amongst us about the information obtained from vital capacity readings.

The purpose of my investigation was to determine whether we could use any of the non-pregnant vital capacity readings as a standard of comparison with pregnant women. We found that height was a good basis for this comparison, while weight was not.

The argument that a doctor could handle a case of pregnancy without owning or using a spirometer is the same argument used long ago against the thermometer, the stethoscope, the leucocyte count, and even against the mercury manometer.

We recommend the spirometer in conjunction with a careful physical examination, not as a substitute for it, and we believe it gives us additional information about the physical condition of pregnant women.

Dr. F. J. Souba read a paper entitled "Pyelitis in Pregnancy." Lantern slides were shown.

Owing to the lateness of the hour, a motion was carried that the discussion of Dr. Souba's paper be postponed to the February meeting.

J. C. MICHAEL, M.D.

Secretary.

PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of February 11, 1925

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town & Country Club on Wednesday evening, February 11, 1925, at 8:00 p. m. The meeting was called to order by the President, Dr. Ritchie. There were 49 members and 2 visitors present.

The minutes of the January meeting were read and approved.

Dr. F. R. Wright (Minneapolis) gave the following case report:

About a week ago a patient came in from South Dakota. At this time he had in the right groin what at first glance appeared to be suppurating inguinal glands. On going into the history, I found that six years before this he had an attack of pain in the side and back and was in bed for a month. Finally an abscess formed and was drained with stab-puncture near the border of the erector spinæ muscle, and this drained for about six months. Then he went to Rochester and had a complete examination, with the result that they found nothing wrong. Three years from that time he went through a similar attack and was again drained in the back. A year ago a lump appeared just below the fold of his right groin which existed for about sixty days and then opened. At the time he came to me he had two fistulæ, one exactly in the fold of the groin and one an inch and a half below it. In exploring this with an urethral bougie I found a fistula into which a bougie would go without resistance about 8 or 9 inches. An x-ray plate was made with a lead-filled bougie in the fistulæ, which showed leading directly into the cecum.

A diagnosis was made of chronic suppurating appendix. The patient was operated on the next day, and the chronic appendix removed. The appendix was found retrocecal with the end attached to the fistulæ leading to the groin. The man made an uninterrupted recovery.

At operation also we found two or three spoonfuls of gelatine-like material accumulated around this inflamed appendix, evidently the inflammatory exudate which was thickened as heavy as light gelatine or like the thick contents of an ovarian cyst.

I recall that thirty years ago, when I was an interne at St. Barnabas Hospital, Dr. J. E. Moore operated on a case of chronic appendicitis where the abdomen contained a large quantity of this same gelatine-like material.

Dr. R. E. Farr (Minneapolis) reported the following case:

I wish to report the case of an unmarried woman, aged 36, who had an abdominal tumor for some time. A few days before she came to me, she had begun to have rather severe pain in the lower abdomen. Her temperature was normal, her pain was not very severe, and the tumor was palpable and movable. Upon opening the abdomen, it was found that she had a tumor of the left ovary, which was hour-glass in shape, one end of the tumor being solid, the other end cystic. Each half of the tumor was about the size of an ordinary apple. The tumor was found to be twisted around its pedicle 360 degrees. This carried the mesosalpinx around the pedicle of the tumor so that the fallopian tube completely encircled it.

The case is reported because of the rarity of ovarian fibroids, which this proved to be, and on

account of the torsion of the pedicle. The patient made an uninterrupted recovery.

Dr. W. A. Coventry (Duluth) read his inaugural thesis, entitled "Some Observations of the Sturmdorf Operation on the Cervix Uteri."

DISCUSSION

DR. LITZENBERG: Sturmdorf brought out his operation really in competition to the Schröder amputation technic. It is a decided improvement on the Schröder operation in certain types of cases. However, I think the usually advocated indications for the operation are too broad. We find at the University Hospital that we still get better results from the Schröder technic in deeply lacerated cervixes; yet, as Dr. Coventry says, we find that hypertrophy of the cervix with numerous Nabothian cysts is the typical cervix for the Sturmdorf operation. Sturmdorf claims that more tissue can be removed in this way than by the Schröder. I doubt that; but that it can be better removed in certain cases, I have no doubt.

In most of the cases we use a glass-stem pessary to avoid complications which Dr. Coventry mentioned. We do not sew it in; we do not believe in leaving it in for a long time. We simply insert it, letting it come out in a short time. In this way there is no danger of stenosis of the cervix.

I still think that each operation has its place, the Schröder being preferred when the cervix is deeply lacerated, and the Sturmdorf in all other cases.

DR. WRIGHT: I want to say one word in regard to silkworm gut used in the cervix. Where it is not satisfactory, or is lost, that is due to technical error on the part of the surgeon or assistant, if the ends are pulled out and cut two inches long they are easily found, and you will not lose them.

DR. BENJAMIN: I was pleased, indeed, to hear this paper. Dr. Coventry has brought out several valuable points. A number of years ago when Schröder brought out his operation, we were using silkworm gut, and once in a while we lost the suture. I devised an instrument to obviate this possibility with which we could always get the suture. This was a scissors with a clamp on the side of it, and a hook on the end of it. With this instrument we could hook up the suture, cut and clamp the suture, and pull it out at the same time.

The instrument was an expensive one, costing about \$20.00, so that when catgut came into vogue we discarded the instrument and used chromic gut instead.

There are a few things about the technic that I wish to mention. Personally I use a combined Schröder and Sturmdorf operation. Very often we find a great deal of scar tissue extending up into the canal. Many of these patients will have dysmenorrhea who never experienced it before having children. If we take out too little scar tissue, dysmenorrhea will still be present. It has been my custom to extend the incision in these cases up on the side of the cervix and remove the scar tissue to the internal os. In this way we get a soft cervix that yields. In these cases I place a soft rubber tube in the cervix, which prevents stenosis. We find it

better than the stem pessary. The results are very satisfactory.

When the cervix is particularly diseased or infected, we treat these cases before operation as Dr. Coventry does.

DR. ROTHROCK: I have had no experience with this operation. I still use the Schröder with very satisfactory results.

Dr. E. L. Tuohy (Duluth) read a paper entitled "The Twilight Zone of Pathology and Clinical Medicine."

DISCUSSION

DR. A. SCHWYZER: It is rather difficult to discuss this subject in detail as there are so many individual items, but the point Dr. Tuohy apparently wanted to make is that without communicating or working with the clinical man, the pathologist is liable to go astray; but still more so the clinical man will get into off-roads if he does not constantly consult the pathologist. It is even better if he is something of a pathologist himself and if he has an exact understanding of the anatomical (and the physiological) presentation of the case and the particular organ under question. We clinical men must try to keep in touch with the pathologist, and not only that, but we must try to do as much pathology as we possibly can ourselves.

The time spent at the autopsy table and behind the microscope will keep the medical student from falling behind later and will help him keep step in the forward march of our science.

The doctor told us some things about goiter. I must confess that I do not agree with him there. We are not so much at sea about this subject as he puts it. In examining the goiter slides of our operative cases, I do not allow the pathologist to tell me which case it is. I always try to make out from the microscope picture which one of three or four cases this may be. In the great majority of cases you have a pretty good idea of how toxic the case was when you examine the slides, if you do not confine yourself to one section. On the average we can say pretty well whether we have a very toxic goiter or a moderately toxic one, or whether we have an indolent form.

The first picture which Dr. Tuohy showed was a toxic goiter with large colloid follicles and only small scattered areas of nests of increased activity. In Switzerland, where we have so many large goiters, one frequently sees a very large goiter which becomes later on toxic. The toxic areas may be hidden in the bulk of the goiter, and you may not detect them if you have not sections of different portions.

The impression received from Dr. Tuohy's paper was that we still have a great incongruence between the clinical and the anatomical picture in the goiter. After so much splendid work has been done on goiter I do not like to feel that we are still so very much at sea.

Of late years the clinical men have done much in the field of pathology themselves. Let me just mention one example in relation to Dr. Tuohy's case of small abscesses in the liver with cholecystitis. Gundermann, in Poppert's Clinic in Giessen, Ger-

many, published over 200 cases of bacteriologically studied cholecystitis. Far away from the gall-bladder he took small slices of liver tissue (similar to Graham's work), and in three-fourths of the cases he found bacteria in them and saw the small bile channels surrounded by infiltration. So that, in an outspoken cholecystitis, we have to figure with a cholangitis and a cholangiolitis. Thus Dr. Tuohy's case is not so much of a surprise any more.

Of course there are a good many cases, such as brain cases, where the clinical picture may be much more outspoken and where the pathological findings are small. It is often unfair to demand from the pathologist a definite finding in the present state of our knowledge.

I would like to mention an instance where the clinical findings widely differed from the report of the pathologist, which also shows how we have to work together. Many years ago, when I was still an assistant, a patient was brought into our hospital, and I was supposed to examine her. She came for profuse bleeding, and I curetted her. I told the professor that we had a carcinoma of the corpus uteri. Specimens were sent over to the pathological laboratory, and the laboratory sent back a report which amazed me, namely, that the case was benign. I insisted that it was carcinoma just the same. The professor looked at me as though he thought I was a young assistant who had too much to say. I told him, "If you put the curette into the uterus you will agree with me that it is carcinoma." He scooped out some whitish chunks. It was one of those cases of carcinoma, also called adenoma destruens.

The pathologist had not known his section went so deep into the tissues. It all goes to show that sane clinical work and pathology can not be separated, and the more a student uses the microscope and learns pathology, the broader is the foundation upon which he can build in his clinical work; and without it, the structure will remain shaky.

DR. GILFILLAN: This is one of the most interesting and instructive papers that I have heard for a long time, and it is too bad that we do not have more along this line. I think probably the difficulty is too much specialism. It reminds me of the young man who got to be very narrow in his specialty, and Dr. Tuohy advised him to take only one side of the nose and specialize on that. That is what we are all doing. Pathology is not such a little thing that it ought to be done only on dead bodies or on excised tissue. Pathology is physiology as well as anatomy. It is a study of tissues in the living, as well as in the dead, but we split it in two. For instance, the pathologist reports that a patient died of fibroid heart. The question is, "How sick would that make him?" The day before, the patient had swallowed seven grains of morphine, and the doctor thought that was what killed him, but the pathologist did not know that. Many things have

no anatomic pathology so far as we know. Epilepsy and migraine, for instance, are pathologic quite definitely. The person who has them thinks so; but still in the dead-house they do not make much of an impression.

Dr. Tuohy's idea is a correct one. If we have two people, one to do the clinical cases and one to do the dead, pathology is by no means complete. We are splitting it in two and not getting the halves together at all.

The clinician looks upon the pathologist as one whose judgments in all things are infallible, and forgets that pathologists are human. A good pathologist tells us less than a poor one does. Some go so far even as to say they will not diagnose sarcoma from the microscopic slide.

So with many of these sections, and especially perhaps on the lymphatic things, we are way up in the air. We clinicians cannot get very far because the pathologist has not got very far. When we see a case under the microscope we cannot tell about the clinical course. Some things must be diagnosed on a clinical basis, on the basis of symptoms without any great respect for what they look like under the microscope.

I recall one writer who spoke of the difference between bronchopneumonia and lobar pneumonia. He said it was not the province of internal medicine so set up a classification of disease which could only be proven post-mortem; that we must make one which agrees with the clinical symptoms. We must make the diagnosis when the patient is alive.

DR. TUOHY (closing): I have not much to add except that I want to thank the gentlemen for their discussions. I feel amply repaid for the study by these discussions. I apologize, however, for keeping you so long.

The features I have been discussing most notably are the gland situations, pernicious anemia, leukemia, and Hodgkin's disease. The course of the disease makes the diagnosis, and, obviously, we cannot entirely envision the whole complex by any clinical or anatomical estimate made at any one period, particularly before the full picture is arrived at.

So far as Dr. Schwyzer's discussion is concerned, I may say it is something on the order of the famous French obstetrician who went to Germany. When he came back he was asked, "What is the most remarkable thing you hear of over in Germany?" "I heard Prof. 'So-and-so' say that he is able with an instrument he has devised to hear the fetus cry." The obstetrician was asked, "But do you believe that?" He replied, "Coming from such a distinguished authority, I do; if I had heard it myself I would not have believed it."

JOHN E. HYNES, M.D.
Secretary.

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COMING MEDICAL MEETINGS

The latter part of April and the month of May will see the doctors very busy attending medical-society meetings. We hope, first of all, they will remember their own state meetings in the Dakotas and Minnesota and Clinic Week in Minneapolis. Next month there will be a meeting of the Congress of Physicians and Surgeons in Washington, an association that meets once in three years and which is made up of the American societies. This begins on May 4 and continues through to May 7 inclusive.

The middle of May, in the East at least, is occupied by a meeting of the American Psychiatric Association at the Hotel Jefferson, Richmond, Va., on May 12, 13, 14 and 15; while in the West the North Dakota State Medical Association meets in Fargo on May 18 and 19, and the South Dakota State Medical Association hold their meeting at Sioux Falls, on May 20 and 21. These two western meetings are advanced so as to enable the medical men to go to the American Medical Association meeting, which will be held at Atlantic City from May 25 to 29, inclusive. The Society for the Study of Internal Secretions meets on the day previous to the opening of the American Medical Association meeting, on May 24.

It has become a general criticism that there are too many medical society meetings. Our special suggestion is that the men who have

charge of the Congress, which meets in Washington and those responsible for the meeting of the American Medical Association in Atlantic City, should arrange the dates so as to accommodate the men from west of the Wabash. Men are expected to attend both organizations from the middle West, the far West, and the Southwest, yet these two societies have an interval of seventeen days between their meetings; and there are not many medical men who will take a long trip which involves a good deal of expense and stay over from one meeting to the other with so long a period between the meetings. Someone should call the attention of both these organizations to the discrepancy in arranging their meetings, in order to give us all a chance to attend both the Congress and the A. M. A. But no one will do it. No one has, and probably no one ever will consider the other fellow and the distance he travels or walks. The man in New York, Philadelphia, Washington, and Baltimore will have the time of his life running from one meeting to another, because the distances between these points are short, and the railroad fare much less expensive for him. An argument against this suggestion might be that the man should have sufficient vacation to last him over the rest of the year, but to attend three or four, or half a dozen, medical society meetings within one month is no vacation for the average man. It reminds one that Actor Hitchcock used to say marriage was an institution,—but someone replied, "Who wants to live in an institution?" The reply is, who wants to attend so many medical societies with so short an interval between meetings? If you will look on page 1074 of the *Journal of the A. M. A.* for April 4, you will be interested to note the number of medical association meetings coming between the middle of April and the last of May. Of course, the man who stays at home can attend his county society meeting, his interurban society meeting, his affiliated society meeting, and all the staff meetings, making approximately, for a man in the city, about fourteen meetings a month. No doctor ought to complain very loudly about this opportunity for the advancement of his medical education; at the same time, they not only complain loudly, but they "holler" about it.

THE MEETING OF THE MINNESOTA STATE MEDICAL ASSOCIATION

THE JOURNAL-LANCET is glad to announce that the Minnesota State Medical Association has a real secretary, who is looking after the interests of the Association, its program, and its business.

He is a big, broad-minded fellow, Dr. E. A. Meyerding. He has already begun to show his interest in publicity. Not only that, he is working harmoniously with the Clinical Section of the Hennepin County Medical Society to carry out the annual Minneapolis Clinic Week program, and all this is to be incorporated in the program of the State Medical Association, and Dr. Meyerding very courteously offers all the facilities of his staff and his cheerful co-operation with the Executive Committee of Clinic Week.

Notwithstanding that this matter is more or less repetition, we again call attention to the fact that the Clinic Week will be carried on very much as it has been before except that it is experimenting in an intensive one-day session for Thursday, April 30, and will present only dry clinics throughout the entire day. The following days, May 1 and 2, will be devoted to clinics at the various hospitals, where both surgical and medical work will be exhibited. The program for the hospital-clinics will be ready within a few days, and sent to the profession in the Northwest.

There are a great many important questions which are to come up before the Minnesota State Medical Association this year, notably the question of medical defense. This matter will have to be gone into very carefully, as well as very thoroughly, and studied, before anything definite can be adopted; and it is the idea of the Secretary that men who are familiar with this kind of work should be given full opportunity to study the question and to communicate with those who are interested in the insurance and defense of medical men in cases of malpractice and for other protection. The State Medical Association is unable at the present time to carry on the expense of defending all the malpractice suits against its members, and one may be sure the number will not diminish but will increase. Another question is the importance of organization of the State Association on some different lines, in order to make it really effective, for it is quite generally admitted that for some time past the organization has been in a more or less somnolent condition, almost bordering on coma; and it is the duty of every member of the organization to wake up, or to employ a physician to awaken him, if necessary, to attend to the business of medicine, the protection of public health, and the advancement of medical science. This cannot be done unless the men are interested. If we can show the medical men of Minnesota the coming meeting, beginning April 27, is built on a firm foundation there will be less trouble hereafter, but if the men do not attend, the Association will

die as many others have done before it. Consequently, this is an appeal to medical men all over the state and in other states to take a personal interest in their county societies, their affiliated societies, and their state organizations. Dr. Meyerding has determined to make this a public matter. He is going to enter the field of publicity through various city organizations and have published in the daily press something that will be of value to the people. Excerpts, extracts, and the methods of medical practice by regularly educated and qualified medical men will be exploited, and anyone who takes exception to this form of publicity is not doing his full duty; he is trying to limit himself to a very small field, when, as a matter of fact, medicine needs the biggest and broadest area that can be covered. Let us put our personal notions aside and do something real in medicine.

A study of the program will convince anyone that the Minnesota State Medical Association means business this year, and there certainly can be no criticism against the officers of the Association and particularly against its energetic and uncompromising secretary.

HONOR TO DR. H. M. JOHNSON, OF DAWSON, MINNESOTA

If there is one man in the medical profession who needs the support of the state of Minnesota from the medical side it is Dr. H. M. Johnson, of Dawson, Minnesota. He left his home on the tenth of January, came directly to St. Paul, and opened quarters for the Minnesota State Association's Legislative Committee, of which he was appointed chairman by President Burnap; and from that time until the fourth of April he was practically continuously engaged in legislative work. During this long period he was home but twice, and for a week-end only, but he succeeded in what he was asked to do—to look after the bills affecting the medical profession and to see that the bill which permitted suits to be brought against physicians, hospitals, and nurses for malpractice have the time limit reduced from six years to two years. We are glad to announce that the bill has passed both the Judiciary Committee and the Senate, and on Tuesday evening, March 31, the bill passed the House. This was due entirely to Dr. Johnson's indefatigable work. The gratifying part of it is that Dr. Johnson made many personal acquaintances in the Legislature, and he said he found that when he could talk to a man on his own ground and in his own vernacular, he was glad to say, most of the men he came in contact with were mighty good fellows.

He made it his business to get acquainted with the men, to get their point of view, and to explain to them the medical point of view. He found they were willing and anxious to be informed on medical matters, and they criticized the method that the medical men followed in former years in not taking them into their confidence and telling them in plain simple language why their bill was presented or why they objected to some medical bill.

In the course of Dr. Johnson's long career he found that the men, both from the cities and from the country, were anxious to do anything that would improve the status of medicine in Minnesota, and in getting this one bill through he has accomplished more, perhaps, for future legislative work than has been done in years. He has also had the opportunity of explaining to the Legislature reasons why certain bills should not pass; and it is probable that the bill which provided for open hospital staffs, the bill forbidding vivisection, and the bill which prohibited the erection of a hospital for contagious diseases within 1,500 feet of a school may be disregarded—but this we do not know.

Dr. Johnson is very much impressed with the fact that the state ought to have a medical organization in every county or in every district where there is a medical society and that every doctor should interest himself and should become a part of the organization; that meetings should be held to study the vital questions necessary for the promotion of medicine in Minnesota, and that when the time comes for legislation the whole organization should put their work into the hands of a small body of men, one or two men, with definite instructions as to what to do, because if many men are permitted to run wild in the legislative halls and there is no definite head to a committee or an organization, bills do not get anywhere.

Another matter which is quite important, too, is the loss which Dr. Johnson has sustained during his legislative service. Approximately five thousand dollars from his general practice, a matter of twenty-five hundred or three thousand dollars due to his inability to market his grain and other produce, and a matter of fifteen hundred or two thousand dollars for his personal expenses, for the rent of quarters, the entertainment of guests, and the employment of stenographers, and other expense connected with the writing of letters, sending of telegrams over the state, and so on. It would seem wise for the State Medical Association at its meeting the latter part of the month, to set in motion a method of

reimbursing Dr. Johnson, at least for his personal expenses.

Another item of expense that the State Association must consider is an adequate salary for a full-time secretary. This means an addition to the yearly dues. The abolition of the Defense Fund will materially lessen the increase in dues.

BOOK NOTICES

LECTURES ON PATHOLOGY. [Delivered in the United States in 1924.] By Ludwig Aschoff, M.D., Professor of Pathologic Anatomy, University of Freiburg, Germany. Paul B. Hoeber, N. Y., 1924.

Reticulo-endothelial System: This discussion gives the distribution and function of the reticulo-endothelial system. Of special interest is the analysis of the historectytic activity of the reticulo-endothelial system.

Pathogenesis of Human Pulmonary Consumption: In this thesis, the author decries the use of the term tuberculosis and urges the substitution of the term *phthisis*. He classifies phthisis into three stages similar to syphilis and gives in detail its dissemination through the body.

Concept of Inflammation: Inflammation according to Aschoff is an infectious affection with defensive reactions. He concludes that our present explanation of inflammation is much in question on the part of many pathologists. He attempts to clear the haze somewhat and ends with a discussion on immunization.

Pathologic Fatty Changes: This paper discloses the types and distribution of fatty formations under normal circumstances and their changes under pathologic conditions.

Morphology of the Suprarenals: Here we find the gross and microscopic changes which occur in the suprarenal bodies during the growth of the individual. The cortex is especially considered in detail.

Atherosclerosis: Atherosclerosis is a process of wear and tear, which through swelling and precipitation processes, especially of lipid substances, and secondary transformation to calcium compounds acquires a characteristic stamp. Among these changes are the fat calcium infarct of the kidney and the arcus senilis.

Ovulation and Menstruation: This is a careful study of the relation which ovulation, menstruation, and the formation of the corpus luteum hold to each other.

Extrahepatic Bile Passages: This dissertation contains a consideration of the functions of the various portions of the bile passages. It is of especial clinical importance.

The Origin of Gall-stones: Aschoff shows that the formation of certain types of Gall-stones is definitely related with disturbances in metabolism. He has attempted to classify these stones and account for their formation by giving a thorough and convincing presentation of the various theories for their structure.

Thrombosis: A more valuable subject to surgery could not be found than this contribution on throm-

basis. It contains the theories of the etiology of thrombosis and the points in the body which are most susceptible.

The Relation of Mucosal Erosions to the Development of Ulcer of the Stomach: Aschoff is very emphatic in the differences between the formation of these two clinical entities. Yet the erosion may pass into the ulcer condition. The etiological factors presented by the various authors are nicely portrayed.

The Goiter Problem: This problem is presented from the standpoint of the German investigators as regards their progress during the World War. It is given to corroborate our own findings, which, apparently, have been much more advanced.

The end of the volume is given to a masterly article on renal secretion and renal diseases in which the author gives the results of experiments showing the knowledge of the function of the kidney substance to date, and the accumulated knowledge of experimental injuries of the kidneys, especially those due to poisons.

This is a very technical volume with valuable studies on morphological changes from the normal, which are of great clinical importance.

—DANIEL H. BESSESEN

APPLIED PATHOLOGY IN DISEASES OF THE NOSE, THROAT AND EAR. By Joseph C. Beck, M.D., F. A. C. S. Associate Professor of Laryngology, Rhinology and Otolaryngology, University of Illinois, College of Medicine, Chief of staff, Otolaryngology, North Chicago Hospital, Chicago. 274 pages, 268 original illustrations, 4 color plates. Price \$7.00. C. V. Mosby Co., St. Louis, Mo.

This is a very practical and instructive book, filling a long felt want, going into the etiology symptoms, diagnosis and prognosis and finally arriving at a rational basis for treatment.

—DOUGLAS F. WOOD, M.D.

FUNDAMENTALS OF PHYSIOLOGY. By R. V. Pearce and J. J. R. MacLeod. Third edition. St. Louis, Mo.: The C. V. Mosby Company. 1924, price, \$3.50.

In the third edition of this work, physiology is taken up along the same lines as in the first edition. The book is brought up to date. It is intended to give a comprehensive, though elementary, discussion of the various topics in physiology.

The first chapter of the work is devoted to a discussion on the chemical data of living structures, and also on the anatomy of the muscular system. Such topics as cell units, osmosis, ionization, and enzymes are clearly treated in the preliminary chapters. Two chapters are devoted to a discussion of the physiology of the blood; one deals with the anatomical features, and the other deals with the physiological and biological processes occurring in the blood stream. The subjects of respiration and circulation are discussed quite extensively, likewise is the subject of digestion, including metabolism. A short chapter on dietetics takes up calories and food intake. The third chapter is devoted to the nervous system. Each of the special senses of vision and hearing is given a whole chapter. An appendix dealing with personal hygiene and reproduction is quite interesting.

The book is well illustrated with various diagrams describing various anatomical and physical topics. It makes interesting reading for the average

person who does not care to know much about physiology, but who wishes to have a clear idea of the fundamentals.

—M. JOANNIDES, M.D.

THE SCIENCE AND ART OF ANESTHESIA. By Colonel William Webster, D.S.O., M.D., C.M., St. Louis: C. V. Mosby Company, 1924. 214 pages, illustrated. 8vo. Cloth. \$4.75.

After devoting a chapter to as interesting and complete a history of anesthesia as I have ever read, the author gives a brief but very good working basis for the physiology of anesthesia. Then, in separate chapters, he takes up the individual anesthetics and combinations of them, such as ether-chloroform, etc., in a very detailed and complete manner; for example, he gives the chemistry, modes of administration, descriptions and uses of various apparatus for administration, and a good description of the various stages of the anesthesia, as well as some of the dangers and special physiology concerned with the individual anesthetics or their combinations. Where there are several methods of giving an anesthetic he shows in detail the advantages one has over another in various operations and risks.

An interesting chapter is the one on ethylene, which, although it is not complete now, certainly was at the time of writing the book. The chapter on local and spinal anesthesia, although interesting, is far from being complete from the standpoint of a working basis.

One of the outstanding things about this book is the author's treatment of such subjects as the "Choice of Anesthetics," "Nature of the Operation," "Patient's Viewpoint," and the keeping of records, etc. His chapters on "Preoperative and Postoperative Treatment," "Surgical Shock," and "Post-anesthetic Acidosis or Hypoalkalinity," as related to anesthesia, are invaluable to any physician or surgeon, whether he be an anesthetist or not.

Taken as a whole, this is a well-written book by one who knows his subject.

—R. F. MCGANDY, M.D.

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month). Volume IV, Number V (Portland-Seattle Number, October, 1924); 263 pages with 112 illustrations. Per clinic year (February, 1924 to December 1924); paper, \$12.00; cloth \$16.00 net. Philadelphia and London: W. B. Saunders Company.

Thirteen surgeons from these two cities have presented twelve clinics embracing brain, lip, goiter, stomach, gall-bladder, intestinal, renal, bladder, urethral, gynecological and orthopedic surgery; and also post-operative therapy is included.

The clinics are extremely thorough and complete and are well presented, giving a good review of each subject and indicating familiarity with the practices of the more familiar centers of our surgical geography.

In a rather extensive though always appropriate discussion of appendicitis cases requiring drainage we find no mention of the rubber dam tampon described by Gibson, although it has been found in the literature for several years.

The many interesting technical details with the valuable points of post-operative treatment render the volume a very valuable aid to those interested in the subjects presented.

—R. C. WEBB, M.D.

NEWS ITEMS

Dr. George L. Sherman, of King City, Mo., has located at Camp Crook, S. D.

Dr. P. P. Halleck has moved from Worthing, S. D., to Letcher, S. D.

Dr. Leon H. Flancher, of Milwaukee, Wis., has begun work as physician at the Sand Beach Sanatorium at Lake Park.

Dr. J. P. McDowell, of St. Cloud, is planning to spend several months in Vienna in the study of surgery and gynecology.

The building of the Western Minnesota Hospital, of Graceville, is to be enlarged, giving the building a capacity of sixty beds. The hospital is conducted by Drs. Oliver, Arenson, and Gray.

The Southern District Medical Society of North Dakota has elected the following officers for 1925: President, Dr. L. B. Greene, Edgeley; secretary-treasurer, Dr. F. W. Ferguson, Kulm; delegate, Dr. G. B. Ribble, LaMoure.

Dr. S. Astorf, of Winnipeg, a graduate of Laval University, Montreal, who has been in practice for a dozen years, has located in Berthold, North Dakota, which state has drawn a good many medical men from Canada.

Dr. F. G. Carter has been appointed superintendent of the Ancker Hospital, of St. Paul, for a term of four years. He has been serving as superintendent since December; when Supt. McElroy resigned to go to New York City.

The Child Guidance Clinic of the Minneapolis Schools will probably be continued another year. The cost of the Clinic is about \$20,000, and a wave of economy came near sweeping the Clinic away. Another year will more definitely determine its value.

The Southeastern Montana Medical Society was reorganized last month after four years of inactivity. New officers were elected as follows: President, Dr. R. H. Beach, Glendive; vice-president, Dr. G. T. Haywood, Forsyth; secretary-treasurer, Dr. M. C. Pfunder, Miles City.

An addition is to be made at once to the Sprague Hospital building of Huron, S. D., which will increase the capacity of the Hospital to 55 rooms. The Sprague Hospital is conducted by the Huron Clinic composed of Drs. B. H. Sprague, J. C. Shirley, H. D. Sewell, H. L. Saylor, and W. H. Saxton. Dr. William Griffith, just completing his internship after graduating

at the Medical School of the University of Minnesota last year, will join the Clinic Staff on June 1.

The Sixth District (N. D.) Medical Society held a meeting on April 7, at the St. Alexius Hospital, Bismarck. The subject under discussion was Goiter, with a program as follows: Goiter, from the Standpoint of "The State Health Officer," by Dr. A. A. Whittemore, Bismarck; "The General Practitioner," by Dr. R. H. Ray, Garrison; "The Internist," by Dr. W. H. Bodensstab, Bismarck; "The Surgeon," by Dr. N. O. Ramstad, Bismarck; General discussion opened by Dr. M. W. Roan, Bismarck.

The Medical Staff of the Lymanhurst Hospital of Minneapolis will hold its next meeting on Tuesday evening, April 21, when the following program will be given: "Unsolved Problems in the Pathology and Bacteriology of Tuberculosis," by Dr. H. E. Robertson, of the Mayo Clinic; and a motion picture film demonstrating the diagnosis, retrogression, progression, etc., of tuberculosis. This film was prepared by Dr. Cole, of New York, and will be presented by Dr. Longstreet Taylor, of St. Paul.

On account of the meeting of the Minnesota State Medical Association this year in Minneapolis in April, Minneapolis Clinic Week was partially given up, but another change has been made. The program of the State Association for Thursday will be furnished by the Clinic Week and will be devoted to dry clinics exclusively. On Friday and Saturday Minneapolis surgeons and specialists will give, as a part of Clinic Week, operative and other clinics at the Minneapolis Hospitals. Programs for these days will be sent out next week. This arrangement will preserve the continuity of the meetings of Minneapolis Clinic Week, which have been very successful from the first meeting given several years ago.

Dr. Edward E. Hoit, for forty-five years a practicing physician at Detroit (Minn.), died at his home there, Saturday April 4, 1925, after a three weeks illness from cerebral hemorrhage, at the age of 72 years. Dr. Hoit was born at Auburn, Me., in 1852, removed to Minneapolis with his parents in 1869, completed his education in the Minneapolis schools, was engaged in banking for a time, graduated from the Homeopathic Department of the University of Michigan in 1878, practiced a few months in Minneapolis, and in the summer of 1880, located at Detroit, where he practiced continually up to the beginning of his fatal illness. Dr. Hoit was a member of the

Minnesota State Medical Association, the Northern Minnesota Medical and Clay-Becker County Medical Societies, was dean of the fraternity in Becker County, and enjoyed an enviable reputation as a wise and skillful physician.—L. C. Weeks, M. D.

**Partial Program of Minneapolis Clinic Week for
Friday and Saturday, May 1 and 2**

DEACONESS HOSPITAL

Friday, May 1, 1925

Fractured Hip. Dr. R. M. Pederson.
Orthopedic Clinic. Dr. I. F. Selleseth.
Demonstration of Fundus Oculi. Dr. Elmer Dahl.

Saturday, May 2, 1925

Pathology and Metabolism of Goiter. Dr. George Merkert.
Goiter Clinic. Dr. Nimrod Johnson.

EITEL HOSPITAL

Friday, May 1, 1925

9:00 A. M.—12:00 M.—Surgical Clinic. Dr. Geo. G. Eitel.

Saturday, May 2, 1925

9:00 A. M.—12:00 M.—Surgical Clinic. Dr. Geo. G. Eitel.

FAIRVIEW HOSPITAL

Saturday, May 2, 1925

9:00-10:00 A. M.—Cancer of the Cervix. Cancer of the Prostate. Uterine Hemorrhage. Dr. I. J. Murphy.

MINNEAPOLIS GENERAL HOSPITAL

Friday, May 1, 1925

10:00 A. M.—12:00 M.—Pediatric Clinic. Dr. E. J. Huenekens.

9:00-11:00 A. M.—Neurological Clinic: The Malarial Treatment of Paresis. Dr. J. C. Michael.

9:00 A. M.—12:00 M.—X-ray. Dr. Leo Rigler.

8:00-10:00 A. M.—Obstetrics and Gynecology. Dr. J. H. Simons.

10:00 A. M.—12:00 M.—Obstetrics and Gynecology. Dr. R. T. La Vake.

10:30 A. M.—12:00 M.—Tonsils and Cataracts. Dr. F. J. Pratt.

12:30-2:30 P. M.—Demonstrations in the Out Patient Eye, Ear, Nose, and Throat Department. Dr. F. J. Pratt.

Saturday, May 2, 1925

8:00 A. M.—12:00 M.—Gynecology. 1. Fibroid of Uterus. 2. Uterine Prolapse with Cystocele and Rectocele. 3. Salpingitis. Dr. A. E. Benjamin.

9:00 A. M.—Orthopedic Clinic. Operations and Case Presentations. Dr. Paul Giessler.

1:00-2:30 P. M.—Dermatology. Dr. Sam Sweitzer.

NEW ASBURY HOSPITAL

Friday, May 1, 1925

8:30 A. M.—1. Splenectomy. 2. Uterine Myoma. 3. Hepatic Abscess. 4. Tubercular Cyst. Dr. H. G. Franzen.

NORTHWESTERN HOSPITAL

Friday, May 1, 1925

9:00 A. M.—Operative Clinic. 2 cases. Dr. A. E. Benjamin.

ST. BARNABAS HOSPITAL

Friday, May 1, 1925

9:00 A. M.—General Surgical Clinic. Dr. L. Haynes Fowler and Dr. F. A. Dunsmoor.

ST. MARY'S HOSPITAL

Friday, May 1, 1925

Heart Cases. Dr. J. Warren Bell.

9:00 A. M.—General Orthopedic Surgery. Dr. Emil Geist.

9:00 A. M.—Surgical Clinic. Hernia and Hemorrhoids—Local Anesthesia. Dr. A. A. Laurent.

9:00 A. M.—Cases of Early Neuro-syphilis. Dr. J. C. Michael.

9:30 A. M.—Surgical Clinic. Dr. R. E. Farr.

Chronic Non-tubercular Pulmonary Disease. Dr. T. A. Peppard.

Demonstration of Cases. Dr. J. E. O'Donnell.

Chest Cases. Dr. Geo. Dunn.

Four Cases of Tonsils. Dr. L. O. Doyle.

10:30 A. M.—X-ray demonstration. Dr. C. A. Donaldson.

Saturday, May 2, 1925

9:00 A. M.—Operative Clinic. Dr. Stanley R. Maxciner.

Demonstration of X-ray in Obstetrics. Dr. J. Warren Bell.

Purpura Hemorrhagica. Dr. H. B. Sweetser.

Operative Clinic. Dr. Leo Murphy.

Gynecological Clinic. Sacral and local anesthesia: 1. Cystocele, Rectocele, and Lacerated Cervix. 2. Chronic Pelvic Infection. Dr. A. A. Laurent.

Demonstrative Clinic. Dr. Arthur LaPierre.

Saturday, May 2, 1925

11:00 A. M.—Demonstration of Pre-operative Treatment of Hypertrophy of the Prostate. Dr. Gilbert Thomas.

SWEDISH HOSPITAL

Friday, May 1, 1925

9:00 A. M.—Surgical Clinic. Dr. H. P. Linner.

9:00 A. M.—Surgical Clinic. Dr. A. W. Ward.

Saturday May 2, 1925

9:00 A. M.—Surgical Clinic. Dr. H. P. Linner.

9:00 A. M.—Surgical Clinic. Dr. A. W. Ward.

UNIVERSITY HOSPITAL

Friday, May 1, 1925

9:00-10:30 A. M.—Gastro-intestinal Clinic. Dr. C. B. Wright. Lecture room.

9:00-10:00 A. M.—Bedside Obstetrical Clinic. Dr. Roy E. Swanson.

9:00-11:00 A. M.—Eye, Ear, Nose, and Throat Clinic. Dr. W. R. Murray and Dr. H. S. Clark. Small operating room.

9:00-10:30 A. M.—Bedside Pediatric Clinic. Dr. F. W. Schlutz. Pediatric wards.

10:30-11:30 A. M.—General Medical Clinic. Dr. Moses Barron. Lecture room.

10:30 A. M.—12:30 P. M.—Gynecological Clinic. Dr. H. M. N. Wynne. Large operating room.

3:00 P. M.—Cardiac Clinic. Dr. Olga Hansen. Lecture room.

Saturday, May 2, 1925

8:30-10:30 A. M.—General Surgery. Dr. A. C. Strachauer. Large operating room.

9:00-10:00 A. M.—General Medical Clinic. Dr. Geo. E. Fahr. Lecture room.

- 9:30-10:00 A. M.—Bedside Obstetrical Clinic. Dr. S. B. Solhaug.
- 9:00-10:30 A. M.—Bedside Pediatrics Clinic. Dr. F. W. Schlitz and associates. Pediatric wards.
- 9:00 A. M.-12:00 M.—Urologic Diagnosis. Dr. G. J. Thomas. Small operating room.
- 10:00-11:00 A. M.—Neurological Clinic. Dr. J. C. McKinley. Lecture room.
- 10:30 A. M.-12:30 P. M.—Clinic: Obstetrics and Gynecology. Dr. W. H. Condit. Large operating room.

U. S. VETERANS' BUREAU

Keith-Plaza Bldg., 1700 Hennepin Ave.

Friday, May 1, 1925

- 10:00 A. M.—Radiotherapy: Toxic Goiter, Tuberculous Glands, Post-operative Malignancies. Dr. I. J. Murphy.

710 PHYSICIANS AND SURGEONS BLDG.

Friday, May 1, 1925

- 10:00 A. M.-12:00 M.—The Proper After-care to Prevent the Recurrence of Pyorrhea. Dr. Thomas B. Hartzell.

Saturday, May 2, 1925

- 10:00 A. M.-12:00 M.—The Proper After-care to Prevent the Recurrence of Pyorrhea. Dr. Thomas B. Hartzell.

Michael Dowling School for Crippled Children (3900 W. River Blvd.) extends an invitation to all doctors to visit the school.

Physician's Office in Minneapolis to Sublet

At good car intersection point. Office very conveniently located. Address 205, care of this office.

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One thousand square feet of desirable office space at reasonable rate in the Syndicate Building, Minneapolis. Address inquiries to Box 1566, Minneapolis, or call Geneva 2361.

Location Wanted

By a graduate of the University of Minnesota, B.S., 1919; M.B., 1921; M.D., 1922. Mason, married, one child. Has been practicing in a city of 35,000, but desires location in Minneapolis as assistant in busy general practice or to an obstetrician or in a good town within about fifty miles of Minneapolis, preferably south or West. Address 207 care of this office.

Position Wanted

By a young woman who is a graduate of the occupational therapy course of the University of Minnesota. Can give the best of references. Address 197, care of this office.

Office Position Wanted

By a graduate nurse who can do routine laboratory work, book-keeping, stenographic work, etc. Salary moderate for work in the Twin Cities. Address 190, care of this office.

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An \$8,000.00 practice in a town of 1,000 in central Minnesota. One other physician in town. Otherwise competition is 17, 11, 12, and 5 miles. Collections good. Address 202, care of this office.

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The surgical equipment and good location for a surgeon in a Montana city of 9,000 on a famous highway, 100 miles from the Yellowstone Park. Good hospital and State College. Fine roads; climate excellent. Address Mrs. Kathryn J. Elliott, 208 Evergreen Apartment, Bozeman, Mont.

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A male technician, graduate of accredited school, desires appointment in laboratory. Well qualified to do Wassermanns, blood chemistry, bacteriology, urinalysis, tissue technique, basal metabolism estimation, and all forms of clinical microscopy and blood work. Address 199, care of this office.

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Apparatus for Sale

Owing to duplication of equipment in our organization, we have for sale the following: Tropometers, Perimeters, D. C. Motors, Ophthalmic Lamps, Sterilizers, Microscope, Campimeters, and Typewriter, and other equipment. Address Eye, Ear, Nose and Throat Clinic, 74 South 11th Street, Minneapolis, Minn.

Work as Associate Physician Wanted

By a graduate of Vienna who has taken, also at Vienna, the following postgraduate courses: 4 months in dermatology; 13 months in general surgery; 20 months in gynecological surgery; 4 months in obstetrics; 5 months in infectious diseases of children; and 6 months in rhinology and laryngology. Applicant will accept moderate salary or percentage of business until he can take the State Board examinations in October. Good references. Address 189, care of this office.

Fine Practice for Sale

Good practice in a county-seat town of 700 in Southwestern Minnesota. Good farming community. Plenty of work and good pay. Good residence, completely modern. Good reason for selling out. Terms very reasonable. Address 195, care of this office.

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Established South Dakota Practice for Sale

The practice and office equipment of the late Dr. David L. Rundlett, of Sioux Falls, S. D., are offered for sale.

Complete equipment for diagnosis and treatment in practice of internal medicine. Includes a Victor X-Ray outfit, clinical laboratory, basal metabolism apparatus, large library, etc. Will sell at a sacrifice. Address Mrs. David L. Rundlett, Box 205, Sioux Falls, S. D.

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Who is trained in giving anesthetics, can do office work, etc., and who is willing to learn to give diathermic treatments. If you can take x-ray pictures it will be advantageous, but not essential. Salary \$100 a month with board and room. Address 206, care of this office.

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Practice, books, instruments, office furniture, etc., of a Minneapolis physician who is retiring on account of poor health. Many years in present location. Price very moderate. Address 191, care of this office.

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Under auspices of Biophysical Research Dept. of the Victor X-Ray Corporation, is now available to physicians. The course offers a highly practical knowledge of all the fundamental principles that go to make up the standards of modern scientific physiotherapeutic work. It requires one week's time. For further information apply to J. F. Wainwright, Registrar, 236 South Robey St., Chicago, Ill.

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THE MINNESOTA MEDICAL SCHOOL: ITS MISSION AND ITS OPPORTUNITY

By RICHARD OLDING BEARD, M.D.

Chairman of Committee on Endowment and Building Funds

MINNEAPOLIS, MINNESOTA

The rapid development of modern scientific medicine has radically changed the conditions of medical education and it is folly to talk of unchanging them, of reverting to earlier and simpler methods in the preparation of men and women for practice.

The proposals of Dr. Wm. Allen Pusey and others for a shorter and less expensive curriculum, adapted to the graduation of the old-time general practitioner, to the turning out of a "ready-to-wear" type of country doctor, are futile in the very nature of the medical student of today. Like every other student, entering upon a professional career, he knows perfectly well what he wants by way of an education; and what he wants is the thing, after all, that determines what he is going to get. Education, in this as in every other field, has become a matter of demand and supply.

Young people who are after a higher education want the best by way of opportunity they can get. Prospective physicians have no idea of putting themselves or of being put into a second-hand group who will prove good enough to care for most of the people in the event of most of the disorders they may be expected to suffer. All of them may not climb to the top of the profession, but they are looking up to the top, and they are counting the rungs of the ladder by which they expect eventually to get there.

The necessary corollary of the suggestion of a group of doctors of lesser training, and, therefore, lesser fitness, is that when the unusual case comes along, when there is really something seriously the matter and something seriously to be done, the man or the woman of superior attainments, of special training, must be called in. Meanwhile the clientele of the very ordinary doctor is to be at the mercy of the mere chance that major help can be secured when it is needed, that the zero hour may not strike unawares and discover danger lurking in the patient's unprotected path, for it would be an unprotected path. He who is not educated up to meeting every difficult occasion in medical practice, whether he meet it alone or aided by others, is not to be trusted to recognize the difficult occasion when it comes.

It is safe to say that Dr. Pusey himself would not like to be one of these very ordinary doctors; but to say this is to infer,—an uncomfortable inference,—that he proposes the recognition of a medical elite who by virtue of their superiority, rather than their meekness, will inherit at least the choice places of the professional earth. True, there is no such thing as equality in professional life. The nature of the stuff that men are made of and the nature of their preparation for service, will determine differences of capacity and condition the success with which they serve; but these very facts make it unnecessary and unde-

sirable to establish grades by deliberate process of education.

The thesis with which we started must be defended. Medical education has become a necessarily arduous, time-consuming, expensive thing. The evolution of medical science has determined the general quality of the preparation the student of medicine must receive, and, for the most part, he is getting that preparation to-day. Educational requirements must be common to all undergraduates. The growth of specialism is a question altogether apart. There is no tenable argument for the cultivation of specialism in undergraduate courses. The specialist should be the ultimate and finished product of extended graduate study. Nevertheless, in order to attain the highest development of graduates and undergraduates alike, they should be cultivated in the same school. The modern medical college should provide for the teaching of both. In the University of Minnesota the teaching fellow, taking a three years' course of graduate study, has proved a most valuable link between the undergraduate and the faculty. He is a teacher who benefits by his own efforts at teaching. He makes a better approach to the student than any other. He leads his juniors easily, because he is not far removed from them in spirit, in understanding, in experience.

Now what of the deductions to be drawn from these premises?

1. Neither the undergraduate nor the graduate student can be expected to bear the entire cost of his education. He may be fairly expected to make future returns, by way of interest and support, to the institution that mothers him.

2. The educational situation in medicine lays a claim upon the public. Medicine is a profession of service, and society does not adequately pay its debt to the profession in the form of professional fees. It cannot better pay it than in the promotion of medical education and research. This has come to be a well-recognized claim. By public taxation and by private gift, medical institutions, throughout the country, are maintained, and it is justly so. The progress of medical science means the better protection of society, both in the prevention of disease and in the restoration of the sick to health, happiness and economic efficiency.

3. The awakening of the consciousness of the American people to the value of human health, which so directly followed the Great War, has been succeeded by a country-wide movement for the development and expansion of medical, nursing, and public-health institutions. Columbia Uni-

versity, Johns Hopkins University, the Western Reserve University, the University of Rochester, the Northwestern University, Chicago University, and St. Louis University are thinking in millions for medicine, and they are getting millions.

State universities, as well as privately supported schools, are feeling the impetus of this movement and are necessarily drawn into it in order to play their adequate part in medical education. In fact, private gifts and bequests, appropriations by the great Foundations, as well as legislative provisions, are coming to the aid of medical schools supported in the past entirely by the State. This must inevitably prove more and more true. There is no reasonable bar to a combination of endowment or outright gift with public maintenance in fostering medical science and perfecting medical training. Iowa and Colorado have been recently so encouraged. Minnesota has in her hand a similar opportunity. That opportunity must not be lost.

The greater the school, the greater the need. Potentially Minnesota is a great school. The fulfillment of its geographic destiny will make of it the medical center of the Northwest. The realization of its great possibilities depends upon its alumni, a supporting medical profession, and a beneficently minded public.

No medical school can be really great in these days save as it keeps itself in the current of progress; save as it is physically equal to the educational demands put upon it; save as it is equipped with the constantly improving mechanisms of investigation, research, and treatment, for which the expansion of its own science calls; save as it commands the highest order of teaching ability in all its departments, save as it acquires materials to develop, skill to promote, genius to interpret the advances of its day. This all calls for money,—for more means than the State alone can any longer be expected to supply.

A great opportunity is before the University of Minnesota. How great it is, is witnessed by the proffered gift of \$1,250,000 from the General Education Board, to be met by securing the sum of \$2,350,000 from either public or private sources. The great Foundations rise only to a great opportunity. It remains for the friends of medical education in Minnesota to rise to it too.

There is no good reason to think that either the Rockefeller gift or the University's plan for Medical School expansion is imperilled by the mere failure of Minneapolis officials to appreciate the importance of that single feature of the plan which would provide a site for a new Minneapolis General Hospital near the medical campus.

It is unfortunate that a recent editorial in *THE JOURNAL-LANCET* should have suggested such a peril. Surely, we should be unworthy of so great an opportunity if we should permit discouragement to ourselves, if we should so easily weary of well-doing.

The task we have before us is one which may need two, three, or five years for its accomplishment, but the men of the Medical Faculty will "straighten themselves until it is accomplished."

The Committee on Endowment and Building Funds of the Medical School has halted until now the output of a booklet, prepared for distribution, on account of the unfortunate delay experienced in the negotiations with the management of the Minneapolis General Hospital. It is to be hoped that the Board of Public Welfare

and the Minneapolis Council will yet appreciate the values, far beyond the matter of dollars and cents, which attach to this greatest of chances for the future of a great public hospital.

The Booklet, which is now issuing, tells the story of the medical and nursing needs of the University; it outlines the project of expansion, whether with or without the participation of the Minneapolis General Hospital; it details the progress that has been already made; it sounds the battle cry of the continuing campaign the Committee proposes to push and expects to win. The cause will be won by grace of the faith and the energy which its merit commands. The Committee calls upon the alumni, the medical profession, and the public for their support.

THE THERAPEUTIC VALUE OF *BACILLUS ACIDOPHILUS*: A RESUME OF THE LITERATURE*

By IRWIN A. MONTANK, M.A.

From the Department of Bacteriology and Immunology, University of Minnesota
MINNEAPOLIS, MINNESOTA

Escherich¹ observed in 1886, while investigating the fecal flora of infants, the predominance of great numbers of gram-positive rods. Later (1898) he associated this organism with acute diarrhea in children. It remained for Moro,² in 1900, to isolate and demonstrate these gram-positive rods to be a distinct type of intestinal organism which he named *bacillus acidophilus*. Tissier, in the same year, isolated *bacillus bifidus*, an organism related to *bacillus acidophilus*, but differing from the latter in some of its morphological phases and to some extent in its staining properties. Moro claimed *bacillus acidophilus* to be the chief inhabitant of the intestines of infants that subsist entirely on mother's milk. This assertion was disputed by Tissier, who protested that *bacillus bifidus* holds the place of prime importance. *Bacillus acidophilus* and *bacillus bifidus* are now known to constitute the main flora of the breast-fed infant, the latter being, perhaps, the more prominent of the two. As the infant grows older and begins to take some other food besides breast milk, *bacillus acidophilus* usually predominates. As the child approaches adolescence and the diet is made to include a higher percentage of proteins, there is a proportionate decrease of the acidosis types and the intestinal

flora become more like that of the older person. Nevertheless, a few *acidophilus* bacilli can usually be demonstrated at any period of life.

ORIGIN, OCCURRENCE, AND BIOLOGICAL CHARACTERISTICS

Moro² succeeded in isolating *bacillus acidophilus* by inoculating beer wort bouillon with material from a stool of a breast-fed infant. After a period of forty-eight hours incubation, plates were made of the sediment on beer wort agar. After further incubation he could isolate the characteristic colonies. He found *odidium albicans* the chief organism of contamination as this organism is to be found in every stool of breast-fed origin and it thrives well on beer wort bouillon.

Moro³ found *bacillus acidophilus* present in every specimen of stool of infants fed on breast milk. Upon further investigation he was able to demonstrate the presence of *bacillus acidophilus* in the outer milk passages of the mammary gland while the deeper passages did not appear to be invaded. Thus, the *bacillus* is taken up with the milk by the nursing infant and the resistant organism passes unharmed through the stomach and arrives in the intestine.

In the upper part of the intestine, especially in the small intestine, *bacillus acidophilus* is asso-

*Read before the Consulting Medical Staff of the Lymanhurst School for Tuberculous Children, October 28, 1924.

ciated with coli and lactic acid bacteria and does not become predominating until the mid portion of the colon is reached. In the descending colon and in the rectum the organism is largely bacillus acidophilus. From this it appears that bacillus acidophilus withstands the acid reaction of the normal stool of the breast-fed child and finds the best condition for its growth in the lower part of the intestine.

Bacillus acidophilus is not only found in the stool of the breast-fed child and in human milk; on the contrary, it has quite a wide distribution. Moro³ was able to isolate bacillus acidophilus or a closely related organism from every specimen of cow's milk, also from stools of infants fed either on cow's milk or cooked meal. He was unable to demonstrate the presence of the organism in the air, in the nasal secretions and on the skin of the infant, nor in the mouth secretions or stools of the adult on a mixed diet.

Moro³ showed that bacillus acidophilus could withstand a very high degree of acidity. Good growth was obtained in sour whey in which 10 c.c. of the whey neutralized 10 c.c. N/10 KOH. He further found that the kind of acid did not influence the growth of the bacillus. In most of his culturing he used vinegar, but growth also took place when mineral acids (nitric, sulphuric, and hydrochloric) or sour milk, buttermilk, formic acid, and oxalic were added to the medium. He found it convenient to use one drop of acid to a 10 c.c. portion of bouillon.

Although bacillus acidophilus is capable of producing nearly 1 per cent acid in milk after continued incubation, bacillus bulgaricus may produce as much as 3 per cent. According to Rettger and Cheplin,⁴ this is one of the well-known points of distinction between these two very similar organisms.

According to Rahe⁵ bacillus acidophilus, bacillus acidophilus-aërogenes and bacillus bulgaricus are able to withstand the temperature of pasteurization. Twenty-four hour cultures survive moist heat for one hour at 65° C.

Moro³ found bacillus acidophilus non-pathogenic for animals. Large doses of the organism inoculated into mice, guinea-pigs, and rabbits produce no ill effects.

CLASSIFICATION OF BACILLUS ACIDOPHILUS AND RELATED ORGANISMS

Moro³ predicted that bacillus acidophilus would not be found to exist as a single species but as a group of morphologically and biologically closely related bacteria which have in common the preference for acid media. This view was con-

firmed in the work done by Rahe,⁵ who classified the various organisms under the term *aciduric*, a name adopted by Kendall (1910) denoting acid-enduring properties. Rahe classified the four aciduric organisms, bacillus acidophilus, bacillus acidophilus-aërogenes, bacillus bulgaricus, and bacillus bifidus (aciduric phase), according to their ability to ferment various sugars. He found four varieties of bacillus acidophilus, eight of bacillus acidophilus-aërogenes, four of bacillus bulgaricus, and one of bacillus bifidus.

In "Burgey's Manual of Determinative Bacteriology" the generic name of lactobacillus is given to the first three species named above, while bacillus bifidus is known as bacteroides bifidus.

THE RELATION OF INTESTINAL BACTERIA TO HEALTH

Before taking up the therapeutic properties of bacillus acidophilus it may be of interest to mention something concerning the conditions this organism is expected to alter. It can be readily seen that the intestinal tract of men represents a combined culture medium and incubator of a highly perfected type. It is constantly teeming with bacterial life. At least fifty species have been reported. MacNeal, Latger and Kerr⁶ demonstrated that the average adult subsisting on a so-called mixed diet excretes daily thirty-three trillion of bacteria and that this number of microbes represents about 5.34 gm. of dried matter. Combe, Herter, and others have shown that the fecal flora of the adult is almost always putrefactive, producing substances toxic to the host and considerable amounts of gas in the intestine.

The theory of auto-intoxication was perhaps first advanced by Senator⁷ in 1868. Bouchard⁸ claimed that the amount of end products of putrefaction found in the urine was a measure of the putrefaction in the intestinal canal. Metchnikoff,⁹ in 1907, asserted that the absorption of these poisonous substances, especially in the case of chronic constipation and intestinal stasis, is cumulative in nature and gives rise to auto-intoxication, arteriosclerosis and high blood pressure. While the theory of auto-intoxication is by no means universally accepted, it is now a well established clinical assumption, at least, that the absorption of toxic substances from the lower bowel gives rise to change in the liver, brain, kidneys, and blood vessels.

Metchnikoff's claims attracted still greater attention because he proposed a method of controlling or preventing the growth of harmful bacteria in the intestinal canal by deliberately feed-

ing cultures of other harmless bacteria. For this purpose he selected bacillus bulgaricus. The theory was that this organism would multiply in the intestinal canal and thereby crowd out the other bacteria. Later researches, perhaps the first in 1908 by Herter and Kendall and in addition those of Rahe, in 1915-16,¹⁰ have shown that Metchnikoff chose the wrong organism, as bacillus bulgaricus cannot live in the intestinal canal, since this organism is a milk parasite and not an intestinal habitant.

The use of intestinal antiseptics has proved of very little value in eliminating the cause of intestinal poisons. Fantus¹¹ has shown that calomel does not exert a germicidal effect on the intestinal bacteria when administered in the usually prescribed dosage. It was also found by Dragstedt, Dragstedt, and Nisbet¹² that the usual antiseptic employed for hand sterilization would not destroy bacteria when placed directly within a section of the intestines of dogs. It was found that dogs died from toxemia of bacterial origin from closed segments even when these strong antiseptics were added and held for certain lengths of time.

IMPORTANCE OF BACILLUS ACIDOPHILUS IN THE TRANSFORMATION OF THE INTESTINAL FLORA

The inhibitive influence of certain sugars and of milk on putrefaction has been known for many years. Hirschler (1886) appears to have been the first to demonstrate such action by carbohydrates. He showed that *in vitro* the common putrefaction products, indol, phenol, oxy-acids, etc., are held in check in a protein medium if cane sugar, lactose, dextrin, starch or glycerine is added.

Rovighi (1892) found that a kephyr (fermented milk) diet caused a great reduction in the ethereal sulphates of the urine, and of intestinal indol. He believed that acids played the important rôle of suppressing intestinal putrefaction, but could not substantiate this by practical experiments. Winternitz (1892) demonstrated that milk strongly inhibits putrefaction, and held that this was due to the lactose and not to the acid resulting from its decomposition. The ethereal sulphates of the urine were reduced and there were other marked indications of lessened putrefaction.

Schmitz (1893) brought about a great reduction in the ethereal sulphates by feeding lactose. He believed, however, that the casein was the important factor in the milk and kephyr.

The observations made by Bienstock (1901) and others also show that the putrefaction of

milk is prevented by lactose decomposing bacteria.

In 1900 Moro³ recounted the changes that took place in the intestinal content of the infant in the early stages of infantile life. "In the newborn infant the first stool is germ free. The second and later stools contain organisms. This occurs independently of anything the infant may have taken up in its food inasmuch as the meconium must be eliminated without being mixed with milk residue. The infant gets the first bacteria from the air and from objects with which its mouth comes in contact. These organisms are bacillus putrificus, bacillus bienstockii, bacillus subtilis, various cocci, etc. This flora simulates the stool of an individual subsisting on a mixed diet."

"As soon as the first milk residue appears, the floral picture is changed by the appearance of bacillus acidophilus or similar organism." Moro found that if the infant is now given cow's milk the picture is once more changed. Various gram-negative organisms appear, in majority the colon group; further, numerous amounts of cocci and proteolytic organisms, with almost a complete suppression of the gram-positive organisms.

Harter and Kendall (1909) found that the intestinal flora of kittens and monkeys underwent a distinct change when the diet was changed from meat and eggs to milk and glucose. There was a substitution in the feces of an acidophilic type of bacteria for a flora that had been strongly proteolytic.

Dr. Gaspair (1911) claimed that rats kept on a bread and milk diet showed a predominance of bacillus bifidus over bacillus coli, while meat favored bacillus coli and bacillus welchii to such an extent as almost to exclude bacillus bifidus.

Very similar in results to the first part of the work done by Dr. Gaspair was accomplished *in vitro* by Bass and Jones¹³ recently (1923) in an interesting little experiment with bacillus coli and bacillus acidophilus. They demonstrated a complete elimination of bacillus coli from a milk culture forty-eight hours after the culture had been inoculated with equal portions of bacillus coli and bacillus acidophilus. Plates made of the milk culture after the incubation showed no bacillus coli and a 100 per cent of bacillus acidophilus.

In 1914 Rettger and Horton,¹⁴ and later, in 1917, Hull and Rettger¹⁵ were able to change the intestinal flora of white rats from the ordinary type to an acidophilic type by feeding milk or lactose. Torrey,¹⁶ in 1915, found this to be possible also in typhoid fever in man. He was like-

wise able in 1919 with the same diet to regulate the intestinal flora of dogs.

In 1920 Cheplin and Rettger¹⁷ found that when albino rats are fed the usual normal balanced diet, containing also one gram of either lactose or dextrin, and in addition 1 c.c. of living broth culture of bacillus acidophilus, there was a rapid transformation of the fecal flora. The ordinary type of flora was strongly dominated by bacillus acidophilus. They also found that there was a definite relationship between the rate of absorption in the alimentary canal of the carbohydrates and its tendency to effect a simplification of the fecal flora. They found that the feces of lactose and dextrin fed rats contained reducing carbohydrates and a flora consisting almost entirely of bacillus acidophilus, while the feces of rats fed on maltose, sucrose and glucose gave negative results with Benedict's solution and showed no change in the intestinal flora.

Cheplin and Rettger in this work found no relation between the H-ion concentration of the fecal matter and the intestinal flora of the rats. That is to say, the H-ion concentration limits remain practically constant whether it be under a diet causing a marked development of aciduric bacteria of the bacillus acidophilus type or in connection with a basic diet maintaining the ordinary intestinal flora. Robinson¹⁸ agreed with Rettger and Cheplin that feeding lactose to rats does not increase acidity in the feces.

In opposition to these results obtained by Cheplin and Rettger and those by Robinson are the findings of Cannon and McNease¹⁹ and the more recent work of Hudson and Parr²⁰ (June 1924). Hudson and Parr found that a sufficient carbohydrate diet effecting a complete change of flora in rats also induces a change in the H-ion concentration from nearly neutral (P_H 6.9) to distinctly acid (P_H 5.8). This acid environment was much more marked in the cecum (P_H 4.8) than in the colon (feces = P_H 5.8). In the same animals, however, even the contents of the descending colon were more acid than those of the rats fed a high protein or stock diets. Intestinal spirochetes were found in a larger number of rats on a high protein and stock diets, and in the cecum of these rats to a greater degree than in the descending colon, coincident with putrefaction and less acidity.

Cheplin and Rettger²¹ next demonstrated that transformation of flora may be brought about within the course of four to six days in apparently normal human subjects by the administration of 300 c.c. pure whey-broth cultures of the organisms. Bacillus acidophilus was often pres-

ent in the feces to the extent of from 85 to 90 per cent of the cultivable bacteria. Similar results were obtained with all of these subjects when 150 c.c. of the culture and 150 gm. milk sugar were given in place of the requisite amount of culture alone.

Rettger and Cheplin⁴ soon displaced the whey-broth culture in their work with acidophilus milk culture. This was prepared in the following manner: Quart lots of skimmed milk are heated at 115°-120° C. for twenty-two to twenty-four minutes. After cooling the milk is inoculated with pure strains of bacillus acidophilus which have been growing at 35°-37° C. Live milk cultures of the organisms are employed as the inoculum and at least 10 c.c. of the inoculum are transferred for each liter of milk treated. After mixing they incubated for twenty-four hours. The average full dose of this preparation employed was one liter, and in addition 100 gm. lactose for each twenty-four hours. The cases treated by Rettger and Cheplin were those of chronic constipation, chronic diarrhea, colitis, and dermatitis (eczema). There were thirty patients in all, treatments extending from one to two months. In the majority of these cases the patients were either cured or greatly benefited.

Kopeloff and Cheney²² employed nearly the same procedure and technic as outlined by Rettger and Cheplin⁴ with one exception, namely, that whole milk was used instead of skimmed milk. Seven patients were treated over a period of from one to six weeks. They corroborate the work of Rettger and Cheplin in the relief secured from chronic constipation and diarrhea. No improvement was observed in the psychotic patients treated. The intestinal flora was changed on treatment with bacillus acidophilus whole milk and lactose, but the relative percentage of gram-positive rods rarely exceeded 70 per cent.

Gompertz and Vorhaus²³ in their recent experiments with 200 patients suffering from chronic constipation and 100 with diarrhea and mucous colitis reported that their results were very good, 70 per cent of all the cases of either group showing complete relief from symptoms and toxemia, and 15 per cent showing some relief and improvement.

Norman and Eggston²⁴ have given the acidophilus therapy a wide spread application, and strongly advocate the acidophilization of the intestinal tract by means of milk cultures.

Kopeloff²⁵ in his work of last year reports that relief from chronic constipation was obtained in his patients that persisted for six months after the ingestion of bacillus acidophilus was discon-

tinued; also that live bacillus acidophilus organisms in numbers were recovered from the feces of patients months after the ingestion of bacillus acidophilus milk. In this same work Kopeloff demonstrated that the therapeutic effect of bacillus acidophilus treatment has neither a physical nor chemical interpretation. He considers the action of bacillus acidophilus as essentially a bacteriologic phenomenon. In support of the view he offers certain proofs:

1. The action is not physical because patients receiving sterile milk were not relieved of constipation.

2. The action is not chemical because patients receiving pasteurized bacillus acidophilus milk were not relieved of constipation.

3. However, patients were relieved of constipation by the ingestion of milk fermented by bacillus acidophilus.

Shortly after the appearance of this article, Kopeloff²⁶ published another article dealing with the therapeutic use of bacillus acidophilus, in which he reports results equally good.

Julianelle and Ebaugh,²⁷ in 1923, employed bacillus acidophilus milk in the treatment of psychoses. The milk in their experiments was autoclaved at five pounds pressure for one hour. Each liter of sterile milk upon cooling was inoculated with about 2 c.c. of a twenty-four hour culture of bacillus acidophilus and incubated at 37° C. for fifteen to eighteen hours. This corresponds with procedure employed by Rettger and Cheplin except that the treatments were never supplemented with lactose, as implantation of bacillus acidophilus was secured without it. A series of patients were treated for sixty-five days. At the end of the investigation they found that bacillus acidophilus was present to the degree of 90 to 95 per cent. Bacillus welchii was no longer demonstrable in the specimens which contained bacillus acidophilus. Their conclusions were as follows:

1. Implantation of bacillus acidophilus in the intestine of patients with psychoses by the oral administration of acidophilus milk resulted in elimination of intestinal putrefaction, and in some cases in an increase in weight, but no improvement in mental condition.

2. The administration of acidophilus milk is recommended in the treatment as a means to physical betterment.

Cheplin, Fulmer, and Barney²⁸ extended the observation on the therapeutic value of bacillus acidophilus milk, using the method of Cheplin and Rettger. They concluded:

1. Bacillus acidophilus, when given by mouth

in the form of minimum amounts of milk cultures, lends itself to complete implantation and colonization within the human digestive tract, effecting a complete simplification of the fecal flora and supplanting almost all known intestinal toxicogenic microbes.

2. In chronic constipation there was marked clinical improvement in the so-called toxic symptoms and regulation of the fecal elimination from the bowel.

3. In mucous colitis, beneficial changes were noted clinically, with daily natural defecations free from any mucus.

COMMENT

Apparently there is no evidence to be found in the literature revealing bacillus acidophilus as having little or no therapeutic value. On the other hand, there is a considerable amount of accessible evidence demonstrating the efficacy of bacillus acidophilus as an agent both in the transformation of the intestinal flora and the subsequent cure or improvement in various physical disorders.

It seems but fair, therefore, in the light of the extensive work accomplished in the last few years, notably by Rettger, Cheplin, and Kopeloff, to regard the organism, bacillus acidophilus, as an important therapeutic agent in the treatment of certain diseases that bear a relation either directly or indirectly to the condition of the intestinal tract.

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PHYSIOTHERAPY IN THE TREATMENT OF INDUSTRIAL INJURIES*

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The treatment of industrial disabilities has become an important and vital factor in the health and prosperity of the general public. It concerns not only those who are actually disabled, but those who are dependent on the product of their labor. Any means, therefore, which is conducive to the conservation of the health and physical fitness of the individual so that he may do his part and do it well, is certainly deserving of our utmost efforts.

Many conditions will present themselves for treatment which are peculiar to the occupation and employment of the working man or woman, but it will be impossible, of course, to select or discuss all of these in the short space of this paper, and I shall attempt to make only a general application of the use of the various methods of treatment in which members of this Association are especially interested.

Our chief efforts as physicians in industrial centers, as well as in all other communities, should be to prevent disease, diminish loss of effectiveness, relieve suffering, hasten restoration to the normal and to facilitate the return of the injured to their work in the shortest possible time, and prevent or diminish, if possible, their permanent disability.

Trauma, in its broadest sense, includes any injury to the body due to violence or a wound, and its causes may be mechanical, chemical, thermal, bacteriological, or toxic. It may be a fracture, neuritis, bruise, sprain, an inflamed joint, an atrophy, myalgia, an over-strained heart, lacerations, with subsequent development of scar tissue, neuroses, including hysteria and traumatic tremor, a tennis elbow, a charley-horse, a dislocation with the resultant large joint, an ulcer, gangrene, or a burn, with or without scar tissue, or an in-

fection. Whatever its character, relief is the one desire of the afflicted individual.

Physiotherapy, as embodied in the use of electricity, light, x-rays, heat, cold, water, massage, and exercise, offers us a powerful armamentarium of therapeutic value, and to achieve the greatest measure of successful results our equipment must include several, if not all, of those means for producing the desired mechanical, chemical, and heat or thermal effects.

Mechanical action is produced by the interrupted galvanic, the plain or interrupted faradic, the sinusoidal and static wave currents, or the high potential resonator discharges; also by vibration, massage, and exercise. These various agents have their particular indications for use, being stimulating, reconstructive, and eliminative in their effects.

The chemical action of the galvanic current is shown by the opposite chemical reactions of the opposite poles. The positive being acid and the negative alkaline in reaction. This knowledge enables us to make use of ionic medications, or ionization, by which to drive various drugs into the tissues.

The actinic or chemical effects of blue and ultraviolet rays is well known. The ultraviolet or x-rays are bactericidal in action to a marked degree, stimulating, and irritating.

Heat effects are best produced by the use of water, still or moving, as in the whirlpool baths, paraffin baths, therapeutic lamps, and the various forms of high potential currents. This action may be local or general, deep or superficial, and at the desired degree of temperature. Nature's cardinal method of restoration is the production of heat—inflammation locally—fever systemically. Physiological curative heat does not emanate from the diseased or injured cells, but from the uninjured, healthy surrounding cells.

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No injury, whether traumatic, chemical, thermic, or bacterial, can be recovered from except through the agency of heat, whether the heat originates within the system or is induced by external agents.

Diathermy is a physiological agent. It increases the temperature of the tissues themselves, it dilates the blood vessels by direct influence, and increases the supply of the area treated, and thereby quickens the chemical processes of metabolism, and thus aids nature in making a cure. It relieves pain and tenderness by relieving pressure from exudates. It softens tissues making them better conductors of low frequency currents and more susceptible to mechanical treatments such as vibration and massage.

Sprains and contusions with their attendant congestion, swelling, and local rise of temperature, are treated with the most gratifying results with diathermy, heat, massage, and exercise. The early treatment of sprains with diathermy, resulting in the relief of pain and prevention or removal of stasis, is one of the noteworthy achievements of this valuable agency. The daily treatment of these cases is followed by rapid restoration to normal function, and the patient may meanwhile pursue his accustomed activities.

DISLOCATIONS

Massage and exercises should be started at once after reduction, under the care of the surgeon. In fact, all joint motions in a recently reduced dislocation should be done by the surgeon himself, after baking and massage of the injured joint. The greatest care is essential lest the dislocation recur; therefore, motion should be gradual and not at too great an angle before a week or ten days have passed. The function of a joint is motion and a joint not moved will become stiff; also, the muscles moving the joint are usually supplied by the same nerves as the joint itself, and there is a reflex atrophy of these muscles. This can only be prevented by massage, electric stimulation and proper motion. This is especially important in the shoulder joint, as the stability of that joint is dependent upon the surrounding muscle tone.

Stiff and painful shoulders, uncomplicated by calcified bursæ, are best treated by some combination of radiant light, diathermy, sod. chloride ionization, sinusoidal currents, and massage.

Ankylosis of Joints.—Most of the industrial cases in which this form of treatment is now used are those having stiff joints. These cases in most instances would have been avoided by proper physiotherapy during the treatment for

the original injury, using the same means now used to cure the stiffness. In other words, the insurance companies and employers are now paying a high cost for this treatment as a curative and corrective measure, when they should have included in the original treatment cost the same measure used as preventive treatment against stiff joints. To pay the surgeon the cost of a visit to a fracture or a dislocation case in which he only looks at the splint, is not only a waste of money, but is eventually going to cost many more visits to someone skilled in physiotherapy to cure the stiff joints following prolonged immobilization. It is not supposed that the surgeon will give massage, but he should see that it is given, and he should either give or supervise all joint motions in recent cases.

In all treatment of stiff joints, cases of bony ankylosis and those cases where there is some contra-indication by a pathological process, such as tuberculosis, should be excluded; where there is a bony obstacle it is useless to attempt, without surgery, to gain motion beyond the bony blocking. So we have to treat by physiotherapy stiffness caused by adhesions inside or outside the joint, by inflammatory changes or by reaction of scar tissue.

FRACTURES

When a bone is broken, the surrounding structures are also injured. Rigid fixation by splints or plaster, without physiotherapy, withholds from these structures the treatment by which repair can be accomplished, and we have added to the original injury, adhesions and atrophy of disuse.

Heat, massage, and diathermy in the first stage of a fracture hasten the absorption of the hematoma and injured tissue cells, and improve the metabolism of the injured parts. Thus diminish the pain and lessen the muscle contraction and consequently aid in the reduction and retention of the fragments. Fixation and rest diminish the blood supply; hence, do not aid in the above.

Joint motion in the limb where there is a fracture prevents joint stiffness and muscle atrophy. This mobilization does not tend to disturb the alignment of the fragments, unless the conditions are such that an operation is necessary to restore the fragments to proper position.

With massage, electrical muscle stimulation, and joint motion, muscle atrophy and joint stiffness are prevented, and the limb is ready to use when there is union. With complete immobilization there is marked muscle atrophy and joint stiffness, and we get the result of a good union,

but a marked permanent disability from stiff joints.

For fractures, then, our therapy is after reduction: first, radiant light for the production of active hyperemia; second, diathermia for hastening callus formation; third, gentle massage for its circulatory effect. Where there is a slight nerve involvement, the Bristow coil or the slow sinusoidal current applied over the motor points with gentle contraction are also a help in retarding or preventing atrophy.

Arthritis and synovitis, and other joint and bone conditions, are quickly relieved and permanently improved by the use of the remedies which produce heat and mechanical effects.

Inflammation of the muscles and tendons produced by strains and direct violence are very promptly relieved by radiant light, diathermy, and surface electrodes. In these cases the treatment employed by those not using physiotherapy modalities consists of strapping by adhesive tape or plaster casts. The object in view, of course, is to secure rest of the parts. But what is the object of rest? First, it prevents muscular spasm, and then promoting absorption, instead of organization of the infiltrate. Infiltration always occurs in these injuries. Nature inaugurates a process which we call inflammation, evidenced by hyperemia and consequent heat in the parts. Radiant light and diathermia will promptly relieve muscular spasm and hasten absorption,—the two things necessary to the restoration of the parts to normal. Follow this up by static wave currents or sparks, or the slow sinusoidal current, and you will get very rapid and satisfactory results.

The restoring of active circulation and improvement in the nutrition of muscles and the relief of pain and inflammation in the early stages of nerve injuries, with their resulting paralysis, is best secured by the combined treatment of baths, massage, suitable forms of electricity and exercise.

AMPUTATIONS

Physiotherapy is of great assistance in relieving edema, hastening the shrinking of the stump, stretching contractions, hardening the stump to make it weight bearing, and restoring muscular tone.

MUSCULAR ATROPHY FOLLOWING INJURY

When a motor nerve is severed, the muscle which it supplies becomes inactive so far as contractile function is concerned, and muscular atrophy ensues. When a muscle is inactive there is

very little flow of lymph through it, consequently its nutrition is impaired. Anything that will promote the nutritive changes in the muscle is indicated and in physiotherapy modalities we have by far the best and most efficient means of attack against this trouble. All treatment should be preceded by the thorough warming or heating of the part by radiant light and diathermy, then the Bristow coil or sinusoidal current, followed by massage and exercise. Muscles which show the reaction of degeneration do not respond to the faradic current, in which case it becomes necessary to employ the interrupted galvanic, the rhythm of which must be regular, with a period of rest. The sensation of pain produced by electrical currents depends upon the height of the current wave, the higher and longer the wave the greater degree of pain. Care should be taken not to tire or tetanize the muscle.

BURNS

Radiant light and actinic light relieve pain, stimulate the quick healing process, and are bactericidal, and under this treatment burns will invariably heal without any subsequent infection. For x-ray burns no agent known to-day can compare with actinic light, either preceded or followed by radiant light.

INFECTIONS

Superficial types of infections are very successfully treated by radiant light and heat, combined with actinic light. You will be agreeably surprised to find how quickly these infections and ulcerative conditions will respond to this treatment. I do not use very much of the so-called antiseptics, but am depending more and more upon the use of radiant light and actinic light to control infections and injuries and find I get much better and quicker results than can be obtained by any other method.

BRUISES

Bruises differ in severity according to the degree of traumatism. In light bruises the skin alone may be injured, in more severe ones the soft tissues, and in most severe bruises the periosteum and bone itself are injured. Many cases of apparently mild bruises are passed off as of little consequence, which later on result in a serious condition. Who has not seen serious consequences result from an apparently light bruise to the tibia, knee, and elbow? Not infrequently periostitis, ostitis, and necrosis follow mild traumatism. From a medical standpoint every bruise should be regarded as serious, and every effort made to restore normal circulation at the earliest

possible moment. So I repeat: treat all mild bruises as if serious consequences are to be expected; apply radiant light and heat, diathermy, actinic light, or vacuum electrodes as soon as possible after the trauma.

BACK AND SACRO-ILIAC STRAINS

Probably the greatest number of cases are the back strains and sacro-iliac conditions, where the muscles and ligaments have been stretched, torn, or bruised, with possibly a slight rotation of the lumbar vertebræ. These cases often cause the most prolonged disability and should be given attention immediately, as the longer physiotherapy is withheld from these cases the harder they are to treat, and they often lose weeks and months from work which is unnecessary.

Proper manipulation, and in obstinate cases stretching by traction tables, and the application of radiant light and diathermia, followed by galvanism, give wonderfully rapid and permanent results.

CONCLUSIONS

Statistics gathered by some of the foremost authorities and verified in my own practice to my satisfaction, prove that physiotherapy applied to industrial injury cases—

First, reduces the period of disability 30 to 40 per cent, in some cases more.

Second, reduces the amount of total disability 30 per cent or more.

Third, conserves labor by putting the man back on the job in a shorter period of time.

Fourth, restores the injured skilled employé to his maximum working efficiency, thus keeping production up to the highest possible point.

Fifth, creates good will of the employé.

I sincerely hope that more use of physiotherapy methods will be made by the physicians in these cases.

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GOLD SALTS USED IN THE CHEMOTHERAPY OF TUBERCULOSIS*

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One of the first authentic references in the literature to the use of gold in the treatment of tuberculosis dates from the time of Paracelsus (1493-1541). After his time gold was used in combination with mercury in the treatment of cachexias resulting from phthisis and scrofula; but it was discontinued because of some serious accidents.

Within the last hundred years many gold salts have been introduced as specifics for tuberculosis. The most important of these salts are (1) a double chloride of gold, (2) cyanide of gold, (3) tricyanide of gold, (4) potassium gold cyanide, (5) monocantharidyl-ethylene-diamin-aurous cyanide, and (6) an amino-aurophenol-carbonic acid. The period of supposed usefulness of each one of these salts was of short duration and the various treatments originating with them soon fell into disuse.

A brief summary of the physiologic and pharmacologic action of most of the gold salts mentioned was published in 1918 by DeWitt, and the following interesting findings were enumerated: In very small doses the gold salts appear to exert

a stimulating effect, promoting the secretion of the skin glands, salivary glands, and kidneys. When larger doses are used, fever may result, a reaction Chrestien considered necessary for curative effect. Toxic doses produce a rapid fall of blood pressure, failure of respiration, and hyperemia of all the organs with occasional ecchymoses and larger hemorrhages. The veins and capillaries are greatly dilated and often ruptured while the arteries are strongly contracted. Heubner, because of these findings, regards gold salts as a vascular poison. The kidney presents the usual picture of metal poisoning, hyperemia, epithelial degeneration and fat cylinders in the tubules. The lungs show areas of hepatization and smaller bronchi are closed by hyaline masses. Hauck states that gold cyanide causes a great diminution of the erythrocytes and leucocytes and a severe hemolytic icterus.

In 1890 Koch found that the cyanide of gold had very little bactericidal effect on the tubercle bacilli, but would completely inhibit growth in a dilution of 1:2,000,000 in water solutions. Behring, however, found that a concentration of 1 part in 30,000 was necessary to inhibit growth in blood serum. Other salts introduced later

*Presented before the Lymanhurst Hospital Staff, February 24, 1925.

differ as to the concentration necessary to inhibit growth, but on the whole much stronger solutions are required. Another important consideration is the stimulation of the growth of tubercle bacilli by very dilute solutions. The significance of this fact may easily be appreciated since it is very difficult to keep the concentration of gold in the animal body constantly at or above that required for inhibition.

The gold salts have been used in combination with tuberculin, ultraviolet rays, and with borcholin, which is believed to dissolve the fatty sheath of the tubercle bacillus. In all instances, according to the investigator, the combination treatment gave promise of better curative effects.

In 1917-1918 DeWitt published the results of a series of experiments upon guinea-pigs infected with the tubercle bacilli and treated with various gold salts. In her papers every claim for the efficacy of gold in the treatment of tuberculosis is disputed, except some increase in weight until the disease has progressed to a point of general intoxication. Instead of living longer, the treated animals died sooner than the controls. The examination of autopsy material did not show in a single instance a tendency to connective tissue encapsulation or scarring of the tubercles, as had previously been reported. Furthermore, the chemical analyses of the organs demonstrated that there was no specific affinity of gold for tuberculous tissues.

This brief review will show how similar in many respects the salts previously introduced are to the one now attracting attention; namely, Mollgaard's Sanocrysin ($Au_2S_2O_3 \cdot 3Na_2S_2O_3$). This aurothiosulphate salt was discovered in 1845 by Fordas and Gelis and introduced into clinical medicine by Secher in 1923.

According to Mollgaard, the earlier investigators had omitted to observe carefully the fundamental principles of the pathology in tuberculosis; namely, the resistance of tubercle bacillus and the peculiar structure of tuberculous tissue. This, however, in part is erroneous, for it had been known a long time that the tubercle bacillus was invested with a lipid membrane; and as mentioned, borcholin had been used to effect a solution of this membrane, in order that the gold might gain entrance to the bacterial cell. The second claim involves a lack of insight on the part of earlier investigators to seek a gold compound that produced in the body an ion containing the gold, which would rapidly diffuse through the nonvascular tuberculous tissue. These peculiarities of the tubercle bacillus and the tuberculous tissue are, however, easily overcome by

the therapeutic properties of Sanocrysin. It has been demonstrated that the gold-thiosulphate salt diffuses through the animal membrane with a rapidity of about 75 per cent of that of an iodine ion, and that its bacteriotropic properties are as follows: 1. It inhibits growth in a concentration of 1:1,000,000 and is bactericidal in 1:100,000. 2. It destroys the acid-fastness of the tubercle bacillus in a concentration of 1:1,000 at a temperature of 40° C. for one-half hour, the decolorization by the H ion being considered evidence of increased permeability of the lipid system. 3. If the tubercle bacilli are exposed to the gold salt for a long time, they become dark and finally are divided into small granules. This ultimate fragmentation of the bacterial cells has been shown to take place in animal tissue and becomes of importance as a process whereby the endotoxin may be liberated.

A review of the animal experiments reported by Mollgaard is in many respects disappointing. The first series of guinea-pigs infected with tubercle bacilli and then subjected to the gold treatment showed a high mortality. This was considered due to impurities in the gold salt. Later attempts are said to have been more successful but no figures are given except a series of five guinea-pigs that received the gold salt immediately after the bacterial injection. Further experiments were carried out on young calves. Doses of 10-20 mgm. per kilo of body weight gave no untoward symptoms, but the author cautiously adds that a more comprehensive investigation is necessary. The conclusions from the treatment of calves infected with tubercle bacilli when compared to the controls may be summarized in three sentences: 1. There was evidence of less tuberculosis in the treated animals. 2. Several deaths occurred among the treated animals either from shock or hemorrhage. 3. Most of the controls died as a result of the infection, but an objection may be raised to the small number employed. It is true that these results are far better than those obtained by DeWitte in the treatment of infected guinea-pigs. However, one would scarcely feel justified in developing a rational therapy for man on so scant experimental evidence.

The most frequent and outstanding symptoms are albuminuria, toxic myocarditis, edema of the lungs, and a rapid fall of blood pressure. These changes taking place within the body scarcely speak for a tuberculin-shock, especially when some of the treated animals die from severe hemorrhage. Several critical reviewers of Mollgaard's paper are inclined to consider these symptoms

the end-results of a severe metal poisoning.

In November of 1923 Secher wrote: "The experimental results (obtained by Mollygaard) were so clear-cut that I felt able to assume the responsibility of the first clinical investigation." From his paper, published in January of 1925, the following important and interesting facts may be summarized: Two distinct series of reactions have been found to occur after intravenous injection of Sanocrysin in tuberculous patients. Immediately or during the injection nausea and vomiting may take place. A larger dose may be followed by dyspnea. Very large doses have produced hiccough, which would increase in intensity, finally causing death. These symptoms cannot be due to the liberation of an endotoxin because it is inconceivable that the gold ion has had sufficient time to act on the tubercle bacillus. No experiments are recorded to show the effect of Sanocrysin in the normal individual, but even if no symptoms should occur in a healthy individual, it does not necessarily follow that the salt is non-toxic to a tuberculous individual with lowered vitality. Then, also, in some instances chills and fever occurred in the course of two to three hours. This reaction is considered to be an indication that endotoxin is being liberated. In severe cases the temperature may drop after this initial rise and continue to drop for twenty-four hours until the patient finally collapses and dies. The second series of symptoms, such as (1) erythema, (2) albuminuria, and (3) a persistent low temperature, are definitely ascribed to the tuberculin-like reaction. If 20-40 c.c. of antitoxin serum be given intramuscularly to a patient having these symptoms, there is a rapid change for the better taking place in a few hours. Just what happens to improve the patient so rapidly is explained on the basis of a toxin antitoxin neutralization reaction.

The percentage of improved and cured patients is actually no greater than that found by other investigators who have used gold salts. Very few of the severe tuberculous cases receive any benefit from the Sanocrysin-serum treatment; and it is obvious that in many instances death is hastened. The following results are tabulated for 21 of the severe cases: 2 became symptom-free; 7 were improved; 1 was unchanged; and 11 were made decidedly worse (6 of these died). The more mild cases treated are considered in most instances to be actually cured within a period of six months. This may take place in cases of pleurisy without Sanocrysin-serum injection; therefore clear-cut conclusions as to the advantage of the treatment cannot be drawn. It may well be that the gold salt exerts a stimulating effect on the body tissues, and that this greater activity helps to effect a cure in some instances.

At all events the Sanocrysin-serum treatment is in every respect heroic; and in DeWitt's own words, "it would seem a part of prudence to abstain from using gold preparations in our tuberculous patients." Calmette, in his contribution to the therapy of tuberculosis, in 1923, regards the treatment of tuberculosis with gold compounds as hopeless and advocates that other compounds be sought as specifics.

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RADIOLOGICAL AND PHYSIOTHERAPY ASSOCIATION: PRESIDENT'S ADDRESS*

BY N. J. NESSA, M.D.

Roentgenologist, Sioux Falls Clinic

SIOUX FALLS, SOUTH DAKOTA

Fellow Members and Friends:

We are gathered to-day for the first meeting of the South Dakota Radiological and Physiotherapy Association. As you may know, this So-

ciety was organized one year ago at Watertown, in this state, during the meeting of the State Medical Association, for the purpose of studying to better advantage the science of radiology and physiotherapy. The science of electrotherapy and its uses in our profession have made the

*Presented before the South Dakota Radiological and Physiotherapy Association, at Mitchell, S. D., May 22, 1924.

most wonderful strides in recent years, and I have particular reference to the science of radiology.

A newer science, generally termed *physiotherapy*, relating particularly to the use of heat and chemical action produced by other electric modalities, has lately come into more or less vogue, the benefit of which was probably most accurately demonstrated in the reconstruction work of our army hospitals. Although the two branches, for example, radiology and physiotherapy, may not be so closely allied, I believe that the two can well be associated as far as organization is concerned in our state, and thereby further the interests of both until the future shall dictate what changes seem necessary, if any.

Most of us know what a stormy period the science of radiology had in becoming established so fixedly in our profession, due to lack of knowledge as to its uses and benefits, as well as to the abuses and discredits brought upon it by quacks and irregulars. Physiotherapy, although as old as sunlight in the use of heat, is having its share of discredits heaped upon it, probably by abuses brought about through its use by quacks, irregulars and the various cults. Our profession stands for what is best in the treatment of human ills; therefore, if there is any benefit to be obtained by the use of various electrical modalities incorporated by the use of physiotherapy, we should be open-minded enough to become informed, and thereby adopt these newer methods in the care of our patients. I believe it a fact that the followers of the various cults and isms are using many helpful methods in the field of physiotherapy, whereby they become established amongst the ranks of true healers, and, if we as a profession continue to be blind to this circumstance, we shall bring nothing but reproach and loss of professional standing upon ourselves. There seems to be a lack of confidence between the laity and our profession to-day, and by that I mean that there is a large percentage of people who are employing irregulars and cultists for the treatment of their ills, but I believe if we remain open-minded and do not attempt to stamp out and eliminate helpful methods which they use,—and of course I have particular reference to physiotherapy modalities,—the mass of people will sooner trust their difficulties to members of the medical profession than to outsiders. Let us therefore get together on these ideas and from each other's experience learn how best to accomplish certain beneficial results, as only in such a spirit can we hope to prosper and reflect credit on our profession. I do not mean that we should use these

electrical modalities indiscriminately, but that in all cases we should first make a diagnosis and then apply what seems best indicated in the treatment and alleviation of the case. We must become informed fundamentally, for only then can we become thorough in any method of standardizing the work of the profession. If you use galvanism, you must know that it has polarity, for example, positive and negative poles, and that each pole is diametrically opposite to the other, so one cannot expect to get sedation when using a pole for stimulation. If you use Faradism, or the alternating current, be also sure that you know it has no polarity, consequently no polarity effects can be produced. If you use high tension currents, so familiarly known to-day as *diathermy*, know that it is also an alternating current without polarity, and that its alternations are extremely rapid, which permits the use of high voltage and amperage. Be sure that you know the difference between sedative and stimulative diathermy, although the use for sedative diathermy practically covers the entire field. It is well, therefore, to know that when you want stimulative diathermy you must know how to get it and to use it. If you use actinic light of the air-cooled type, you should know that it has no power of penetration, but yet it produces local, as well as general, effects to the body. The fact, therefore, that it may benefit a secondary anemia, does not indicate its use with the same expectancy in primary anemia. If you are using radiant heat, do not apply it promiscuously for all sorts of aches and pains without knowing the cause of the same, as you will all realize how futile it would be to treat a deep-seated pain in the back for—we will say—kidney stones.

I also feel that the qualification for membership in this organization should be the same as required for membership in the State Medical Association, or, even better, that a membership in the State Medical Association be first necessary to membership in our Association.

I wish at this time, also, to offer my sincere appreciation of the distinction you conferred upon me in selecting me as your first president of this Association, for I feel sure that in the future we shall all look upon this organization with honor and distinction. If we will all put our shoulders to the wheel and get the machinery started in the right direction, I am sure that the production of a system of therapy can be established which will rank well and be in best accord amongst the usual recognized forms of therapy in our profession to-day.

In getting up this program, the secretary and

myself believed that if we could induce a few outsiders to come and talk to us—men who are pioneers and trail-blazers in this work—in an informal way, that we would gain the most in the least time. I feel very grateful to these visitors who have come a long way to talk to us, and I know that we shall be greatly benefited and repaid for our mutual presence here to-day.

I wish also to thank Dr. Alway, our general

State Association Secretary, for the numerous and thoughtful things he has been able to do for our organization; and in this connection I wish to state, further, that I believe it was most fortunate that the Secretary of the State Medical Association was induced to become Secretary of this new body, as by such close association we can hope the more to prosper and progress with harmony and interest amongst us all.

PROCEEDINGS OF THE MINNEAPOLIS CLINICAL CLUB

Meeting of February 19, 1925

The regular monthly meeting of the Minneapolis Clinical Club was held at the University Club on Thursday evening, February 19, 1925. Dinner at 6:00 P. M. The meeting was called to order at 7:00 P. M., by the President, Dr. PEP-
pard. There were 26 members present.

The minutes of the January meeting were read and approved.

The annual election was held and the following officers were elected for the ensuing year:

President.....Dr. J. S. McCartney
Vice-President.....Dr. J. M. Hayes
Secretary-Treasurer.....Dr. Floyd Grave

The first part of the scientific program was taken up with a discussion of Dr. Souba's paper "Pyelitis in Pregnancy" read at the January meeting.

DISCUSSION

DR. WYNNE: Hexylresorcinol has given interesting results in some of the patients whom I have treated with this drug. While a sufficiently large number of patients have not yet been treated definitely to establish its place as a urinary antiseptic, we feel sure that it will stand above any other urinary antiseptic now in use. We are indebted to Dr. V. N. Leonard, whose ten years of work culminated in the discovery of the clinical value of this substance. Leonard reported his experiments in Chicago at the 1924 meeting of the American Medical Association last June. At that time he had difficulty in securing enough of this substance for experimental purposes, but since then it has been possible to produce it in larger quantities, and last September Dr. Leonard sent me a small quantity of the drug for clinical use. Since that time changes have been made in the preparation of the drug for clinical administration, and now it is dispensed in gelatin capsules containing 0.15 gram of hexylresorcinol as a 25 per cent solution in olive oil.

Hexylresorcinol not only inhibits the growth of bacteria in the urine, but is actually bactericidal in its action. This bactericidal action occurs in acid, neutral, or alkaline urines. At this time it appears that infections due to the Gram-positive cocci are most quickly cleared up, although Leonard has been

able to sterilize the urine of patients carrying chronic colon bacillus infection by persistent treatment. I have not yet treated a colon bacillus infection for a sufficient length of time to expect a cure, but at present I have several under treatment. I have two cases of streptococcus infection which cleared up very quickly under treatment, and another case which apparently has cleared up. One case, in which a Gram-negative coccus and numerous pus cells were found in smear repeatedly from catheterized specimens, was negative on smear in a week. This patient had severe bladder symptoms which disappeared as quickly as the organisms.

Leonard says that hexylresorcinol is chemically stable, non-toxic in therapeutic doses, non-irritating to the urinary tract, bactericidal in high dilution in urine of any reaction, and is excreted unchanged in sufficient percentage to impart active bactericidal properties to the urine. It is administrable by mouth, and is secreted in the urine at a rate which admits of continuous local action in the urinary tract. In other words hexylresorcinol gives promise of being an ideal urinary antiseptic.

In my experience there has been absolutely no evidence of irritation of the urinary tract. There is, however, some irritation of the intestinal tract, which usually passes off after a few days, although I have had two patients who have had no symptoms of any sort even on full doses. I think we may also find a few patients who will not tolerate the drug even in small doses.

It is hoped that many women suffering from pyelitis of pregnancy can be promptly cleared up and thereby prevent some of the serious complications discussed by Dr. Souba.

I wish to congratulate Dr. Souba for his thorough and excellent report on this subject and merely wish to mention this phase of the hydra-headed problem.

DR. KREMER: I do not think there is much to add to what Dr. Souba has given you about these cases of pyelitis of pregnancy. Practically all the cases I have seen belong to this group. I have helped to do the cystoscopic work on most of these cases. They came with very acute symptoms, acute pain. We established irrigation, and in some instances the patients have been made much more comfortable. Unfortunately we see these cases only in the acute state. There is not a great deal we can say about the etiology. Perhaps it is only an acute manifestation of a latent infection. Perhaps some are as-

ending infections from the bladder. Likewise, at the termination of pregnancy these cases disappear after the symptoms disappear, and we see no more of them. Perhaps in the future we shall be able to trace them out for a while afterwards.

DR. McCARTNEY: Dr. Souba has discussed rather at length the question of etiology of hydronephrosis. Yesterday I did a postmortem on a woman who died of peritonitis one month after a self-induced abortion. What interested me was that she had a very definite bilateral hydronephrosis, both ureters being about twice the normal size, and nothing to account for the distention unless just the pressure from the pus in the pelvic cavity. She was three months pregnant at the time the abortion was induced one month ago. You would hardly think a three months' pregnancy could produce hydronephrosis. Hydronephrosis does not ordinarily appear so early.

We teach, of course, that the usual causes of hydronephrosis are tumors (including the pregnant uterus), renal calculi, aberrant vessels, floating kidney, and a few may be definitely due to cord lesions, *tuberculous dorsalis*, multiple sclerosis, etc. In a few cases there is absolutely no explanation for the hydronephrosis.

Probably these cases of pyelitis in pregnancy are not urino-genous, but hematogenous, and like the ones seen in young children, especially girls. In adults we do not usually see this sort of thing, but instead multiple abscesses in the kidney.

This is the specimen from the above case. (Exhibiting the kidney.) You will note the enormous size of the kidney and the definite dilatation of the pelvis and ureter. I have also here a kidney showing a pyelitis and a pyelonephritis due to the typhoid bacillus. This is the only example of typhoid pyelitis we have in the laboratory.

DR. SOUBA: I have had no experience with the drug, hexylresorcinol, which Dr. Wynne mentioned. We now have the promise of obtaining some of it and are going to try it in some of our cases at the General Hospital.

In regard to Dr. McCartney's statement of puerperal infection: it is just a question if that was a case of primary infection of the pelvis of the kidney. It might be that it followed the puerperal sepsis, and is a part of the general infection. It has been mentioned as early as 1877 by Chamberlin, who said that patients who died of puerperal sepsis, in practically every one there was infection of the urinary tract.

I feel that pyelitis cases in pregnancy are hematogenous in origin. In practically none of them did the bladder show any involvement at all. No less a man than Kloman, of Johns Hopkins, has stated that all of these cases have a certain degree of cystitis. In some of these cases, the ureteral orifices have shown edema, but the bladder itself was free.

I cannot help but feel that the pregnant uterus is responsible for these cases. If it was some other cause why would not the ureters be dilated down to the bladder itself? They are not, and we can prove it by pyelograms.

DR. McCARTNEY: I might say that the ureters in the first case were dilated all the way down. The kidneys were enormous and showed microscopically acute glomerulonephritis.

DR. SOUBA: How would you explain the dilatation in that case?

DR. McCARTNEY: I do not know.

DR. SOUBA: Some explain it by the toxins circulating in the blood, as surely they were in the case you mention. I would agree with this.

DR. F. K. Schaaf read a paper entitled "Foreign Protein Therapy."

DISCUSSION

DR. MICHAEL: I would like to ask Dr. Schaaf what he observed in European Clinics regarding the results of the treatment of chronic neuritis?

DR. SCHAAF: They were very good. Bier had several cases of actual sciatica in which almost everything had been tried. I saw some of them improve after three or four injections of these proteins.

DR. MICHAEL: Did he give them bacterins?

DR. SCHAAF: No, he uses proteins almost entirely.

DR. MICHAEL: Tryparsamid has recently become a much talked of chemical in discussions on the treatment of syphilis. It has been shown that it induces, comparatively, a considerable irritation and vascular reaction, hence its beneficial influence. Perhaps foreign protein therapy operates not very differently from chemotherapy. Mention was made of malarial treatment of paresis. During the winter the medical service of the General Hospital found two chronic malaria cases. From both of these I secured blood and inoculated two paretics, one twice, but the "takes" were unsuccessful. We expect that soon we shall have more opportunity to institute this form of treatment.

DR. SCHAAF: Bier states that several of our drugs, —mercury, etc.—are merely forms of foreign protein or stimulation therapy, and he proves it by the fact that in some of these cases he gives iatrin by mouth.

DR. BELL: I think it is rather fortunate that Dr. Schaaf is not going to publish this paper for a while. In that interval the members ought to read what Bernard Shaw said about the same sort of therapy, that is, foreign protein therapy. He found the same difficulty in getting results. He attributed this difficulty to the fact that the body was constantly reacting to this sort of stimulation, and that when you took a foreign protein and put it into the body sometimes you get the results you wanted and sometimes not. This is because we had no knowledge of what state the body was in at the time.

DR. HANSEN: Dr. Schaaf mentioned the use of foreign proteins in iritis. Certainly in the field of ophthalmology they have been used with very gratifying results. As Dr. Schaaf says about the use of various proteins in other conditions, almost everything has been used in this field: typhoid vaccine, diphtheria antitoxins, whole milk, split milk proteins, such as lactalbumin, etc., and they have all seemed to give quite uniformly good results in these acute ophthalmic conditions. Especially is this true in iritis, the etiology of which has been much discussed for a long time and which was

stated in most text-books to be caused by syphilis in the greater percentage of cases, but which, since the work on focal infections has come to the front, is known to be due to focal infection in at least 50 per cent of these cases. The local reaction in the eye following these foreign proteins gives marked subsidence of the acute symptoms. Severe pain is quite rapidly relieved; pupils, which we cannot keep dilated readily with atropin, begin to relax; and circumcorneal injection of vessels lessens. These effects are not always seen after the first dose; sometimes it must be repeated, but we certainly see prompt results in certain cases of acute eye conditions.

It has been reported that in gonorrhoeal ophthalmia there is very beneficial reaction from the use of foreign proteins. The important point is to find the thing which gives you the best reaction, but in the cases I have seen, using the same foreign protein and giving the same dose, we have got different general reactions. Temperature in some cases may not go up, and in some cases you may have a rise to 103° - 4° with marked general malaise and vomiting. In other cases, particularly with typhoid vaccine, we get the usual reaction one might expect in normal individuals.

One point I want to ask Dr. Schaaf about is the test injection which most people have advised. In giving whole milk injections, where you give 3 c.c. as an initial therapeutic dose it is advocated that you first use 1 c.c. to test the patient's reaction. Is this generally done in the German Clinics now?

DR. SCHAAF: They usually started with a small dose, but gave 2 c.c. Some patients react differently, and you can never gauge beforehand the reaction that is going to occur. The only safe way is to start out with very dilute solutions. I am using it on three cases at the University Dispensary. One is not getting a reaction on 10 c.c. of milk, and I am going to use another protein. Another case got a reaction on 5 c.c. and is getting better, and has gone back to 2 c.c. At first we give it every three days; later on, especially in the chronic cases, the intervals have to be lengthened, and the dose made smaller.

DR. BELL: I would like to ask Dr. Schaaf what he meant by saying that the milk did not give the reaction, but the bacteria do.

DR. SCHAAF: The bacteria are dead, but are still there as split proteins.

DR. BELL: What is the effect on long-standing breast abscess?

DR. SCHAAF: Just as an adjuvant. In cases of furunculosis I have seen just as good results from the use of iatrin alone, but a combination of iatrin with staphylococcus vaccine will give more beneficial reaction sometimes.

DR. HAYES: Do they make autogenous vaccines?

DR. SCHAAF: They have practically given up autogenous vaccines, and I did not see much of it used.

DR. WITTICH: Have you had any experience with the use of vaccines in chronic bronchial trouble?

DR. SCHAAF: They were using the peptones over there, because that is a chronic process, and you

have to be very careful with the treatment or you do harm.

—FLOYD GRAVE, M.D.,
Secretary.

BOOK NOTICES

SAFEGUARDING CHILDREN'S NERVES. A Hand-book of Mental Hygiene. By James J. Walsh, M.D., Ph.D., Sc.D., Professor of Physiological Psychology, Cathedral College, New York, and John A. Foote, M.D., Professor of Diseases of Children, Georgetown University Medical School. With a Foreword by Honorable Herbert Hoover. Cloth, price, \$2.00, pp., 272 with illustrations. Philadelphia: J. B. Lippincott Company, 1924.

The problem of child management is discussed from the physical as well as from the mental. In general, this book compares very favorably with the many others recently published along the same lines.

The authors admit the existence of a congenitally nervous child described as a thin, restless, over-active infant, who arches his back when he cries, has gastro-intestinal disturbances very early in life and differs materially from the phlegmatic infant.

They feel that heredity plays a definite part in the development of character traits, but emphasize the more important part played by environment.

They cite numerous instances of marked delayed mental development occurring during the prepubertal years, followed by brilliant careers later on.

There is a warning against the danger of attempting to make a "genius" out of a child with slightly more than average talent, a mistake especially made in music.

They advise against attempting to push the education of the mentally backward child, who should be given vocational instruction.

The life of the school child is discussed thoroughly. Emphasis is laid on diet, hygiene, fatigue, exercise, and play. They urge that children should play with others of their own age and out-doors as much as possible. They denounce the increasing tendency of the child to attend the movies because of the dangers of poor ventilation, cramped quarters, and unsuitable mental stimulation obtained there.

In their chapter on habit they advise to begin training the infant to control urination at two months. In the treatment of bad habits they suggest the formation of contrary habits. One would appreciate a more complete description of their methods in this important problem of child management.

Their suggestions to get the child to eat are those used at the pre-school clinics in Minneapolis. They quote the advice given parents here to encourage the child to eat.

Within the past few years, as a result of the propaganda directed against physical punishment of the child, the pendulum has swung to the other extreme, and parents are being advised never to spank the child. Drs. Foote and Walsh are apparently quite anxious to change this modern ex-

(Continued on page 226)

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MAY 1, 1925

GENIUS AND INSTABILITY

There are undoubtedly many people in the world who are afflicted with genius. Some are remarkable, but the majority of them have associated with the genius a predisposition to mental disorder or to other forms of nervous instability. Lombroso once said that "genius is a neurosis." In some families one member has become noted as a genius, while others have been known as suffering from serious nervous and mental disorders. Many prominent men in history who were looked upon as geniuses have begotten children who were neurotic or feeble-minded. Julius Cesar and Napoleon were epileptics, and yet they were marvelous men of their times. Mozart, Peter the Great, and Victor Hugo were said to have defective children. Guy de Maupassant died insane. Villemain was described by Victor Hugo as a man dominated by delusions of persecution. Rousseau was of neurotic ancestry and believed himself persecuted by all the world. Flaubert, although an old bachelor and almost a recluse, a writer of stories which showed apparent familiarity with the sexual life of men and women but who knew nothing of it himself, was a genius, yet he died of epilepsy. Baudelaire is said to have died of general paresis, the cause of which was probably an acquirement, but he must have been a candidate for that sort of a disorder. De Musset was a drug addict. Schumann, the musician, was a victim of melancholia

and attempted suicide by throwing himself out of a window. Donizetti died of general paresis. Mozart was extremely nervous, and he had a precocious mind. He undertook his first concert tour at six years of age and died at thirty-five and in his last years was dominated by the hallucination of a man who compelled him to compose his own funeral march. Charles Lamb had an insane sister; he was himself a stutterer and occasionally drank to excess.

Sometimes imbeciles exhibit abnormal brilliancy in one particular thing. To this type belongs the mental calculator, or one who has unusual aptitude for remembering dates, or perhaps unusual dexterity in playing musical instruments, as illustrated by Blind Tom, who used to applaud his own efforts equally with the audience; he was evidently a man with a one-track mind. He could play anything he had heard, and played it purely as an automatic machine would; he was a human phonograph. He knew nothing else. Many of the infant prodigies belong to this type, and they usually die early in life from premature dementia or imbecility. All of these people have some of the stigmata of degeneration.

Doubtless some of these cases of unusual competency in one line and marked incompetency in many others are strictly hereditary results. Some of them perhaps suffer from a disturbance of their internal secretions, and if some of them could have been treated according to modern methods they might have turned from their ingenious ways to just common mediocrity.

DEAN JOHNSTON'S BOMBSHELL

For some time Dean J. B. Johnston of the University of Minnesota has been studying the status of students who are to be admitted into the University and he finds in many instances that he can tell to a certainty who will be qualified and who will be disqualified during the first six months of their University life. Every one of the eighty freshmen picked out last fall as unlikely to succeed in college failed to make even the lowest average grade required for graduation. That seems to be the basic element of Dean Johnston's psychology—the question of the student's behavior; and it is quite evident they behave very badly. This method of procedure and the record, too, make it impossible for educators any longer to dodge responsibility for not telling certain students that they will waste their time and money in college.

The next step Dean Johnston undertakes will be to test seniors in Twin City high schools to prevent some students from planning to go to

college, and this test will be undertaken by Prof. Donald G. Paterson of the University Psychology Department so that by Commencement time parents of every graduating senior in Twin City public schools will have the University's opinion as to whether their sons and daughters should enroll in the University in the fall. In the last four years 409 probable failures have been selected on the basis of the student's high school records and its intelligence test, and out of this number only 9 have obtained the minimum average for graduation. When these "picked" students found they were slipping, many of them did not return, or cancelled their registration with a record of failure. Some of them were expelled for low scholarship. Not one of the remainder obtained an average of "C." Dean Johnston told the school superintendents at the Schoolmen's Week that the belief in education is a belief in miracles, as is also the dogma of equality in the first sentence of our Declaration of Independence—"all men are created equal," which no American patriot believed for a moment, particularly if they had studied biology and heredity. Dean Johnston very cleverly summarizes his conclusions drawn from nine years' study of the problem, in which he says:

"The greatest American obsession is the habit of going to school."

"A second great American obsession is the belief in equality, * * * The dogma appeared in the first sentence of our Declaration of Independence, 'All men are created equal.' No American patriot believed that for a moment."

"The instinct for sameness has played a prominent part in the development of our educational institutions * * * The Chinese bind their girl's feet; we bind the whole child, body and soul."

"A third great obsession of our nation is the belief that the good things of life can be given to people. Parents fondly hope that they can give their children an education. This is quite impossible; as it is almost equally impossible to keep worth while young people from getting an education for themselves."

"We advise children to prepare themselves for law, medicine, engineering, dentistry, business—with a capital B—and for everything except the work that needs to be done."

"We find that from some of the Twin City schools there come to the University the very lowest students in the high school class. * * * If the University were to lower its work to suit the ability of these poorest students in the high school we should quickly become a nation of fourteen-

year olds at the top, so far as the public educational system could bring that about."

"The only way to do justice to these students of low ability is to educate the public to understand that there are things other than going to college which are worth while and satisfying and honorable, that to go to college requires a peculiar type of personality, that to encourage unqualified persons to go to college only wastes public resources, discourages the youths themselves and steals away the facilities which the capable students could use, and that this waste could be avoided by frankly facing the facts."

"No civilization can long endure a universal disdain for work, for labor."

A PUBLIC HEARING OF THE MINNEAPOLIS BOARD OF ESTIMATE AND TAXATION ON THE HOSPITAL PROBLEM

A bit of very interesting sentiment came to light with the public hearing before the Board of Estimate and Taxation the other day on the General Hospital situation. Of course, everyone knows that none of these public hearings is of any actual value to an important question and probably influences no one directly or indirectly; but they have to be held, because there are a number of people who love to declare themselves and like to express themselves in a semipublic meeting. How would it be possible for the members of the Board of Public Welfare, the Council Finance Committee, the Mayor's Hospital Committee, and officials of the Hennepin County Medical Society, the Taxpayers' Association, and the Civic and Commerce Association to get together and agree upon any public policy?

It seems that one of the principal issues at stake is the fact that the University may lose, in a measure, the opportunity for donating a campus site for the General Hospital when the time comes to move it. The probabilities are that the University will again have to go to the General Education Board and see what they can do in regard to the fund which was primarily put at their disposal by the Rockefeller Foundation.

Most of the speakers were physicians. Dr. C. M. Roan, who is a member of the Mayor's Hospital Committee, advocated the purchase of the Judd Block and presented a petition signed by 120 physicians and surgeons urging that the Judd Block be bought to enlarge the General Hospital. We wonder how many of these 120 physicians

and surgeons knew that a real estate company was behind the deal—that it was largely a matter of unloading the Judd Block on the city rather than really providing hospital facilities? However, that is a small matter to a composite meeting of the kind referred to above. It is fair to state, however, that the selection of a site for a General Hospital is not to be made on the spur of the moment. It is a matter that has been discussed, and the principal point of discussion is the fact that the General Hospital will be where it is for the next seventy-five or a hundred years. The majority of the members of the Hennepin County Medical Society favored the University offer, while evidently a large number favored the Judd Block. It simply shows the difference in opinion as to what the Hospital is going to do. It cannot long survive its present location, and to buy a block across the street from the present institution would be a very difficult arrangement to maintain. It has been recommended that a committee be selected to survey the situation before a definite change is made.

None of us will live long enough to see a hospital of this kind on the Campus, evidently, from the different views held by doctors and others. That the General Hospital is overcrowded and needs expansion is very evident, but the expansion ought to be large enough or the space for expansion large enough so that the Hospital can be built up in various units. If the Judd Block is purchased it will cost probably two million dollars to put up a building and acquire the grounds for hospital purposes. Dr. C. B. Wright, who is in favor of the University site, also believes that the present hospital is cramped in all departments; and if the Judd Block is purchased an entirely new hospital will have to be built thereon. He also advocated that the majority of the patients in the new hospital should be located away from the center of the city. Mr. Nathan Chase, who represents the Taxpayers' Association, declared the purchase of the Judd Block would defer from twenty to twenty-five years any consideration of the University offer, and he doubts whether it would be possible to get sufficient funds together to build a hospital.

There are many men in the medical profession who feel that there ought to be a hospital in the main part of town, centrally located, while others feel that the taking of a patient fifteen or twenty blocks further on would make no material difference. The Welfare Board evidently favored the University offer, while the owners of the Judd property insist that a decision be reached at once, or soon. The probabilities are

that a long fight will ensue. The further probabilities are that the Judd Block will be purchased by the city.

NEWS ITEMS

Dr. C. I. Spannare has moved from Inkster, N. D., to Mayville, N. D.

The American Sanatorium Association will meet at the Glen Lake Sanatorium June 16.

Mrs. John Harris has opened a small cottage hospital in St. Peter to meet the needs of emergency cases in that city.

Drs. H. G. Knapp and Andy Carr, of Minot, N. D., have been in New York for some time doing postgraduate work.

The United States Veterans' Hospital for the Tenth District will be located on the Fort Snelling Reservation on the banks of the Minnesota River.

Dr. Jacob Goldblum, of Minneapolis, died last month at the age of 49. Dr. Goldblum was a graduate of the Illinois Medical College, class of '02.

Dr. John E. White, who has been doing very successful work at Sand Beach Sanatorium, at Lake Park, has accepted the superintendency of the Federal Hospital at Legion, Texas.

It is predicted that the meeting of the National Tuberculosis Association in Minneapolis on June 15-20 will draw nearly a thousand people, all of whom are engaged in tuberculosis work.

Dr. H. F. Thorlackson of Crystal, N. Dak., was married on April 15th to Miss Doris Bousfield of Winnipig. The young couple are spending their honeymoon on the Pacific Coast.

Dr. Harry S. Shimp, of Minto, N. D., died in March at the age of 41. Dr. Shimp was a graduate of the Indiana Medical College, class of '06, and had practiced only a short time at Minto.

"The River View Lutheran Hospital" is the name selected for the new hospital to be built by the Lutherans at St. Cloud, the first unit of which will be constructed soon at a cost of \$100,000.

The University of Minnesota has received a gift of \$245,000 for the establishment of an Institute of Child Welfare. This handsome gift came from the Laura Spellman Rockefeller Memorial.

The Madison District Medical Society of South Dakota held a joint meeting with the dentists of that district at Madison last month, and discussed focal infection. All present thought the meeting a profitable one.

Dr. Lewis Schultz, of Minnewaukan, N. D., died last month at the age of 55. Dr. Schultz was a graduate of the Louisville Medical College, class of '96, and had practiced in North Dakota over twenty years.

Dr. Edward Walther, of St. Paul, died last month at the age of 91. Dr. Walther was a graduate of the College of Homeopathy P. and S., Chicago, class of '71, and had practiced in St. Paul for fifty-seven years.

The program, on another page, of the forthcoming annual meeting of the South Dakota State Medical Association shows that of the ten speakers from outside of the state, nine come from Minnesota and one from Missouri.

Dr. C. H. Mayo, who is the Health Officer of Rochester, Minn., had a lively tilt with the aldermen of the city over an ordinance requiring Rochester dairymen to wash their hands with antiseptic soap before milking their cows. The ordinance was strongly opposed, but was carried by one vote.

The Canadian Medical Association, which holds its annual meeting in Regina, Sask., on June 22-26, extends a cordial invitation to all American physicians and surgeons to attend this meeting. Programs will be sent with special invitations to medical men in North Dakota and Northern Minnesota.

Dr. Smiley Blanton, Director of the Minneapolis Child Guidance Clinic will give lectures on child guidance at the Donaldson Tea Rooms at 3:15 P. M., on May 5, 6, 7, and 8 under the auspices of the Housewives' League of Minneapolis Child Guidance Clinic, will give lectures his subject thoroughly.

At the annual meeting of the Stearns-Benton County Medical Society, held in St. Cloud last month, the following officers were elected: President, Dr. William Frieslaben, Sauk Rapids; vice-president, Dr. A. A. Myer, Melrose; secretary-treasurer, Dr. J. N. Libert, St. Cloud; delegate, Dr. A. F. Moynihan, Sauk Center.

The Hennepin County Tuberculosis Association of Minneapolis will join the Extension Division of the University of Minnesota in conducting a Nurses' Institute on Tuberculosis, to

be held at the University during the week of June 15 to 20, inclusive. The Institute will be open to all public health, institutional, and private duty nurses. Distinguished speakers will address the Institute. For full information address Miss Eula B. Butzerin, Director of Public Health Nursing Course, University of Minnesota.

The partial program of the North Dakota State Medical Association appears on another page. The morning sessions will be given over to papers by the guests of the Association, and the afternoon sessions will be devoted to dry clinics by members of the Association. The guests are Dr. Dean Lewis, Chicago; Dr. H. Winnett Orr, Lincoln, Neb.; Dr. W. F. Braasch, Rochester, Minn.; and Drs. John Butler, A. S. Hamilton, F. C. Rodda, and J. P. Schneider, Minneapolis, Minn.

The General Extension Division of the University of Minnesota, in conjunction with the Minnesota State Medical Association, is planning to give a short course of lectures and demonstrations on medical subjects throughout the state. The course will cover thirteen days, one day a week. Two clinicians will be on the program each day for afternoon and evening meetings. The course will start the first week in June. Full information can be obtained from the Extension Division of the University of Minnesota.

The annual meeting of the Redwood-Brown County Medical Society was held at New Ulm last month, when officers for the current year were elected as follows: President, Dr. T. F. Hammermeister, New Ulm; vice-president, Dr. M. A. Kiefer, Sleepy Eye; secretary-treasurer, Dr. W. A. Meierding, Springfield; delegate, Dr. Fred H. Dubbe, New Ulm; alternate, Dr. Albert Fritsche, New Ulm. This is the first meeting of the members of the two societies into which the World War split the two-county society. Peace has been declared, and all physicians in the two counties are eligible to the one society.

The next annual meeting of the Southern Minnesota Medical Association will be a one-day session held at Owatonna on May 18. The program is an elaborate one, some of the chief features of which are as follows: "Use of Radium Seeds in Tumors of the Head and Neck;" a Symposium on "Abdominal Diseases," with six parts treated by different essayists; "Abdominal Injuries and Their Treatment," by Dr. Karl Meyers, of Chicago; a Symposium on "Confinement and the New-born," in three parts; "Urinary Antisepsis: the Present Status of the Prob-

lem," by Dr. Edwin Davis, of the University of Nebraska; "Traumatic Injuries of the Hand," by Dr. C. W. Hopkins, of Chicago; moving pictures, etc. Copies of the program may be had of the Secretary, Dr. H. T. McGuigan, Red Wing.

TENTATIVE PROGRAM OF THE NORTH DAKOTA STATE MEDICAL ASSOCIATION AT FARGO, NORTH DAKOTA

Monday, May 18, 1925

- 8:00 A. M.—President's Address. Dr. W. C. Fawcett, Starkweather.
- 8:30 A. M.—The Diagnosis and Treatment of Gallbladder Disease. Dr. N. O. Ramstad, Bismarck.
- Discussion: Dr. J. W. Bowen, Dickinson; Dr. R. E. Weible, Fargo.
- 9:00 A. M.—Acrodynia. Dr. F. C. Rodda, Minneapolis, Minn.
- Discussion: Dr. John Butler, Minneapolis, Minn.; Dr. H. A. Brandes, Bismarck.
- 9:30 A. M.—Sinus Diseases in Children. Dr. L. W. Myers, Fargo.
- Discussion: Dr. Rolfe Tainter, Fargo; Dr. F. C. Rodda, Minneapolis, Minn.
- 10:00 A. M.—The Diagnosis of Abdominal Lesions. Dr. Dean Lewis, Chicago, Ill.
- Discussion: Dr. E. P. Quain, Bismarck, Dr. H. H. Healey, Grand Forks.
- 11:00 A. M.—Syphilis of the Central Nervous System. Dr. Arthur Hamilton, Minneapolis, Minn.
- Sign and Symptom Discussion: Dr. W. M. Hotchkiss, Fargo; Dr. Wm. Nichols, Fargo.
- 11:30 A. M.—The Recognition and Treatment of Urinary Infection. Dr. W. F. Braasch, Rochester.
- Discussion: Dr. V. J. LaRose, Bismarck; Dr. F. W. Baillie, Fargo.

Tuesday, May 19, 1925

- 8:00 A. M.—Symposium on X-ray. Dr. Frank Darrow, Fargo; Dr. A. J. Clay, Fargo; Dr. T. P. Rothnem, Fargo.
- 9:00 A. M.—Mechanical vs. Chemical Methods in the Treatment of Wounds. Dr. H. Winnett Orr, Lincoln, Neb.
- Discussion: Dr. C. N. Callander, Fargo; Dr. Peter Nestos, Minot.
- 9:30 A. M.—Eczematoid Ringworm of the Skin. Lantern-slide Demonstration. Dr. John Butler, Minneapolis, Minn.
- Discussion: Dr. R. H. Rostel, Fargo; Dr. W. F. Baillie, Fargo.
- 10:00 A. M.—Pregnancy in Abnormal Situations. Dr. George Williamson, Grand Forks.
- Discussion: Dr. W. W. Wood, Jamestown; Dr. L. B. Greene, Edgeley.
- 10:30 A. M.—The Differential Diagnosis and Treatment of Chronic and Recurring Arthritis. Dr. J. P. Schneider, Minneapolis, Minn.
- Discussion: Dr. Frank Darrow, Fargo; Dr. Dean Lewis, Chicago, Ill.
- 11:30 A. M.—Lesions of the Soft Parts of the Extremities in Relation to Fractures. Dr. Dean Lewis, Chicago, Ill.
- Discussion: Dr. R. D. Campbell, Grand Forks; Dr. H. M. Ernfeld, Minot, N. D.

Afternoon Sessions, Both Days, Dry Clinics

PROGRAM OF THE SOUTH DAKOTA STATE MEDICAL SOCIETY

Sioux Falls, South Dakota

The forty-fourth annual meeting of the South Dakota State Medical Association will be held at the Cataract Hotel, Wednesday and Thursday, May 20 and 21.

The business session will be held at the noon hour on each day and also at the call of the President.

The program will consist of Dry Clinics by professors and teachers in the different specialties.

Wednesday Morning, 9:30 A. M., May 20, 1925

President's Address: Read by Title. Dr. R. L. Murdy, Aberdeen, S. D.

Internal Medicine. Dr. E. L. Tuohy, Duluth, Minn.

Wednesday Morning, 10:30 A. M., May 20, 1925

Gynecology. Dr. A. E. Benjamin, Minneapolis, Minn.

Wednesday Afternoon, 2:00 P. M., May 20, 1925

Orthopedics. Dr. Emil Geist, Associate Professor Orthopedic Surgery, University Minnesota, Minneapolis, Minn.

Wednesday Afternoon, 3:30 P. M., May 20, 1925

Neurology. Dr. Arthur Sweeney, Professor Medical Jurisprudence, University Minnesota, St. Paul, Minn.

Wednesday Evening, 8:00 P. M., May 20, 1925

Studies in Physicochemistry in Relation to Clinical Medicine. Dr. W. J. Mayo, Mayo Clinic, Rochester, Minn.

Thursday Morning, 9:30 A. M., May 21, 1925

Diseases of the Orbit. (Illustrated). Dr. W. L. Benedict, Chief of Department of Ophthalmology, Mayo Clinic, Rochester, Minn.

Thursday Morning, 10:30 A. M., May 21, 1925

Dr. Cole's Tuberculosis Movie. Dr. H. Longstreet Taylor, Medical Director Pokegama Sanitarium, St. Paul, Minn.

Thursday Afternoon, 2:00 P. M., May 21, 1925

Pediatrics. Dr. H. F. Helmholtz, Chief of Department of Pediatrics, Mayo Clinic, Rochester, Minn.

Thursday Afternoon, 3:30 P. M., May 21, 1925

Dermatology. Dr. Henry E. Michelson, Associate Professor Dermatology and Syphilis, University Minnesota, Minneapolis, Minn.

Thursday Afternoon, 4:30 P. M., May 21, 1925

Physiotherapy in the Practice of Medicine. Dr. Lynne B. Greene, Kansas City, Mo.

(Continued from page 221)

treme point of view, but in so doing they lay too much emphasis on the value of physical punishment. Apparently the results they are obtaining by means of the infliction of physical pain are far more beneficial than those obtained in other clinics treating similar problems. Such a procedure does not seem consistent with the title of this interesting book.

—H. S. LIPPMAN, M.D.

GOITER: NON-SURGICAL TYPES AND TREATMENT. By Israel Bram, M.D. Instructor in Clinical Medicine, Jefferson Medical College. Price \$6.50. The MacMillan Company, Philadelphia, Pa., New York City. 1924.

The author, after reviewing the anatomy and physiology of the thyroid gland offers three different classifications of goiter: (1) pathological, (2) the

clinical, (3) the therapeutic. The pathological and clinical classifications are discussed; the pathological is adopted. Under non-surgical goiter are included: (1) parenchymatous hypertrophy, (2) colloid goiter, (3) puberty hyperplasia, and (4) hyperplasia of exophthalmic goiter (Graves' disease). The adenomatous, cystic, and all other thyroid enlargements not classified under "non-surgical" are in the surgical group. Non-surgical goiter is further defined as "a thyroid enlargement amenable to non-operative treatment." The writer also states that "if proper treatment is delayed the great majority of cases may undergo changes requiring surgical interference." An excellent table is offered for the differential diagnosis.

A short chapter reviews the pathology of the non-surgical types of goiter, and is followed by a brief clinical discussion of "simple" non-surgical goiter.

Three quarters of the monograph of over four hundred pages exhaustively presents the medical viewpoint of Graves' disease. The etiology, symptomatology, diagnosis (including functional tests), and prognosis are efficiently reviewed. The author presents in some detail his own "quinine test," which he believes is associated with less than 5 per cent error in the diagnosis of exophthalmic goiter. Nearly two hundred pages deal with the treatment of this disease. Every detail of treatment including diet, medicinal, physiotherapy, and psychotherapy is influenced by the experience and impressions of the author; and many of the suggestions are very good. Twenty profusely illustrated case histories including details of treatment and the final results are very instructive.

In the final chapter the arguments in favor of medical management of Graves' disease as compared with operative procedures is summarized. Bram is convinced that excision of the thyroid gland is rarely indicated and in fact is distinctly harmful. He cannot accept "hyperthyroidism" as the main link in the Graves' syndrome "vicious cycle."

The book is well written, beautifully illustrated, and everywhere discloses the personality of the author. It is a distinct addition to the literature on goiter and should have a good influence in counteracting some overzealous conclusions drawn from results of surgical methods.

It is unfortunate that some careful statistics comparing the results of surgical with those of medical treatment could not have been presented.

Although the reviewer cannot agree with some of the statements and conclusions of the author he can recommend it as a most interesting and valuable contribution to the subject.

—EDWIN L. GARDNER, M.D.

THE HUMAN TESTIS. Its Gross Anatomy, Histology, Physiology, Pathology, with Particular Reference to Its Endocrinology, Aberrations of Function and Correlation to Other Endocrines, as Well as the Treatment of Diseases of the Testes and Studies in Testicular Transplantation and the Effects of the Testicular Secretions on the Organism. By Max Thorek, M.D., Surgeon-in-Chief, American Hospital. Cloth. Price, \$7.50. Pp. 548, with 368 illustrations. Philadelphia: J. B. Lippincott Company, 1924.

We started to read this book with considerable interest hoping that it would fulfill the long felt want

of a comprehensive text in English on the human testis. We must confess, however, to a distinct sense of disappointment after the completion of our perusal. This book is not in any sense a text-book on the subject for the student of medicine or for the general practitioner, inasmuch as the major portion of it is concerned with a discussion of the internal secretion of the testicle and its relation to male characteristics. The book represents an immense amount of careful reading on the part of the author. The early chapters dealing with anatomy, embryology, histology, and pathology are in the main accurate.

Quite frankly we regret that this book went to press, inasmuch as it had been our hope that the professional, as well as the public, furore over Steinach's rejuvenation theories had waned. Particularly do we feel that the chapter entitled "Indications and Contra-indications for Sex Gland Transplantations in the Male" should be condemned. Among our personal professional acquaintances, which embraces a fairly representative group of surgeons scattered throughout the country, we question whether there are any who believe that there are ever, for any reason, any indications for testicle transplantation.

From an historic viewpoint this volume is worthy of a place in medical libraries, but we seriously question its value otherwise.

—KENNETH BUCKLEY, M.D.

MANUAL OF PSYCHIATRY. For the Medical Student and General Practitioner. By Paul E. Bowers, M. D., Examiner in Lunacy, State of California; Lecturer in Neuropsychiatry, Post-Graduate Medical School of the University of California, Los Angeles. Octavo volume of 365 Pages. Philadelphia and London: W. B. Saunders Company, 1924. Cloth \$3.50 net.

The author states in the preface of this book that his purpose is to give a comprehensive and systematic outline of the field of psychiatry, and to afford the student and the general practitioner a reference handbook to which they can turn for definite, detailed information upon the different aspects of mental medicine. This is indeed a formidable undertaking and the author has done well in the limited space which he allowed himself. He has sought to exclude controversial discussions which means the axe for psychoanalysis. The classification of mental diseases and outlines for discussion are quite in harmony with present day opinions. Thirty-seven pages are devoted to "The Relationship of Insanity to Crime."

This book will afford profitable reading to the general practitioner who may be confronted with problems in psychiatry. —J. C. MICHAEL, M.D.

Physician's Office in Minneapolis to Sublet

At good car intersection point. Office very conveniently located. Address 205, care of this office.

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Graduate nurse, experienced in routine laboratory work, including Wassermanns, blood chemistry, and microscopy. Prefer work in small hospital or doctor's office in Twin Cities. Excellent references. Address 208, care of this office.

Specialist Wanted in Minneapolis Clinic

A pediatrician and nose and throat man is wanted for association in a Minnesota clinic. Address 213, care of this office.

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By a thoroughly competent woman of large experience and with best of references. Address 204, care of this office.

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A thoroughly competent technician who studied in the Medical School of the University of Minnesota wants work. Will accept moderate salary. Best of references. Address 211, care of this office.

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The surgical equipment and good location for a surgeon in a Montana city of 9,000 on a famous highway, 100 miles from the Yellowstone Park. Good hospital and State College. Fine roads; climate excellent. Address Mrs. Kathryn J. Elliott, 208 Evergreen Apartment, Bozeman, Mont.

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A male technician, graduate of accredited school, desires appointment in laboratory. Well qualified to do Wassermanns, blood chemistry, bacteriology, urinalysis, tissue technique, basal metabolism estimation, and all forms of clinical microscopy and blood work. Address 199, care of this office.

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Work as Associate Physician Wanted

By a graduate of Vienna who has taken, also at Vienna, the following postgraduate courses: 4 months in dermatology; 13 months in general surgery; 20 months in gynecological surgery; 4 months in obstetrics; 5 months in infectious diseases of children; and 6 months in rhinology and laryngology. Applicant will accept moderate salary or percentage of business until he can take the State Board examinations in October. Good references. Address 189, care of this office.

Eye, Ear, Nose and Throat Practice for Sale

Established in Minneapolis twenty-three years. Will sell thoroughly equipped office of three rooms and joint waiting room, with lease, records, and good will. Will introduce buyer for one or two years and retire. Wonderful opportunity for man wishing to specialize and step into large urban practice, which can be largely increased. Address 200, care of this office.

Nurse Wanted in South Dakota Hospital

Who is trained in giving anesthetics, can do office work, etc., and who is willing to learn to give diathermic treatments. If you can take x-ray pictures it will be advantageous, but not essential. Salary \$100 a month with board and room. Address 206, care of this office.

Apparatus for Sale

Owing to duplication of equipment in our organization, we have for sale the following: Tropometers, Perimeters, D. C. Motors, Ophthalmic Lamps, Sterilizers, Microscope, Campimeters, and Typewriter, and other equipment. Address Eye, Ear, Nose and Throat Clinic, 74 South 11th Street, Minneapolis, Minn.

Associate or Partner Wanted

Doctor financially able to buy an equal interest in a clinic group now being formed, also to take charge of a branch office located only 40 miles from Minneapolis. Wanted at once. Preferably Scandinavian. If previously engaged in any specialty please so state in first letter. Large territory. To competent man short of funds a commission arrangement will be made. Address 214, care of this office.

Location Wanted

By a graduate of the University of Minnesota, B.S., 1919; M.B., 1921; M.D., 1922. Mason, married, one child. Has been practicing in a city of 35,000, but desires location in Minneapolis as assistant in busy general practice or to an obstetrician or in a good town within about fifty miles of Minneapolis, preferably south or West. Address 207 care of this office.

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Dental suite, common reception room with physician, completely furnished. Consists of operating-room, private office, and laboratory. Very modern. Alternating and direct current, compressed air, and gas. Bowl in operating-room, sink in laboratory, hot and cold water. X-ray laboratory available in suite. Best location in city. Corner 6th & Wabasha Sts. Operating-room faces Wabasha St. Six foot window for name display. Address Dr. W. B. Lande, 205 Midland Trust Bldg., St. Paul, Minn.

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An Eye, Ear, Nose, and Throat man, experienced, will assist a busy small town doctor in general practice, taking as remuneration only what special work is referred or can be done in the locality. A good opportunity for an agreeable associate who will not compete in general medicine or surgery. For details address 210, care of this office.

A Practical Course in Standardized Physiotherapy

Under auspices of Biophysical Research Dept. of the Victor X-Ray Corporation, is now available to physicians. The course offers a highly practical knowledge of all the fundamental principles that go to make up the standards of modern scientific physiotherapeutic work. It requires one week's time. For further information apply to J. F. Wainwright, Registrar, 236 South Robey St., Chicago, Ill.

THE JOURNAL LANCET

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AN HISTORICAL SURVEY OF THE MINNESOTA ACADEMY OF MEDICINE*

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MINNEAPOLIS, MINNESOTA

"What is all knowledge, too, but recorded experience and a product of history?"—Carlyle.

At the meeting of the Academy, January 5, 1921, following the suggestion of Dr. R. J. Hill, a committee, consisting of Drs. A. W. Abbott, J. F. Fulton, R. J. Hill, and Archibald MacLaren, was appointed to prepare a history of the Academy. On May 10, 1922, the committee presented a report, which is now on file in the minutes of the Academy. My only excuse, then, for the apparent presumption in speaking this evening on more or less the same subject, must lie in the fact that a relatively newcomer in the organization may easily speak of certain things which the fathers, in their modesty, could discuss with less freedom. In my paper, I have drawn freely on the reports referred to above, and have also consulted frequently with the older members of the Academy.

Though there had previously been some discussion among the medical men of the Twin Cities, in reference to the founding of a society to include those specially interested in original work, the immediate impetus came from Drs. Fulton and Abbott. About October 1, 1887, Dr. Fulton came to Minneapolis to interview Dr. Abbott in respect to the matter, and at that time these two selected the group of men who met Friday, October 7, 1887, at the West Hotel in Minneapolis, and there took the formal steps

necessary to the founding of the Academy. The meeting was attended by Drs. Allport, Abbott, Beard, Bracken, Braunsteen, Dunn, Hall, Hunter, and Wells from Minneapolis, and by Drs. Denslow, Fulton, MacLaren, Millard, Owens, Riggs, and Spencer from St. Paul. The meeting was called to order by Dr. Abbott, and its object was stated as being "to form a more useful medical society."

Dr. Hunter and Dr. Spencer were elected temporary chairman and secretary, respectively.

The chair appointed Drs. Owens, Denslow, Fulton, Abbott, Bracken, and Beard as a committee to select the names of a certain number of physicians from Minneapolis and St. Paul, who should be invited, at some future time, to become members of the Academy. The meeting then adjourned for refreshments, thus early establishing a procedure which later became the pleasant custom of the Academy. During the course of the luncheon, after lengthy debate, it was decided to call the organization "The Minnesota Academy of Medicine." It was also agreed that those present at this meeting should be declared charter members and that the committee on charter membership be continued with instructions to report the completed list of members, up to forty, at the next meeting.

Drs. Beard and Spencer were appointed to draw up the constitution and by-laws and present them at the following meeting.

*Presidential Address presented before the Minnesota Academy of Medicine, September 10, 1924.

The next meeting was held October 12, 1887, at the West Hotel, with twenty-three men present. A constitution, by-laws, and standing rules were adopted. It was evidently the intention of the fathers thus early to place the transactions of the Academy in permanent form, for at this meeting the secretaries were instructed to confer with the different prominent medical journals of the country in reference to publishing the papers and transactions.

It is unnecessary to give the rules of the Academy in full as finally adopted, but certain features of them seem of special interest. Article I gives the name of the organization, and Article II states its purpose very felicitously as follows: "It is organized for the purpose of professional research and for the association of medical men upon a basis of good fellowship, professional ability and literary merit." Active membership was limited to fifty, "who shall be residents of the cities of Minneapolis and St. Paul."

As first proposed, an applicant for membership must have been nominated in writing by three members of the Academy to a governing board. This board then satisfied itself of the good moral character and legal qualifications of the nominee as a practitioner of medicine in the state of Minnesota.

If so satisfied, the board recommended his name to the Academy, and the proposed candidate was invited by the secretary to appear at a succeeding session and to deliver a thesis on any medical or surgical topic he chose, after which procedure the nominee was eligible for election all of which was a much more formidable ordeal than we now undergo.

Each member of the Academy was to have the opportunity to contribute, in regular rotation, to the program. It was also provided that the Executive Committee should appoint and announce essayists for at least two meetings in advance, publish the topics selected by such members one meeting in advance, and arrange the entertainment of the Academy.

Permanent officers were elected as follows:

President, Dr. John F. Fulton; Vice-president, Dr. A. W. Abbott; Secretaries, Drs. R. O. Beard and E. C. Spencer; Treasurer, Dr. LeGrand N. Denslow.

The following is a list of charter members as they appear in the original minute book:

| | |
|----------------|----------------|
| John F. Fulton | A. MacLaren |
| J. H. Stewart | C. A. Wheaton |
| Parks Ritchie | Wm. A. Hall |
| Wm. Davis | W. S. Laton |
| C. E. Bean | L. C. Mitchell |

| | |
|---------------------|-------------------|
| E. L. Wood | A. W. Abbott |
| LeGrand N. Denslow | James H. Dunn |
| Alexander Stone | C. Eugene Riggs |
| Charles B. Witherle | R. O. Beard |
| Albert E. Senkler | C. L. Wells |
| Perry H. Millard | H. M. Bracken |
| Edward Spencer | J. Ohage |
| Frank Allport | George F. French |
| D. W. Braunsteen | L. A. Nippert |
| F. A. Dunsmoor | J. A. Quinn |
| Thomas S. Roberts | A. Shimonek |
| W. A. Jones | J. W. Bell |
| S. S. Muckey | Charles H. Hunter |
| J. Clark Stewart | Knute Hoegh |

In addition to the above there also appear the names of Drs. A. B. Cates and J. E. Moore, but these certainly do not belong in the list of charter members since reference is found, at a later date, to their election to the Academy in the ordinary course of procedure. For some reason the name of Dr. Thomas F. Quinby does not appear in the original list, though, obviously, belonging there. Dr. J. Owens, of St. Paul, was present at the preliminary meeting of October 7, 1887, and was named as a member of the committee to select the group of physicians who would ultimately be invited to become members of the Academy. His name does not appear in the list of those signed to the original constitution, and there is no reference to him later in the minutes. It is probable, therefore, that he took no part after the first meeting.

Not counting the names of Drs. Cates, Moore, and Owens, but including that of Dr. Quinby, there were forty men who, presumably, accepted their election and became active members. Of these there still remain as members of the Academy, Drs. A. W. Abbott, J. W. Bell, William Davis, F. A. Dunsmoor, John F. Fulton, W. A. Jones, Archibald MacLaren, L. A. Nippert, C. Eugene Riggs, Thomas S. Roberts, and A. Shimonek.

The third meeting was held at the Hotel Ryan, November 5, 1887, with thirty members present. Drs. Hunter, Millard, and Beard were elected members of the first executive committee, and Drs. Dunsmoor, Senkler, and Jones, of the first membership committee. The "NORTHWESTERN LANCET" was chosen as the official organ of the Academy. At this meeting, the President read his inaugural address, published in the LANCET, Vol. VII, No. 4, November 15, 1887.

This address is notable, not only as that of the first President of The Minnesota Academy of Medicine, at the first meeting of that infant society, but, as well, in being the expression of the

personal views of that member, who, perhaps more than any one else, was active in the organization of the Academy and, as such, is worthy of quotation at some length.

Dr. Fulton first called attention to the extensive field of medical literature, and to the fact that, in presenting papers before the Academy, the members should be sure of having something to say and should then say it with brevity.

In referring to the future activities of the organization, he said: "It is to be hoped that the society will always be on the alert to keep pace with the time, to anticipate the course medicine will take in the future, and to assist in forcing the profession, as well as the public, to accept the methods which are likely to be most fruitful."

Attention was called to the progress of medicine in recent years and the hope expressed that the future might see equally striking advances, though this latter was stated with a certain reservation which, I think, we all experience when we begin to speculate on what possible advances in the near future can equal the very brilliant achievements of the recent past.

Fear was expressed that, by the clearness of its aim and the brilliancy of its results, surgery might receive a relatively greater degree of attention from the profession than it deserved. The importance of pathology and the necessity of accurate diagnosis were stressed as the foundations of lasting success in surgery. Attention was called to the very great advances in abdominal surgery in recent years, and hope was expressed that more or less similar brilliant results might be expected in the field of intracranial surgery in the near future.

The lack of a clear understanding of the effect of drugs and their application to disease was referred to, and a more careful study of their mutual relations was insisted on as a prerequisite to any improvement.

Specialism in medicine was discussed, and a feeling that specialists might be growing away from general medicine was expressed in the following sentence: "A so called specialist whose education is not well founded in the art and science of general medicine, is not worthy of recognition by the profession."

The address concluded with a plea for more enthusiasm in the profession in general and for a higher standard of chivalry among individual members.

In a sense, Dr. Fulton's prognostication in reference to intracranial surgery has been fulfilled so far as technic is concerned, and such defects as remain are largely dependent on short-comings in neurologic diagnosis.

Following supper, Dr. French read the first paper, other than the presidential address, ever presented before the Academy, under the title "Sexual Abnormities as a Cause of Disease."

This article was printed in the *NORTHWESTERN LANCET*, Vol. VII, No. 4, November 15, 1887, under the heading "Clinical Notes on Sexual Hygiene." The first paragraph is as follows and gives a fair idea of the purpose of the paper: "The main object of this paper is to show that in certain well-defined morbid conditions of the female pelvic organs, the normal sexual relation, contrary to the view generally accepted by the profession, not only exerts a salutary, but a curative influence."

Several clinical cases were cited, the object of which was to show the intimate connection between reflex nervous disorders and unhappy mental attitudes due to unsatisfactory sexual relations.

At the meeting, December 3, 1887, Dr. Beard became the sole secretary and Dr. Spencer was given the title of Secretary-Treasurer. Also at this meeting Dr. A. B. Cates was presented by the membership committee, who announced as his subject for the next meeting: "Sepsis and Antisepsis in Midwifery." Dr. Justus Ohage read a paper on "Some Points in Abdominal Surgery," and was followed by Dr. Dunn, who discussed "Some Moot Points in Continued Fevers of a Typhoid Type in Minnesota." If space permitted, it would be a pleasure to quote at length from some of these earlier papers, which were notable for their careful preparation, their clearness of expression, and their prophetic vision.

On January 7, 1888, Dr. Cates read his thesis as above, and was then unanimously elected, becoming the first elective member.

Dr. Cates' thesis appeared in the *NORTHWESTERN LANCET*, Vol. VIII, No. 2, February 1, 1888. The recent occurrence of epidemics of puerperal fever in both St. Paul and Minneapolis, had induced the author to choose for his paper the subject given above. He stated that only seventeen years had then elapsed since any attempt had been made at antiseptic midwifery, only six since corrosive sublimate had been used, and only four since thorough and complete antisepsis had been carried out. Yet the death rate from puerperal fever had been reduced from 11 per cent to less than 0.5 per cent. The paper followed with a thorough discussion of the subject of asepsis and antisepsis in midwifery, including a discussion of the dangers of vaginal examination and the statement that the presentation could be detected as well by external manipulation. Though Dr. Cates' views were not received in just the same spirit

as were those of Dr. Oliver Wendell Holmes, when first presented, it is obvious from the discussion that some of the members considered Dr. Cates' precautions not altogether warranted.

An article, obviously inspired by Dr. Cates' paper, appeared subsequently in the LANCET, in which the writer expressed grave doubts as to the possibility of thus conveying puerperal infection.

At their meeting on January 7, 1888, the Executive Committee recommended, among other things, that smoking be permitted during the supper hour, but be disallowed during the regular session of the Academy.

Evidently, at this time, there was an excess of theses from prospective candidates, for the following recommendation was also made: "That only one thesis be heard at each meeting, and that theses in excess of this number be read at subsequent meetings, in the order of their presentation."

At this meeting an amendment also was proposed that hereafter the names of applicants be referred to the Governing Board, and, if satisfactorily passed upon, the Executive Committee should then call for the thesis, and, this being found satisfactory, the decision of these two bodies should be final as to the election or the rejection of the applicant. Judging by the minutes of the succeeding meeting, February 4, 1888, at the Nicollet House, in Minneapolis, there developed a heated discussion on the proposed alterations in the method of nomination and election, involving the abrogation of popular suffrage, postponed only by the intervening supper hour.

At this meeting the resignation of Dr. T. F. Quinby, the first from the society, was read and approved.

On April 7, 1888, Dr. J. E. Moore was elected to membership, being the second individual so honored.

At its meeting, May 5, 1888, the Academy listened to some elaborate resolutions calling attention to the iniquitous tariff system which "has so long prevailed to the profit of the producer and to the prejudice of the consumer," and requested that the tariff be amended insofar as it referred to articles used in the practice of medicine and surgery. Obviously, the Republicans were absent, for the resolutions were unanimously adopted. Judged by the price we still pay for said articles, in spite of this action of the august Academy, the tariff yet remains an iniquitous burden.

At the following meeting Dr. Millard proposed a resolution whose object was to select ten nom-

inees from the state at large. After much discussion the motion was withdrawn, and Dr. Beard then proposed an amendment calling for the addition of associate members from the state at large, and also permitting the election of honorary members, not to exceed ten, who might be non-residents of the state.

On October 6, 1888, Dr. Beard's motion, as amended, was passed, and Dr. W. L. Beebe, of St. Cloud, who has so recently died, was chosen as the first associate member.

Money was evidently growing scarce at this time, and the Secretary called for an assessment of \$10.00.

The following officers were elected: President, Dr. A. W. Abbott; Vice-president, Dr. Parks Ritchie; Secretary, Dr. R. O. Beard; Treasurer, Dr. E. C. Spencer.

November 3, 1888, Dr. J. Clarke Stewart read a paper on "A Case of Mediastinal Tumor," illustrated by specimens; and on May 4, 1889, Dr. L. A. Nippert presented a pathological specimen from a case of completely impacted gallstones. So far as I can find these were the first pathological specimens presented to the Academy.

It is a matter of regret, I am sure, to every member of the Academy, that Dr. Abbott's presidential address on November 3 was not preserved in print.

On January 5, 1889, an amendment was passed calling for a microscopical committee, whose duty it should be to examine specimens presented to the Academy, to prepare slides for exhibition, and to make such reports to the Academy as it might deem expedient. The committee, as appointed, consisted of Dr. Shimonek (chairman), Dr. J. Clarke Stewart, and Dr. T. S. Roberts.

At the same meeting the Academy listened to what Dr. Abbott has called "a thrilling and comforting address" on the iniquities of the telephone system, and appointed a committee consisting of Drs. Ohage, Hunter, and Dunn, to right the matter. Evidently, their action was drastic, as witness the present state of the telephone system.

Even thus early in its history, it is evident that papers dealing with surgical subjects were in excess of contributions from internal medicine, an ascendancy of which we were forewarned by Dr. Fulton, reminded later by Dr. Senkler in his inaugural address, and is maintained to the present day.

At the meeting of February 2, 1889, Dr. Parks Ritchie suggested the propriety of some legislation dealing with the practice of midwives. It was finally agreed, on motion of Dr. Ritchie, that

a committee of three members be appointed by the chair to confer with the State Board of Medical Examiners with a view to framing suitable legislation upon the subject.

Evidently, the question of membership continued in an unsettled state for, at the meeting of March 2, 1889, there was considerable discussion of this matter, as had appeared on many previous occasions. On April 6, 1889, it was voted "that all future theses presented by candidates for admission to the Academy shall be based upon original research." Also, at this meeting, Dr. Renz, a guest of the evening, exhibited, by request, an interesting and, to many of the members, a novel series of germ cultures.

On October 5, 1889, it is noted that the membership of the Academy consisted of the following: 41 active members, 4 associate members, one honorary member. Of the original roll one had left the country, one had died, one had resigned, and one had been dropped for non-attendance. Probably the one who had died referred to Dr. D. W. Hand, of St. Paul, a widely known practitioner of that city, who had been proposed as a charter member, but who had been prevented from active participation by reason of ill health.

It appeared also at this meeting that the Treasurer was having trouble in collecting previous dues and assessments, which may account for some comments of the incoming president.

Officers for the ensuing year were as follows: President, Dr. Parks Ritchie; Vice-president, Dr. C. L. Wells; Secretary-Treasurer, Dr. R. O. Beard.

Evidently, the society was still agitated by the state of its constitution, which was not yet considered healthy, for, on this date, the Executive Committee was instructed to revise and, if possible, simplify it and the by-laws, and to report on them at the next meeting of the Academy.

At the meeting of November 2, 1889, Dr. Ritchie read his inaugural address, unfortunately not preserved, touching upon the duties of the members of the Academy and administering some advice and correction to non-attendants.

On December 7, 1889, Dr. Staples read a paper on the "Study and Pronunciation of Medical Terms," the paper and the discussion revealing a knowledge of Greek and Latin derivatives, probably not attained by many of the later additions to the profession.

At various times in the meetings of the Academy, new or improved operations and new instruments were described by members, including Drs. Abbott, Allport, Dunsmoor, Dunn, W. J.

Mayo, Dennis, Corbett, Geist, and Farr and perhaps others that have escaped my attention.

On February 1, 1890, Drs. J. E. Moore and W. A. Jones presented a patient who had suffered with convulsions and hemiplegia, due to a cerebral tumor. The localization of the tumor and the details of its removal were given. Dr. George French and Dr. Perry Millard reported recent cases of brain surgery, whether successful is not stated, but the discussion revealed a spirit of hope and enthusiasm in this field which one might envy at the present day.

Dr. W. J. Mayo was elected to active membership April 5, 1890, and at the next meeting presented his thesis on "Some Features of Perituterine and Perityphlitic Abscesses," the latter term being then actively in use.

Under date of October 4, 1890, the Secretary-Treasurer reported a membership as follows: active members 43, associate members 5, honorary members 1.

At this meeting the following officers were elected: President, Dr. George F. French; Vice-president, Dr. William Davis; Secretary-Treasurer, Dr. R. O. Beard. The latter's annual salary at the same time was raised from twenty-five to fifty dollars.

At the following meeting Dr. French read his address "Helps to a Higher Evolution."¹ Dr. French gave a scholarly and somewhat flowery address, whose theme was the importance of more serious attempts to breed a better race of human beings. He considered one of the most lamentable causes of the present increase in crime to be the unchecked hereditary transmission through the criminal. The certainty of punishment as against its severity was stressed as the great deterrent and sterilization of criminals was strongly advocated. Reference was also made to the offspring of people of unsound mentality, to the unchecked spread of syphilis and gonorrhoea, to the importance of early mental impressions in youngsters, and to the necessity of providing proper nourishment for growing children.

Even at this early date different members shad-owed forth their subsequent careers: Dr. Ancker talked on hospital construction, Dr. Bracken on quarantine of infectious diseases, Dr. Gillette on club-foot, and Dr. Allport on eye diseases.

On October 7, 1891, the following officers were elected: President, Dr. C. A. Wheaton; Vice-president, Dr. F. A. Dunsmoor; Secretary-Treasurer, Dr. R. O. Beard. At the following meeting, Dr. Wheaton read his inaugural address

1. *Northwestern Lancet*. Vol. 10, December 1, 1890.

on "Osteomalacia."² Two clinical cases were described, but the major portion of the article was given over to a summary of the widely differing views as to the nature and treatment of osteomalacia.

On February 3, 1892, resolutions were adopted in connection with the death of Dr. E. C. Spencer, who was one of the charter members, one of the two secretaries of the society at the time of its founding, and a subsequent treasurer. Dr. Spencer, who was referred to as a man of unusual professional attainments and of the highest personal standards, had evidently held a high place in the esteem of the members of the Academy.

On October 5, 1892, the following officers were elected: President, Dr. C. L. Wells; Vice-president, Dr. Archibald MacLaren; Secretary-Treasurer, Dr. R. O. Beard. On this occasion the Academy had the honor of entertaining as its guests, Dr. William Osler, of Johns Hopkins, and Dr. A. H. Ferguson, of the University of Manitoba. Dr. Osler gave an address on "License to Practice," and Dr. Ferguson read a paper on "Hydatid." The meeting was held in the hall of representatives in the capitol building in St. Paul. Dr. Osler complimented the State of Minnesota on the high standard maintained in its Medical Practice Act. He was in favor of the passage of all candidates for practice through the same portals, and deprecated the difficulties to be encountered from differing sects in medicine, so long as all men studied and were examined in the same fundamental subjects.

Dr. Wells read his presidential address, entitled "The Story of the Insane,"³ on November 2, 1892. He referred to the increasing number of the insane and stated that on July 31, 1892, there were in the Minnesota State Hospitals for Insane, 2,238 inmates; [present population, 6,951]; and that every asylum in the country was full to overflowing, a condition of affairs, by the way, from which we have not yet emerged. Extensive reference was made to the subject of insanity in ancient literature, to the cruel treatment of the insane for many centuries, and to recent efforts to secure for them a more humane treatment, especially in relation to non-restraint.

The Academy continued to be concerned over the question of the election of new members, and, on January 4, 1893, a majority and a minority report were presented covering this subject, the minority report finally winning out.

On February 1, 1893, it was moved and carried

that "Hereafter supper be announced at 7:15, that fifteen minutes after supper be devoted to exercise and smoking; afterwards smoking shall be prohibited in the assembly room."

On April 5, 1893, Drs. William Osler and C. K. Bartlett were elected to honorary membership. Dr. Bartlett was the first superintendent of Minnesota's first insane hospital at St. Peter.

The officers elected October 4, 1893, were: President, Dr. Perry Millard; Vice-president, Dr. Knute Hoegh; Secretary-Treasurer, Dr. R. O. Beard.

November 1, 1893, Dr. Perry Millard read his inaugural address on "Intubation of the Larynx."⁴ Dr. Millard traced the operation of intubation or of some of its related procedures from the time of Hippocrates down to the final practical and successful procedure as developed by O'Dwyer. The relative merits of the operations of tracheotomy and intubation were dwelt upon with the author's preference for the latter. The identity of diphtheritic and membranous croup was strongly urged.

In his concluding paragraph Dr. Millard gave expression to some views concerning the general policy of the society, which, considering the prominent position which the author long held in local medical circles, may be of present interest: "In conclusion, gentlemen, I beg to direct your attention to the consideration and propriety of the following changes pertaining to the policy and government of this body: it has occurred to me, particularly, during the last year, that our scientific work has been too greatly sacrificed to our business sessions. If this society is to make a permanent history, it must result from the character of our literary production. Our membership is not composed of a body of medical politicians, but, instead, of a select few of the most talented men of the profession in the state,—men whose time is most valuable, and who come here purely to reap a literary feast. While I question the propriety of our members surrendering their right of suffrage, I believe we can safely refer the necessary business of this body to a committee to be elected by the society by individual ballot, the final admission to membership to likewise be by ballot with the quite nearly unanimous consent of those present and voting. The number of active members should only be increased in response to numerous and urgent appeals for admission. It is my opinion that the list of associate members can be enlarged and extended in its scope, including admission from sev-

2. *Northwestern Lancet*, Vol. 11, p. 389.

3. *The Northwestern Lancet*, Vol. 12, Dec. 15, 1892.

4. *The Northwestern Lancet*, Vol. 14, p. 1.

eral adjacent states. Such action will strengthen the society and open doors for active work to a class of men covering a sparsely settled territory, and to a great extent deprived of active medical society privileges. It would afford an opportunity of cultivating the society of an able and most worthy class of men, who are too little disposed to give us the benefit of their rich and varied professional experience.

"I am impressed with the opinion that the papers submitted to this society are of a character of sufficient excellence to merit their being handed down to their successors condensed into book form. Their publication in the current journals seems imperative, but it is a recognized fact that journals are not kept intact, and that it is a source of stimulus and gratification to the author of a worthy paper to know that the product of his pen is to be preserved in a series of transactions of a society of recognized merit and strength."

On May 2, 1894, a committee of five members was appointed to consider the means which are practicable for the public control of tuberculosis and to report such measures as it shall deem desirable to the Academy at its June meeting. On June 6, 1894, the committee, of which Dr. R. O. Beard was chairman, reported at some length on measures for the control of tuberculosis, emphasizing, particularly, the necessity of the education of the public as a preliminary to any legislative measures. They also proposed the report of all cases of tubercular disease to the health board or commissioners by attending physicians. At the meeting of September 5, 1894, these resolutions, for reasons not apparent, were indefinitely postponed.

The officers elected October 3, 1894, were: President, Dr. J. W. Bell; Vice-president, Dr. Archibald MacLaren; Secretary-Treasurer, Dr. R. O. Beard. At the following meeting, Dr. Bell read his address entitled "A Plea for the Aged."⁵ He called attention to the very limited investigations in reference to the diseases of old age and contrasted it with the elaborate study of the diseases of childhood. The pioneer work of Pinel and the subsequent work of others, chiefly French, was referred to. The special pathological changes incident to age were described and certain variations in the clinical phenomena of old people were given.

The following paragraph closes Dr. Bell's address: "I am deeply impressed with the belief that this society, as well as other similar ones, should adopt a policy of more direct influence

upon public questions which affect the profession of medicine in its relation to people. Such a course would call out a more general expression from the profession and thus prevent hasty and often vicious legislation. In the language of the late Dr. Holmes, as expressed in his greeting to the New York Academy on the dedication of their new building, "An academy which fulfills its highest function is a true working body. It deals with loving subjects. It handles unsettled questions. It sets tasks for its members and furnishes, as far as it can, the appliances required for accomplishment. It offers reward for meritorious performances and sits in judgement on the aspirants for distinction. It furnishes the nearest approach we can expect to a fixed standard of excellence, by which the work of new hands and the new work of old hands can be judged. It is a barrier, a break-water, against the rush of false pretensions which are constantly attempting to find their way into public confidence."

On October 2, 1895, officers were elected as follows: President, Dr. A. E. Senkler; Vice-president, Dr. W. A. Jones; Secretary-Treasurer, Dr. R. O. Beard. At the following meeting the limit of active membership was raised to sixty, and the President read his inaugural address, which was entitled "A Retrospect."⁶ The author discussed the various types of papers presented before the Academy, congratulated it on the element of originality in many of the contributions, and ended with the following conclusions in reference to the program:

"First, that matters surgical are more popular, are attracting more attention, than those medical.

"Second, that of all surgical procedures, those gynecological are most seductive.

"Third, that the specialties proper: ophthalmology, neurology, laryngology, dermatology, and genito-urinary, have received attention proportionate to the number of their disciples.

"I have two facts to add. The first is, I think, congratulatory. Very many of the papers on special subjects have been written by general practitioners, and with this it is to be noted that several men who limit their practice to special disease, have contributed papers on broad medical or surgical subjects. The second, which I mention with deep regret, is that not more than 10 per cent of the papers are upon subjects properly pertaining to so-called "internal medicine." That the proportion of this class of papers may increase in the coming year is my most fervent hope and trust."

5. The Northwestern Lancet, Vol. 15, p. 41.

6. The Northwestern Lancet, Vol. 15, p. 461.

Evidently Dr. Senkler was more interested in internal medicine than in gynecology.

At the annual meeting of October 7, 1896, the average attendance of the preceding year was stated as thirty. The actual membership was as follows: active members 54, associate members 8, honorary members 6, total 68. At this meeting, Dr. P. H. Millard extended to the Academy an invitation to attend the semi-centennial celebration of the discovery of anesthesia, at the State University on Friday, October 16. The invitation was accepted. The election of officers resulted in: President, Dr. W. A. Jones; Vice-president, Dr. J. W. Chamberlain; Secretary-Treasurer, Dr. R. O. Beard.

At the meeting on November 5, 1896, Dr. Jones read his inaugural address entitled "Nervous Stability Considered from the Standpoint of Education and Training."⁷ It dealt particularly with the subject of nervous stability as determined by the education and training of the central nervous system in children. The development of the brain from the standpoint of anatomy and physiology was discussed, and Osler's later and famous statement concerning the fatal age of 45 is found to be merely a restatement of the following expressed thus earlier by Dr. Jones: "It has been said that the association fibers in the brain cease growing after thirty-three, and that no one gets an absolutely new idea after that age * * * *. The majority of artists, poets and scientists do their best work in early life while association fibers are growing."

From this point on, no mention will be made of yearly election of officers or of presidential addresses, both appearing in a summary at the end of the paper.

At the meeting of February 3, 1897, the death of Dr. Perry Millard was announced, and on October 7, 1897, that of Dr. George F. French, both charter members. Dr. Millard was a prominent member and frequently contributed to the programs of the Academy, but is especially well known on account of his efforts in favor of the consolidation of medical teaching in Minnesota and as the first dean of the School of Medicine of the University.

In a minute adopted at the time of his death, Dr. French is referred to as one of the five men who originally projected the Academy. He was its fourth president and read the first scientific paper before it.

At the meeting of October 7, 1897, Drs. Charles C. Oliver, of Philadelphia, and Addison T. Foster, of Chicago, were elected honorary members.

January 22, 1899, resolutions were adopted covering the death of another charter member, Dr. Charles L. Wells, who, though a man of very modest personality, was a very able speaker, a frequent contributor to the programs, and a prominent practitioner of Minneapolis.

On May 2, 1900, the meeting place was changed from the Ryan and West Hotels to the Minnesota and Minneapolis Clubs. Subsequently at St. Paul, meetings were held for a time at the Commercial Club, and the Minneapolis meetings continued at the West Hotel, but after February 6, 1907, the Academy returned to the Minnesota and Minneapolis Clubs. On April 5, 1911, the Academy met at the Town and Country Club and, save for minor interruptions, has met there since.

December 6, 1900, Dr. H. Longstreet Taylor introduced a resolution calling for the establishment of a public sanitarium for those suffering from tuberculosis. This may fairly be considered the initial step leading to our present state institution.

At the meeting of February 6, 1901, the constitution and by-laws were changed so that hereafter active members absent from three consecutive meetings should be dropped from the roll after due notice. Also, it was declared that the Northwestern Lancet and the St. Paul Medical Journal should be regarded as the official organs of the Academy. Transactions should be published in both journals, and an abstract of each paper furnished to the Secretary by the author at the time of its reading. It was also carried, that hereafter the Academy should open its regular meeting at 7:00 P. M., and the presentation of specimens and cases was to come after supper instead of before.

October 7, 1903, Dr. R. O. Beard, after a faithful service of fifteen years as Secretary-Treasurer, asked to be retired, and Dr. A. W. Dunning was elected to the office, which he held until October 8, 1913.

At the meeting of January, 1906, an amendment to the constitution, doing away with the Governing Board and placing the general business of the Academy, including the election of new members, in the hands of the Executive Committee, was read and passed. March 6, 1907, the constitution was again amended so that candidates for admission be acted upon, first, by the Executive Committee, and, upon their favorable action, be presented to the Academy, when three adverse votes should reject.

At this meeting, also, attention was called to the fact that a bill was pending in the legislature

7. The Northwestern Lancet, Vol. 16, p. 443.

providing for the erection and maintainance of a detention hospital at each of the three State Hospitals for the Insane. A committee was formed to act in coöperation with similar committees from Ramsey and Hennepin Counties to aid in the passing of this legislation.

At the meeting of November 6, 1907, amendments were proposed dealing with the election of new members, and at this time it was provided that, when a name had been upon the list of pending nominees so long that three vacancies in the active membership of his own city had been filled without that name having been selected, it should be dropped from the list by the Secretary.

At about this time the Academy was favored with an epidemic of distinguished guests, including Dr. Lorand, of Karlsbad, on March 7, 1906; Dr. Joel E. Goldthwaite, on December 4, 1907, who talked on "Our Present Understanding of the Non-Tuberculous (Rheumatic) Joint Conditions," Dr. John Ridlon, on May 16, 1908, whose subject was "Some Remarks on Twelve Years Experience in the Bloodless Replacement of Congenitally Displaced Hips," and Dr. Archibald Church, on December 1, 1909, who spoke on "Mind Cures in General and the Emmanuel Movement in Particular." Only a temporary illness prevented Dr. W. W. Keene from being present at the December, 1909, meeting.

November, 1908, Dr. S. Marx White suggested that the Academy establish and support a fellowship at the University of Minnesota Medical School. A motion covering this matter was carried at the next meeting, and Drs. White, Stewart, and Colvin were appointed to act as a fellowship committee. At the next meeting, an annual assessment of \$5.00 was laid against each active and associate member to constitute "The Research Fellowship Fund," Dr. F. W. Schlutz was subsequently appointed as fellow, and was the only one to hold that position. The surplus fellowship money later found its way into Liberty Bonds.

At the November, 1910, meeting, Dr. A. T. Mann read a clinical report entitled "A Case of Gall-stones with Special Complications." In the discussion which followed, Dr. Ohage gave his own experience in respect to surgery of the liver, the report of which I have copied verbatim from Dr. MacLaren's Historical Review. "Dr. Ohage stated that, in 1886, he performed the first operation for complete removal of the gall-bladder that had ever been performed in the United States. In the experimental work preparatory to the operative surgery, he had sacrificed the

lives of about eighty dogs." (Evidently, the Humane Society was then less watchful of the welfare of dogs than it now is.)

"In a paper read before the Ramsey County Medical Society, and published in the *Medical News*, February 19, and 26, 1887, he had given a detailed description of this work, together with a complete bibliography of the subject to that date. In that tabulation he showed that the operation of cholecystectomy had been performed nine times; by Langenbeck, of Berlin, who proposed it, it had been performed five times with one death; by M. Thirier twice, both times successfully; by Courvoisier once successfully, and by Ohage once successfully, the latter being the first case of the kind in the United States.

"In view of these facts, Dr. Ohage claims the distinction of being the pioneer in this branch of surgery in America, and judging by the applause at the close of the discussion, the Academy of Medicine heartily accorded the doctor this distinction."

In January, 1911, the meeting was held at the St. Joseph Hospital, in St. Paul.

On October 4, 1911, the membership was reported as follows: St. Paul, active members 29; Minneapolis, active members 28; past presidents 17; associate members 7, honorary members 9, making a total of 90.

The minutes state that the January, 1912, meeting was attended by "Only a small number of members, on account of the extremely cold weather. The dinner was served at the usual hour, but it was moved and seconded that the program be postponed until the February meeting. The meeting adjourned."

The only parallel I have found to the above situation occurred at the October, 1918, meeting. The minutes state that the meeting was one of the smallest in the history of the Academy, owing to the absence of many members, in service, and the consequent heavy work of the remaining physicians in the prevailing epidemic of influenza. Fifteen members and one visitor were present, and the meeting was largely informal.

January 5, 1912, Dr. Woodward read a paper entitled "The Present Status of Salvarsan as a Remedy for Syphilis." Considering the free use of that drug at this time and the very definite place which it has assumed in the therapy of syphilis, it is interesting to note the caution expressed in 1912 as regards its use and its rather uncertain field of activity. Different members of the Academy discussed its relation, not only to syphilis, but also to scarlet fever, smallpox, and pernicious anemia.

At the February, 1913, meeting, the death of Dr. Parks Ritchie, charter member and second president of the Academy, was announced. A reading of the minutes of the Academy shows that Dr. Ritchie was a frequent contributor to the program for many years, and his productions were as notable for their kindly humor as for their scientific excellence. Dr. Ritchie was also the second dean of the University of Minnesota Medical School.

Following a long illness, on November 5, 1913, Dr. J. Clark Stewart was made an honorary member, with an expression of deep appreciation from the Academy for the excellent work he had done. Dr. Stewart was a man of very strong views, which he forcefully expressed and ably defended, and had the reputation of entering a verbal quarrel with enjoyment and of leaving it without malice.

The death of Dr. A. W. Dunning, who had served the Academy so long and so faithfully as secretary, was announced at the January, 1916, meeting, in the midst of his term as president. No man in the Academy was held in greater esteem for his kindly personality; and his services as a physician and a public-spirited citizen were ably reviewed by Dr. Riggs.

A gavel engraved with the names of all the past presidents was presented by Dr. Todd, March 14, 1917.

The first note of the great war appeared at the September 12, 1917, meeting, when one thousand dollars of the Fellowship Fund was ordered to be invested in Liberty Loan bonds. There were present as guests this evening: Major Greenleaf and Capt. Findley, of Fort Snelling, and Dr. Meyers, of New York.

On January 9, 1918, Dr. Ernest T. F. Richards read a paper on "Medical Problems Encountered in the European War Zone."

The Academy sustained its only war loss in the death of Lt. Col. Frank C. Todd on July 4, 1918. Dr. Todd was a brilliant and unusually successful practitioner in Minneapolis, an able teacher, and chief of the Department of Ophthalmology, Otolaryngology and Laryngology in the Medical School of the University of Minnesota. His clear and incisive mind, remarkable administrative ability and his devotion to duty earned for him distinction and rapid promotion in the army.

In September, 1918, \$500.00 additional was ordered subscribed to the Fourth Liberty Loan.

November 15, 1918, a committee was appointed to prepare resolutions on the death of Dr. J. E. Moore. Dr. Moore died November 2, 1918.

He was the second man admitted to membership after the formation of the Academy, and was a very active member and a frequent contributor to the program. A man of striking personality, Dr. Moore was one of the first medical men in the Twin Cities to limit his practice to surgery.

Though I have closed this historical summary with the end of the year 1918, I feel justified in calling special attention to the presidential address of Dr. H. B. Sweetser in September, 1920. Dr. Sweetser's paper dealt particularly with administrative matters in connection with the Academy, and not only gave an excellent statement of the attitude of the society at different times toward important administrative matters, but also made many excellent suggestions for the improvement of the Academy's work, some of which have been included in the recently revised constitution.

The preparation of this paper was made particularly easy by reason of the elaborate and accurate minutes of the Academy which we owe to our various secretaries, particularly Dr. R. O. Beard and Dr. A. W. Dunning, through their long periods of service, and which have been so carefully preserved. How the Ramsey County records have fared in this respect, I do not know, but those of Hennepin County have been largely lost or destroyed, and only those dealing with relatively recent years are available and any information concerning the early period must be derived from the meager and more or less inaccurate reports in the daily papers. In this connection, it seems to me that the Academy should take steps to secure an absolutely safe repository for its early records.

In the course of this paper special reference has been made to a few of the older men and especially to those who died early in the history of the organization, but there are others, of those now dead, who served the Academy faithfully, and who, on account of their high professional attainments and long and honorable careers as practitioners are deserving of more than passing notice. Without any invidious distinction and with no disrespect to others, one may refer particularly in this connection to Dr. C. A. Wheaton, one of the most brilliant medical men ever in the Northwest; to Dr. J. H. Dunn, who was unusually prominent in the work of the Academy, and whose articles, characterized always by thoroughness and good sense, appear again and again in the early issues of the *NORTHWESTERN LANCET*; to Dr. Alexander J. Stone who was a brilliant speaker, a prominent medical educator, and the first editor of the *NORTHWESTERN LANCET*; to

Dr. J. H. Stewart, a man notable for his spirit of justice and fairness, whose very amiability detracted from the credit he deserved as a finely educated and a broad-minded man; to Dr. A. J. Gillette, one of the most prominent specialists of the Twin Cities, the founder of the Phalen Hospital, and one of the best-liked men in the Academy; to Dr. Knute Hoegh, who, though still with us, is unable to take the prominent place which he once occupied in the Academy. He was one of the best students of the profession, an excellent diagnostician, and a very able man.

Of those who are still actively interested in the Academy it is a particularly delicate matter to speak, but again I think I am guilty of no disrespect to others when I follow the suggestion of Dr. R. J. Hill and refer to Drs. A. W. Abbott, Archibald MacLaren, H. B. Sweetser, and Arnold Schwyzer as members who are particularly distinguished for long and able services to the Academy and for high personal qualities which are known to you all.

In Article II of the original constitution the purpose of the Academy was stated as follows: "It is organized for the purpose of professional research and for the association of medical men upon a basis of good fellowship, professional ability, and literary merit." In respect to all these matters I think it safe to say the Academy has well fulfilled its purpose. It has had a prominent part in settling all the various public and semi-public questions which come to us as citizens and as practitioners of medicine; it has been, as Oliver Wendell Holmes puts it, a barrier against false pretensions in medicine and an incentive to meritorious performances; it has stimulated and encouraged original work, and, perhaps above all else, it has given us an opportunity to appear before an audience whose spirit of good fellowship has given additional pleasure to any successes we may have known and has helped to take the sting from our failures.

LIST OF OFFICERS WITH THE TITLES OF THE PRESIDENTIAL ADDRESSES

- October 12, 1887.
President, John F. Fulton; Vice-president, A. W. Abbott; Secretaries, R. O. Beard and E. C. Spencer; Treasurer, Le Grand N. Denslow.
Presidential Address: *Northwestern Lancet*, Vol. 7, No. 4, p. 61.
- October 6, 1888.
President, A. W. Abbott; Vice-president, Parks Ritchie; Secretary, R. O. Beard; Treasurer, E. C. Spencer.
Presidential Address: Not published, no title.
- October 5, 1889.
President, Parks Ritchie; Vice-president, C. L. Wells; Secretary and Treasurer, R. O. Beard.
Presidential Address: Not published, no title.
- October 4, 1890.
President, George F. French; Vice-president, William Davis; Secretary-Treasurer, R. O. Beard.
Presidential Address: "Helps to a Higher Education." *Northwestern Lancet*, Vol. 10, p. 391.
- October 7, 1891.
President, C. A. Wheaton; Vice-president, F. A. Dunsmoor; Secretary-Treasurer, R. O. Beard.
Presidential Address: "Osteomalacia." *Northwestern Lancet*, Vol. 11, p. 389.
- October 5, 1892.
President, C. L. Wells; Vice-president, Archibald MacLaren; Secretary-Treasurer, R. O. Beard.
Presidential Address: "The Story of the Insane." *Northwestern Lancet*, Vol. 12, p. 415.
- October 4, 1893.
President, Perry Millard; Vice-president, Knute Hoegh; Secretary-Treasurer, R. O. Beard.
Presidential Address: "Intubation of the Larynx." *Northwestern Lancet*, Vol. 14, p. 1.
- October 3, 1894.
President, J. W. Bell; Vice-president, Archibald MacLaren; Secretary-Treasurer, R. O. Beard.
Presidential Address: "A Plea for the Aged." *Northwestern Lancet*, Vol. 15, p. 41.
- October 2, 1895.
President, A. E. Senkler; Vice-president, W. A. Jones; Secretary-Treasurer, R. O. Beard.
Presidential Address: "A Retrospect." *Northwestern Lancet*, Vol. 15, p. 461.
- October 7, 1896.
President, W. A. Jones; Vice-president, J. W. Chamberlain; Secretary-Treasurer, R. O. Beard.
Presidential Address: "Nervous Stability Considered from the Standpoint of Education and Training." *Northwestern Lancet*, Vol. 16, p. 443.
- October 7, 1897.
President, J. W. Chamberlain; Vice-president, C. G. Weston; Secretary-Treasurer, R. O. Beard.
Presidential Address: "The Use of the Ophthalmoscope in Diagnosis." *Northwestern Lancet*, Vol. 17, p. 441.
- October 5, 1898.
President, C. G. Weston; Vice-president, C. E. Riggs; Secretary-Treasurer, R. O. Beard.
Presidential Address: "Hospital Clinical Records." *Northwestern Lancet*, Vol. 18, p. 453.
- October 11, 1899.
President, C. E. Riggs; Vice-president, H. M. Bracken; Secretary-Treasurer, R. O. Beard.
Presidential Address: "The Nutritional Factor in Nervous Conditions." *Abstracted, St. Paul Medical Journal*, Vol. 2, p. 86, 1900.
- October 3, 1900.
President, R. J. Hill; Vice-president, J. T. Rogers; Secretary-Treasurer, R. O. Beard.
Presidential Address: Not published, no title.
- October 2, 1901.
President, J. T. Rogers; Vice-president, J. W. Little; Secretary-Treasurer, R. O. Beard.
Presidential Address: "General Anesthesia." Not published.
- October 1, 1902.
President, J. W. Little; Vice-president, Wm. Davis; Secretary-Treasurer, R. O. Beard.
Presidential Address: "Harelip and Cleft Palate." *Northwestern Lancet*, Vol. 22, p. 455.
- October 7, 1903.
President, Wm. Davis; Vice-president, J. H. Dunn; Secretary-Treasurer, A. W. Dunning.
Presidential Address: "Unusual Sources of Poisoning." *St. Paul Medical Journal*, Vol. 6, p. 34, 1904.
- October 5, 1904.
President, M. P. Vander Horck; Vice-president, Archibald MacLaren; Secretary-Treasurer, A. W. Dunning.
Presidential Address: "The Injection Treatment of Syphilis." Not published.
- October 4, 1905.
President, Archibald MacLaren; Vice-president, R. O. Beard; Secretary-Treasurer, A. W. Dunning.
Presidential Address: "The End Results of the Operation for Removal of Malignant Growths." *Northwestern Lancet*, Vol. 25, p. 430.
- October 3, 1906.
President, R. O. Beard; Vice-president, Arthur Gillette; Secretary-Treasurer, A. W. Dunning.
Presidential Address: "The Relation of Physiologic Chemistry and Physiologic Microscopy to Medical Practice." *St. Paul Medical Journal*, Vol. 9, p. 10.
- October 2, 1907.
President, Arthur J. Gillette; Vice-president, James E. Moore; Secretary-Treasurer, A. W. Dunning.
Presidential Address: "Why Doctors Are Not More Popular." Not published.
- October 14, 1908.
President, James E. Moore; Vice-president, Haldor Sneve; Secretary-Treasurer, A. W. Dunning.
Presidential Address: "Conservatism in Surgery." *Journal A. M. A.*, Vol. 52, p. 935, 1907.
- October 6, 1909.
President, Haldor Sneve; Vice-president, S. Marx White; Secretary-Treasurer, A. W. Dunning.
Presidential Address: (See editorial, *Northwestern Lancet*, Vol. 29, p. 514.)

October 5, 1910.

President, S. Marx White; Vice-president, John L. Rothrock; Secretary-Treasurer, A. W. Dunning. Presidential Address: "Some Problems in Medical Education in Minnesota." *Northwestern Lancet*, Vol. 31, p. 53.

October 4, 1911.

President, John L. Rothrock; Vice-president, L. A. Nippert; Secretary-Treasurer, A. W. Dunning. Presidential Address: "The Etiology and Pathology of Chronic Metritis." Not published.

October 2, 1912.

President, L. A. Nippert; Vice-president, Arnold Schwyzer; Secretary-Treasurer, A. W. Dunning. Presidential Address: "Infections of the Pleura and Lungs." *Journal-Lancet*, Vol. 33, p. 249.

October 8, 1913.

President, Arnold Schwyzer; Vice-president, Frank C. Todd; Secretary-Treasurer, F. E. Leavitt. Presidential Address: "Surgical Treatment of Puerperal Infection." *Surgery Gynecology and Obstetrics*, April, 1915.

October 7, 1914.

President, Frank C. Todd; Vice-president, A. W. Dunning; Secretary-Treasurer, F. E. Leavitt. Presidential Address: "Operations About the Nose and Pharynx." Published under the title "Recent Developments in Rhinology and Laryngology." *Journal-Lancet*, Vol. 37, p. 263.

October 6, 1915.

President, A. W. Dunning, St. Paul; Vice-president, Geo. Douglas Head; Secretary-Treasurer, F. E. Leavitt. Dr. Dunning died December 21, 1915.

January 5, 1916.

President, Geo. Douglas Head, Minneapolis; Vice-president, A. R. Colvin. Presidential Address (Dr. Head): "The State and Medical Education." *Journal-Lancet*, Vol. 36, p. 557.

September 13, 1916.

President, A. R. Colvin, St. Paul; Vice-president, J. G. Cross; Secretary-Treasurer, F. E. Leavitt. Presidential Address: "Lower Back Pain." *Amer. Jour. Orth. Surgery*, Boston, 1918, Vol. 16, p. 384.

September 12, 1917.

President, J. G. Cross, Minneapolis; Vice-president, Warren A. Dennis; Secretary-Treasurer, F. E. Leavitt. (No Presidential Address was given.)

September 18, 1918.

President, J. T. Christison, St. Paul; Vice-president, H. B. Sweetser; Secretary-Treasurer, F. E. Leavitt. Presidential Address: "The Medical Aspects of School Life, with Special Reference to Work Accomplished Among Defective Pupils." (Not found published.)

September 10, 1919.

President, H. B. Sweetser, Minneapolis; Vice-president, Warren A. Dennis; Secretary-Treasurer, F. E. Leavitt. Presidential Address: "The Academy of Medicine; Administrative Changes." (Not published. In minute book.)

September 8, 1920.

President, Warren A. Dennis, St. Paul; Vice-president, J. Frank Corbett; Secretary-Treasurer, F. E. Leavitt and H. P. Ritchie.

Presidential Address: "Compulsory Health Insurance." *Minnesota Medicine*, Vol. 5, p. 1.

September 14, 1921.

President, H. L. Staples, Minneapolis; Vice-president, C. N. McCloud; Secretary-Treasurer, H. P. Ritchie. Presidential Address: "The Doctor in Literature." (Not published.)

September 13, 1922.

President, H. L. Taylor, St. Paul; Vice-president, A. S. Hamilton; Secretary-Treasurer, H. P. Ritchie. Presidential Address: "Tuberculosis in Man." Published under the title "Treatment of Tuberculosis." *Minnesota Medicine*, Vol. 6, p. 616.

September 19, 1923.

President, A. S. Hamilton, Minneapolis; Vice-president, H. P. Ritchie; Secretary-Treasurer, John E. Hynes. Presidential Address: "Historical Survey of the Academy of Medicine."

EYE SYMPTOMS IN LETHARGIC ENCEPHALITIS*

By FREDERICK E. FRANCHERE, M.D.

SIoux CITY, IOWA

Lethargic encephalitis has been reported and described for years under the title of "hemorrhagic encephalitis," but our interest in this affection has been given an impetus by the occurrence of the recent pandemic of the disease and especially by the differing symptomatology presented in these outbreaks. For example, the predominating symptoms occurring in the epidemic of 1919 and 1920 were drowsiness, ophthalmoplegia, pupillary and bladder changes, and headaches. In 1921 the disease was characterized by profound toxemia, cranial nerve palsies, delirium, headache, and pain in the limbs. In 1923 the first group presented myoclonic twitchings of the face, limbs, and trunk, while the second group showed mental confusion with headaches.

It is in the hope that a résumé of the present views concerning this affection, as voiced by various writers and observers, may prove of some help and aid to a better understanding of the nature of this serious malady that the writer ventures to summarize them.

Although the limitations of time and the stated activities of this Academy preclude an extensive

consideration of the pathology of the disease under discussion, it will not be out of place briefly to outline some of the more important evidences of departure from the normal anatomical conditions.

Lethargic encephalitis is an inflammatory, non-suppurative disease of the central nervous system, which, like acute poliomyelitis and syphilis, affects the whole cerebrospinal axis and its meningeal coverings. Both encephalitis and poliomyelitis affect the interior of the brain and cord more than the meninges, and in both there occur collars of inflammatory cells about the blood vessels, which are not occluded.

Meningeal involvement is slight in either condition, but least in encephalitis. Both diseases are really polio-encephalomyelitis, but in one the pathology is mainly in the brain and in the other in the spinal cord. Where the symptoms are mainly referable to the basal ganglia, the diagnosis is in favor of encephalitis. However there are borderline cases, which may preclude actual knowledge of the pathology until it is discovered postmortem, if at all, and there was an epidemic of this sort in Australia in which the nature of the affection is yet undetermined. There are fairly reliable data to be had from the examina-

*Presented before the Sioux Valley Eye and Ear Academy, meeting at Sioux City, Iowa, January 19, 1925.

tion of the spinal fluid of suspected cases, as there are syndromes that may be considered characteristic:

First—Pleocytosis, globulin increase, luetic gold curve, and sugar increase.

Second—High cell count in proportion to the amount of globulin and luetic gold curve.

Sterne claims that the cause is a filterable virus existing in a harmless form in the saliva of many persons and activated by the presence of other bacteria, such as influenza bacilli, the pneumococcus or streptococci.

Confirmatory evidence of this assertion is shown by the report of three cases, which rapidly developed following the extraction of devitalized teeth. However, Lowe and Strauss, of New York, claim to have isolated the organism directly responsible for the production of this disorder.

In the acute, fulminating variety there should not be such great difficulty in diagnosing lethargic encephalitis, particularly in the presence of an epidemic, but in isolated cases of the milder, more chronic type, which may run an atypical course, or in cases in which the only symptoms are those referred to the eye, the true condition may not be recognized, until the most searching investigation has been carried out and all other disorders eliminated. In fact, it is not unlikely that many cases of this affection have been overlooked and the symptomatology attributed to eye-strain, nasal or dental pathology, hysteria, multiple sclerosis, syphilis, or brain tumor. But, inasmuch as a considerable proportion of patients suffering from this disease apply first to the oculist for relief of the eye symptoms incident to the disorder, it is expedient for us to be conversant with the ocular phenomena, which are of such vital significance.

In the order of frequency, diplopia is the first symptom to claim our attention, and it is often, in mild cases, the first to occur and the first to disappear. It is usually for distance and is in all directions, meanwhile the vision remains normal; however, paralysis of convergence may supervene two or three years after the inception of the disease. One writer reports that out of fifty cases subjected to ophthalmological examination in from six to thirty-six months after an attack of encephalitis there were twelve who had paralysis of the external eye muscles.

Next is ptosis, which is generally bilateral, and when this symptom is associated with diplopia the syndrome is considered to be pathognomonic.

Nystagmus is not unusual and is horizontal.

Sluggish pupils occur in connection with post-encephalitic Parkinsonian symptoms, which may

supervene years after the original infection is instituted, paralleling parasyphilis in its manifestations. The writer has under observation, at this time, one of this variety where there is unilateral dilatation of the pupil without loss of accommodation.

Optic neuritis was formerly not supposed to occur in encephalitis, but a number of writers have reported this condition, also hemorrhagic retinitis and retinal hemorrhages. In the *Boston Medical and Surgical Journal* for May, 1924, Parmenten and Cheney cite the case of a man aged twenty in whom a diagnosis of brain tumor had been made. He had headaches and epigastric pain for three weeks and diplopia for several days. The knee jerks were unequal, the left ankle spastic, and there was ankle clonus. The eye symptoms were left internal strabismus, double choked discs and horizontal nystagmus in both eyes. He left the hospital against advice, and four days later the headache was gone, the choking of the discs and all other eye symptoms improved, and a week following he had entirely recovered.

Spiller, in the *Journal of the American Medical Association*, reports three cases in which there were choked discs, in one case the height of the discs being seven diopters against two diopters for the maculae.

In a report of twelve hundred and fifty cases occurring in England and Wales in 1919 and 1920, optic neuritis was present in 5.5 per cent of those in which the fundus was examined.

Smith presented a case before the Philadelphia Neurological Society who had encephalitis in which the discs measured five and five and one-half diopters, respectively.

In conclusion, the literature concerning lethargic encephalitis is still in the making, but as time and experience add to our diagnostic resources we may expect additional and valuable contributions to our present knowledge of the disease.

It has been my privilege to have seen a number of cases of encephalitis within the last four years, two occurring in young women, one of whom had been under treatment for hysteria and who made a complete recovery, and one whose condition had been diagnosed as eye-strain. She died suddenly from paralysis of the respiratory centers. Another case was that of an adult male who at no time showed any ocular symptoms except sluggish pupils, who became somnolent and also died. An elderly woman developed Parkinsonian symptoms accompanied by choked discs in both eyes, retinal hemorrhages, and later respiratory paralysis. Laboratory and other ex-

aminations excluded everything except para-encephalitis.

It is obvious that the profession should realize the possible occurrence of sporadic cases of lethargic encephalitis, for, in many instances, the

insidious onset and protean manifestations of this destructive malady call for the utmost patience, thorough investigation and diagnostic acumen, if we are going to recognize the true nature of the symptom complex which confronts us.

FRACTURES OF THE BASE OF THE SKULL*

INVOLVING THE FRONTAL SINUS OR MASTOID ANTRUM

BY CASSIUS C. ROGERS, M.D., F.A.C.S.

CHICAGO, ILLINOIS

Mr. President and Members of the Society:

Let us consider for a few minutes the contents of the cranial cavity and the causes of death when these structures are injured. The cranial cavity is just large enough to hold its normal contents, and anything added in the way of edema will cause symptoms. The brain is essential to life and health, and, like all living tissue, must be nourished by blood if it is to maintain its normal function. A brain devoid of blood dies the same as any strangulated tissue, and if normal function is to be maintained the strangulation must be relieved.

The brain normally is bounded by two non-elastic structures, the dura mater and the firm bony structures. To relieve intracranial pressure one or both of these structures must be opened or removed.

The real cause of death following injury to the brain is anemia. This anemia is due to intracranial irritation, causing edema. This, in turn, produces sufficient pressure to force out the blood and cerebrospinal fluid, and death is the result.

The irritation in cases of fracture of the base of the skull is usually an infection secondary to infection of the frontal sinus or the mastoid antrum.

It then must be our aim to prevent infection, and how can this be done? Not by "watchful waiting" to see what is going to happen. The old treatment, absolute rest with icebag or icebags to the head, must give way to a more sane and scientific treatment so that more satisfactory results can be obtained.

If we are going to keep abreast of the satisfactory results obtained from the treatment of injuries in other parts of the body, we must lower the death rate in fractures of the base of the skull.

A fracture of the base is usually associated with a fracture of the vault. I think we will all agree that a depressed fracture of the vault is always surgical, and that the depression should be relieved by raising the skull or removing a portion of it entirely. But we are far from one opinion when it comes to treating fractures of the base of the skull.

Fractures of the base of the skull are either transverse or longitudinal. Transverse fractures are located in either the anterior, middle, or posterior fossa. The most common one is that of the middle fossa, running transversely through the mastoid antrum and mastoid cells on to the vault. This is accompanied usually by the escape of blood and cerebrospinal fluid from the external ear or the mouth.

The longitudinal fracture extends from the foramen magnum, running forward through the jugular foramen, breaking off the tip of the petrous portion of the temporal bone, running forward not in the median line but to one side of the crista galli into the frontal sinus, and then on to the vault. This fracture is associated with the escape of cerebrospinal fluid from the nose.

When a person has received an injury, and upon examination we find the escape of blood or cerebrospinal fluid from the ear, nose, or mouth, the patient has a fracture of the base of the skull, without any exception.

An *x*-ray examination should always be made, but if the report is negative it becomes only a matter of history. The eyes and ears should be examined by a competent ophthalmologist and otologist. If his report is negative it should not influence us in our firm belief that the patient has a fracture of the base of the skull.

These fractures are always compound, and a closed cavity is now directly exposed to a cavity containing air; the frontal sinus and the mastoid antrum contain blood, which becomes clotted;

*Presented before the Sioux Valley Eye and Ear Academy, meeting at Sioux City, Iowa, January 19, 1925.

this, in turn, produces an irritation with edema, and the normal openings from the frontal sinus into the nose and from the mastoid antrum into the ear become occluded. The blood clots in these cavities become infected, and there is a typical frontal sinusitis or mastoiditis.

The direction of least resistance is now toward the cranial cavity, and the infection will travel in that direction and a meningitis is the result, which is frequently followed by death.

If we are going to obtain satisfactory results in these cases it must be our aim to prevent infection rather than to combat it after it is present.

It is with pleasure that I bring this subject before you, a body of specialists, as you are skilled operators upon the frontal sinus and the mastoid.

I am thoroughly convinced that all that is necessary to prevent the extension of infection from these cavities is to drain them as soon as possible after the injury has occurred and the diagnosis has been made. The frontal sinus should be opened externally, the blood clot evacuated, and the sinus drained. Drainage through the nasal cavity will not suffice.

If the mastoid antrum or cells are filled with clotted blood, the antrum and cells must be drained by a typical, simple mastoid operation. A plate of skull at least two inches in diameter just above the antrum and attic must be removed, and no attempt made to replace it. The lateral sinus should be exposed but never opened. The dura mater should never be opened in either of these operations if they are done early.

Again let me bring before you as forcibly as possible that no time should be lost in draining these cases after the diagnosis is made. Twelve hours should be the limit unless there is some grave reason for delay, and twenty-four hours should never elapse if we are going to operate these cases and expect to get the most satisfactory results.

After basilar meningitis has developed operative interference is of little value.

Lumbar drainage is always contra-indicated to relieve intracranial pressure due, directly or indirectly, to fracture of the base of the skull. It is doubly contra-indicated if an infection has already manifested itself.

“RAG BABY” THERAPY

BY RALPH ST. J. PERRY, M.D.

MINNEAPOLIS, MINNESOTA

Some years ago, while clinic-trotting, a gynecologist was heard to make the statement that nothing was as stimulating to a sluggish uterus as a “rag baby,” meaning thereby a gauze packing, and applying the treatment to an organ in which it was desired to excite recuperative activity. The idea took root in my gray matter and from the implant there has been developed a method of “rag baby” therapy.

The hyperenthusiasm of some gynecologists, the influx of drugless cults, and the innate timidity of feminine humanity have all collaborated in causing many of our gynecological patients to protest against surgical operations, and especially against curettement. Thousands of women are living under economic conditions which, because of the loss of time and expense involved, prohibit operative procedures not absolutely necessary for the preservation of life or the prevention of total disability. Even within the ranks of the medical profession there is a growing distrust in the efficacy of promiscuous and indiscriminate curettements, objection being based chiefly on mechanical grounds,—the difficulty in

thoroughly and evenly denuding the diseased surface. Too often the curetted endometrium resembles a furrowed field, with areas of untouched diseased tissue alternating and crisscrossed with streaks of excoriated bleeding surface. Also there is objection because the curettement too often disturbs and activates septic germs lying dormant in the tissues, which, because of the surgical intervention, are distributed through freshly opened channels of absorption and give rise to grave acute infections.

Long ago the attitude of patients who refused to submit to curettement created a demand for a conservative, yet effective, method of treatment. In my own practice, for many years past, very satisfactory results have been secured in many cases through the “rag baby” treatment. This treatment is practically painless and does not take the patient away from her work or household duties; it requires a little longer time to accomplish results and is probably a trifle more troublesome to both doctor and patient. It does not, however, interrupt the earning capacity or service efficiency of the patient and can be carried out

at the physician's office. Remuneration for the treatments having been received as they were given the patient is not appalled by a large hospital bill and surgeon's fee,—a psychic factor of much value in many cases.

This method of treatment may be used in the several forms of acute and chronic metritis and endometritis, in salpingitis, flexions of various forms, metrorrhagia, or any other condition where it is desirable to apply medication to or via the cavity of the uterus; to secure dilatation, establish drainage, stimulate muscular action, increase circulation, or arouse sympathetic nerve impulses. An inflamed, congested, and sodden uterus can be quieted down and depleted; antiseptics and various other medicaments can be applied for hours directly to an infected endometrium; by gravity, peristalsis, capillary attraction, and the movements of the ciliated epithelium they can be carried into the fallopian tubes and even to parts beyond; disintegration and exfoliation of diseased tissue can be secured; hemorrhagic conditions checked; neoplastic growths stunted or eliminated; and an infantile uterus can be stimulated to further development. Every practitioner has seen and will see cases where the "rag baby" can be used appropriately and with advantage. The treatment involves:

1. The dilatation of the vagina.
2. The dilatation of the cervical canal.
3. The packing of the uterine cavity.
4. The removal of the packing.
5. The use of such adjuvant therapeutic measures as may be necessary or desirable.

To accomplish these steps there is needed only the armamentarium usually found in the gynecologist's equipment. The packing material used is the common sterilized gauze strip, which should be selvedge edged and one-half inch in width. The old time candle wicking is an excellent packing material, but is now commercially obsolete. The packing can be medicated by filling the mesh with a dry powdered drug, as boric acid, thymol iodide, etc., or the drug may be dissolved and the solution poured over the gauze, leaving the drug in the gauze upon evaporation of the solvent. By using solvents which evaporate quickly many kinds of medicated gauze can be prepared extemporaneously.

Those medications most satisfactory in my own use have been thymol iodide, iodoform, iodine, the silver preparations, metaphan, mercurochrome, neutral acriflavine, chlorozine, zinc chloride and oxide, ichthyol, balsam Peru, boroglyceride, Lloyd's non-alcoholic hydrastis, oil of thuja, glycerin (plain or medicated), echinacea, and one or

two "shot-gun" topical dressings, which have acquired a rather amplitudinous macule in my personal gynecic esteem. Dichloramine and dibromine have been used in some cases of persistent chronic endometritis, with no regrets so far.

The solvents most commonly used are chloroform, ether, gasoline, alcohol, carbon tetrachloride, water, paraffin oil, and lanolin. A tube of sterile plain gauze is opened and the freshly prepared solution poured over the gauze until the tube is filled; after allowing sufficient time for the gauze to become saturated the excess of the solution is poured back into the stock container. The small amount of ether, chloroform, gasoline, or alcohol remaining in the gauze rapidly volatilizes, leaving a dry or moist medicated gauze; aqueous solutions evaporate not so quickly, and the surplus of oil solutions and ointments may best be expressed by hand, the fingers being gloved.

The technic of the treatment is very simple. A digital exploration locates the cervix uteri, the speculum exposes it to access, the dilators open the cervical canal, and with the uterine packer the medicated gauze is placed within the cavity of the uterus. In virgins due precautions should be used to prevent laceration of the hymen or undue dilatation of the vagina, although a ruptured hymen can be repaired and an overly distended vagina can be reduced to pre-invasion dimensions.

Dilatation of the cervix must be done gradually and very gently to avoid unnecessary lacerations, though, even with the utmost care, there is nearly always some slight tearing, especially at the internal os. If at first the metal dilator cannot be easily passed, graduated bouginage with silk bougies or rubber catheters is practiced. Tents may be used for continuous gradual dilatation. Erosions of the os uteri call for local treatment and an unusually rigid cervix may require electrical treatment before it will yield to your efforts. Never use undue force lest trauma result.

The nature of the medicament used depends upon the condition to be treated, the individuality of the patient and the personal experience and preferences of the physician. The amount of packing used is governed by the effect desired; for pressure effects, irritation, or to excite muscular contractions there should be placed within the uterine cavity all it will hold; for ordinary therapeutic effectiveness a moderate packing will suffice, while for drainage purposes only a single strand of the gauze strip need be inserted.

To secure a pressure packing hold the tube

firmly and manipulate the gauze carrier, withdrawing the tube slowly as the cavity is filled. For a moderate therapeutic packing withdraw the tube gradually before the uterine cavity is completely filled. For a drainage packing carry the gauze to the inner mouth of the tube, push one or two inches of gauze out into the uterus, thus forming a small ball or wad which acts as an anchor, then withdraw the carrier a distance equal to the depth of the uterus, hold the carrier firmly and withdraw the tube, leaving a single strand of gauze in the uterine cavity.

The packing is usually left in place twenty-four hours; in some instances thirty-six hours; but never longer than forty-eight hours, lest fermentation of retained secretions give rise to infection. The packing should be removed by the physician if he desires to scrutinize the character of the débris brought away, otherwise by the nurse, or the patient, under instructions. The removal should be followed by a cleansing vaginal douche. Treatments are repeated "p., r., n.," and the "rag baby" may be supplemented by such adjuvant measures as the physician may deem essential.

PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of March 11, 1925

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town & Country Club on Wednesday evening, March 11, 1925, at 8:00 P. M. The meeting was called to order by the President, Dr. H. P. Ritchie. There were 34 members present.

The minutes of the February meeting were read and approved.

Dr. S. E. Sweitzer (Minneapolis) reported two cases and showed lantern slides.

CASE 1.—Hypernephroma of scalp. T. W., aged 50, male, white. Patient presents himself with pain in his right hip region of duration of four months. Multiple tumors, firm, involving the skin only, not being attached to the bony tissues beneath. Tumors present on scalp, back, chest, and abdomen. Duration of thirteen months. On October 17, 1912, patient had right kidney removed by Dr. W. J. Mayo. Diagnosis, hypernephroma.

On September 16, 1924, patient shows metastases to the left humerus, confirmed by x-ray. Amputation near the shoulder was performed September 22, by Dr. Geo. G. Eitel.

Biopsy of scalp tumor: hypernephroma structure on section "microscopic." Laboratory findings: Urine, negative; blood counts, normal. Wassermann, negative.

CASE 2.—Serpiginous syphilid. C. G., aged 62, male, white. Presents himself with the following complaints: orthopnea, duration six weeks; cough, duration six weeks; pain in lower chest on both sides; large inguinal hernia, duration forty years; urinary frequency, urgency, and nocturia of several years' duration. Skin lesions on legs, arms, and scattered about on trunk of body. The lesions present the picture of serpiginous syphilids.

Patient denies history of infection. States he has never had any primary lesion of syphilis. Patient has never had any anti-luetic treatment.

Laboratory findings: Wasserman was negative on one occasion. Salvarsan was given intravenously. A Wassermann was taken four days later, and a four plus (cholesterin, alcoholic antigen) Wassermann was secured.

Dr. A. N. Collins (Duluth) reported the following case:

I wish to present the report of a case of thrombo-angitis obliterans which came under my observation. A young Russian, 35 years of age, not of Jewish descent. When I first saw him, about six months ago, he had gangrene of the small toe of the right foot. No pulse could be felt in the foot. Urine and blood chemistry were negative for sugar. X-ray of the foot was negative for blood vessels but showed some atrophy in the peripheral bones of the foot. Many Wassermans were all negative. The pathology of this condition is a deposit in the wall of the blood vessels—the main vessels rather than the small arteries. The gradual increase of this deposit in the walls closes the lumen, and starvation of the extremity results in gangrene.

The patient first had an amputation just above the ankle, against my advice. I thought it should be higher, but he would accede to it only above the ankle; but finally, several months later, we amputated above the right knee. Dr. Gordon MacRae immediately took the amputated part, washed out and injected the circulation with a carefully prepared barium mixture. (Photograph shown.) This is a print of one of the stereo films taken. You will see the ragged narrowing in various places along the main artery from the popliteal space down to the extreme end of the amputated tibia. The arterial branches do not seem to be involved.

Dr. Gustav Schwyzer (Minneapolis) presented the following case:

The tumor which I am showing you here is the right kidney of a man 63 years old. The history states that the man had a little blood in his urine from time to time but suffered no pain or discomfort. About a year ago a physician was called on account of retention of urine. At that time there was no blood by the catheterization. The prostate was found enlarged. The hematuria became more frequent of late and the patient sought medical help.

The diagnosis of nephroma of the right kidney was made by Dr. Owre, who cystoscoped and made a pyelogram. My part in the case was to perform

the removal of the tumor. This act proved to be very difficult on account of the fixation of the tumor on to the diaphragm. The patient made a speedy recovery though, and is ready to leave the hospital.

DISCUSSION

DR. OWRE: I was called in consultation to cystoscope this case for Dr. Nordland, for the purpose of ascertaining the possibility of a growth in the bladder. The patient had an enlarged prostate and gave the history of blood in the urine on several occasions during the past four years. Dr. Nordland stated that the patient had called a physician to his home to relieve him of retention of urine.

Upon cystoscopic examination the bladder was found to be trabeculated and the prostate enlarged, but the mucosa showed no evidence of inflammation or tumor. There were about four ounces of bloody residual urine. Blood could be seen spurting from the right ureteral meatus.

The x-ray showed no evidence of stone. A pyelogram showed the pelvis of the kidney to be entirely distorted, with no normal calices—a typical pyelogram of nephroma. (The specimen removed by Dr. Schwyzer is before you.)

He gave no history of ever having had pain in his back and the prostate, on rectal palpation, showed a soft adenoma, the lobes of which could be seen projecting into the bladder.

The point I wish to emphasize is that this shows the justification for cystoscopic examination in cases of enlarged prostate. I could detail several striking cases with unusual pathological findings which would have been overlooked, had we not made a cystoscopic examination.

Dr. H. A. H. Bouman (Minneapolis) then read his inaugural thesis, entitled "Fibroplastic Typhilitis and Appendicitis."

DISCUSSION

DR. A. SCHWYZER: The Academy is to be congratulated to hear this interesting subject discussed so carefully by Dr. Bouman. It is of value to the surgeon especially. The fact that we have at times in inflammatory conditions, outside of acute perforation, an intense overgrowth of connective tissue, occurs in a great many places in the abdomen. The Doctor has mentioned hypertrophic ulcer of the stomach. Among a number of such cases one was a woman who, twenty years ago, was operated on and a very large ulcer was found at the pylorus. Nine months afterwards she was again operated on and a gastro-enterostomy was done. She was quite well for years then. About seven years afterwards I saw her. She was again vomiting practically everything, and an x-ray picture showed that this mass, which had apparently been as large as a man's fist, had dwindled away. A small streak of barium was indicating the pyloric antrum. The gastro-enterostomy was almost closed. We could see now a new ulcer that was far up on the lesser curvature. We again operated and found the gastro-enterostomy closed down to an opening in the mucosa of the size not more than a quill. We made a new gastro-enterostomy in the same place as before, and she is living to-day, twenty years after the first operation, when the case had been declared to be carcinoma of the pylorus.

Within two weeks I saw three cases of diverticula of the colon. They presented the three main conditions that will occur in these cases. One was combined with carcinoma of the colon. Another was giving practically no symptoms and was a case where we operated for gall-stones. The third case was a fibroplastic condition. She had subacute appendicitis, and when we operated on the appendix we made use of the opportunity of examining the sigmoid with the finger. There was an apparently inflammatory mass the size of a duck's egg. The x-ray showed diverticula. Now after seven weeks I saw her again and gave her gas to learn what the condition was, and the mass is hardly to be felt. It is surely much smaller. All the treatment she had was regular doses of mineral oil.

In one of my cases which the Doctor mentioned in his paper, the tumor was as large as an orange. On sectioning through the tumor it was a very interesting picture. Hard fibrous concentric layers were seen, and in the center of this mass were the remnants of a gangrenous appendix and a little pus. The mass was nearly double the size of a man's fist.

The condition is a very important one to keep in mind.

DR. ZIMMERMANN: Fibroplastic exudates, as described by Dr. Bouman, are most likely to be found in the same locations where we are most likely to find carcinoma, namely, in the region of the cecum, the stomach, and the rectum and sigmoid. One point of differentiation that I think is important is that in the case of fibroplastic exudates, although the texture of the tumor is almost as hard and as firm as carcinoma, one is usually conscious of going through inflammatory tissue and museles infiltrated with serous exudate before the tumor comes into view. This also applies to the differentiation between diverticulum of the sigmoid and a similarly situated carcinoma.

DR. G. SCHWYZER: In connection with Dr. Bouman's thesis I wish to mention a case which I observed before the x-rays were commonly used. An old lady of over sixty years came to us for stomach trouble. We made a diagnosis of possible carcinoma of the pylorus on account of a tumor which we felt in the region of the pylorus and on account of the very marked emaciation combined with a very low hemoglobin.

We operated and found, as we thought, a carcinoma of the pylorus. The tumor was about three inches long and of hard consistency. There was no doubt in my mind nor in the minds of the two physicians present at the time of the operation as to the nature of the growth. The run-down condition of the patient was such that a resection of the pylorus was not advisable. We, therefore, made a posterior gastro-enterostomy from which the patient speedily recovered. We advised the patient to return to us in about two months, expecting a general improvement and intending to add a resection for the carcinoma of the pylorus at such later time.

Upon reopening the abdomen we found to our great surprise a normal pylorus. No tumor was there. We were unable to discover any pathology.

Inasmuch as we do not find very much written in the English literature on the subject, I think we ought to report any such case which may fit into

this subject so well and carefully analyzed by Dr. H. Bouman.

DR. BOUMAN (closing): I wish to thank the gentlemen for their forbearance and particularly the Drs. Schwyzer and Hynes for the patients; without them I would not have been able to enlarge my surgical vision.

Regarding Dr. Zimmerman's remark, that we might suspect an inflammatory tumor from edema encountered in the skin: We did not see that, the general pathological procedure I have tried to describe. Bilharziasis, a disease occurring in Egypt and Arabia, should have been mentioned. The flukes remaining in the walls of the intestine are the reason for chronic inflammatory tumor formation.

As to Dr. Collins' question: The hyperplastic, allergic reaction may very well occur after appendectomy, but we hear of most of the cases before operation. As mentioned, the tumor may occur anywhere in the abdominal wall from any chronic irritation; the degree of allergy of a person is the important factor.

I thank you.

Dr. H. L. Ulrich (Minneapolis) read a paper entitled "Subacute Bacterial Endocarditis." Numerous lantern slides were shown.

The meeting adjourned.

JOHN E. HYNES, M.D.

Secretary.

BOOK NOTICES

PATHOLOGICAL TECHNIQUE. A Practical Manual for Workers in Pathological Histology & Bacteriology, including directions for the performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By Frank B. Mallory, M.D., Pathologist to the Boston City Hospital; and James B. Wright, M.D., Pathologist to the Massachusetts General Hospital and Assistant Professor of Pathology, Harvard Medical School. Eighth Edition, revised and enlarged. Octavo of 666 pages with 180 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth. \$6.50 net.

The first section of the book devoted to histological technic is especially well arranged. It gives an abundance of methods used in histological and pathological laboratories and should be useful as a reference book to students and technicians.

The sections on culture media and culture methods and microscopic examination of bacteria are greatly abridged and many valuable methods omitted.

The same criticism would apply to the sections on pathogenic bacteria and fungi and animal parasites; however it is not intended as an exhaustive textbook.

All sections of the book have an abundance of very good plates and illustrations which greatly enhance its value.

The last sections dealing with the blood, serological technic and post-mortem examinations are of the same high order as the first section.

As a whole it can be rated as one of the best reference books in the field it covers.

—FLOYD GRAVE, M.D.

THE MEDICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume III, Number 3, November, 1924. By Internists of Philadelphia. Octavo of 324 pages with illustrations. Per clinic year (July, 1924 to May, 1925.) Paper \$12.00 net. Cloth \$16.00 net. Philadelphia and London. W. B. Saunders Company.

This volume exhibits the usual variety of clinics well presented. Twenty-five contributions are given including various phases of internal medicine. Three unusual cases of heart disease in children are presented by Dr. Ralph Tyson. An excellent presentation of some cases of purpura and erythema multiform and their systemic manifestations is given by Dr. John H. Stokes. In this clinic were also included cases of factitial skin lesions, pruitus, and gumma of the lip. Other outstanding contributions were three cases of inanition edema following operation on the gastro-intestinal tract, presented by Dr. Charles C. Wolferth; a very instructive discussion of the "diaphragmatic pinch-cock" by Dr. Gabriel Tucker; a very unusual case of syphilis of the liver described by Dr. T. Grier Miller; a complete paper on hypoglycemia by Dr. Leon Jonas; and the presentation of three cases of delayed resolution in pneumonia due to syphilis, together with a stimulating discussion of this subject by Dr. Thomas Fitz-Hugh, Jr.

On the whole this number is very well worth careful perusal.

—LEO G. RIGLER, M.D.

THE TREATMENT OF COMMON DISORDERS OF DIGESTION. By John L. Kantor, Ph.D., M.D., Chief in Gastro-intestinal Diseases, Vanderbilt Clinic, Columbia University; associate Gastro-enterologist, Montefiore Hospital for Chronic Diseases, New York City. Price \$4.75. St. Louis, C. V. Mosby Company, 1924.

This small volume contains an admirable presentation of the best principles and objectives of treatment of the common digestive disorders. The various phases of gastro-intestinal therapy are considered separately, the different types of treatment outlined accurately, and serviceable working plans of procedure are presented. The chapter on ptosis is especially clear, concise and eminently sane, and deals with the medical treatment of a subject, which until recently, has received entirely too little attention in text books. The book is well written, and excellently illustrated. For the general practitioner who desires a brief, clear statement of the therapeutic aspects of gastro-enterology, this work can be heartily recommended.

A PRACTICAL TEXTBOOK OF INFECTION, IMMUNITY AND BIOLOGIC THERAPY with special reference to immunologic technic. By John A. Kolmer, M.D., Dr. P.H. Professor of Pathology and Bacteriology in the Graduate School of Medicine, University of Pennsylvania, with an introduction by Allen J. Smith, M.D., Professor of Pathology in the School of Medicine of the University of Pennsylvania. Third Edition. Thoroughly revised and mostly re-written. Octavo of 1,210 pages containing 202 original illustrations, 51 in colors. Philadelphia and London: W. B. Saunders Company, 1923. Cloth, \$12.00 net.

During the six years elapsing since the second edition of this work, considerable advances have been made, especially in the fields of immunity and

biologic therapy. The author has found it advisable to rewrite the chapters dealing with these subjects with the introduction of a very large number of changes of varying importance.

The descriptions of immologic methods and technique for administration of vaccines, etc., have been considerably amplified.

The chapters on precipitins, agglutinins, and complement fixation have been revised. References are made to the investigations of the author and his colleagues upon the standardization of the complement fixation test in syphilis, and a description of the new antigen and new method based on their studies is included.

New chapters have been added on hemagglutinins especially in relation to blood transfusion, and upon serum reaction in syphilis other than complement fixation reactions.

The chapters on "Anaphylaxis," "Allergy," and "Hypersensitiveness" have been almost entirely rewritten, and new chapters included on "Allergy in Relation to Infection and Immunity," "Clinical Allergy," "Allergic Skin Reactions," "Treatment of Humor Allergies," and the "Schick Test for Immunity to Diphtheria."

The chapters on vaccine and serum therapy have been largely rewritten and non-specific therapy included.

New chapters have been prepared on "The Principles of Active Immunization," "Prophylactic Active Immunization or Vaccination" in diseases of human beings and the lower animals, "Principles of Passive Immunization," "The Use of Sera in the Prophylaxis of Diseases and The Principles of Non-Specific Protein Therapy."

A new chapter is written on the "Biologic Therapy of Tuberculosis" and also a new chapter on "Blood Transfusion" with considerable attention to methods of transfusion.

Professor Kolmer has so enlarged and rewritten his book as to make almost entirely a new work. This third edition is so comprehensive and complete as to make it indispensable to the general practitioner as well as to the worker in that particular field.

—J. P. BARBER, M.D.

DISEASES OF THE CHEST AND THE PRINCIPLES OF PHYSICAL DIAGNOSIS. By George W. Norris, M.D., Professor of Clinical Medicine in the University of Pennsylvania, and Henry R. M. Landis, M.D., Director of the Clinical and Sociological Departments of the Henry Phipps Institute of the University of Pennsylvania, with a chapter on the Electrocardiograph in Heart Disease, by Edward Krumbhaar, Ph.D., M.D., Director of Laboratories of the Philadelphia General Hospital. Third Edition, Revised. 907 pages with 433 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth \$9.00 net.

This work is characterized by the liberal use of illustrations. The most valuable appear to be photographs of frozen sections from the cadaver. Anatomical relations are thus made clearer than is possible by description alone.

Dr. Norris in Part I discusses the examination of the lungs and in Part II examination of the circulatory system. The advisability of including the diseases of the chest and circulation in the same volume might be raised.

The sections on disease are also quite profusely illustrated with excellent pictures of gross pathological specimens.

The chapter on the electrocardiograph in heart disease by Dr. Krumbhaar is concise and valuable for the practitioner.

—C. A. MCKINLAY, M.D.

MANUAL OF OBSTETRICS. By John Cooke Hirst, M.D., Associate in Gynecology and Obstetrics Graduate School of Medicine, University of Pennsylvania; Associate in Obstetrics, School of Medicine, University of Pennsylvania. Second Edition, Entirely Reset. 12 mo. of 551 pages with 229 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$4.50 net.

This small volume, a companion book to his "Manual of Gynecology," is written with the same conciseness and clearness. The elimination of theory, the statistical, and the unproven, in this manual makes it ideal for the student and a practical ready reference for the practitioner.

Among the new things presented are the sugar tests for early pregnancy; tubal insufflation in sterility; glucose; intravenous glucose in pernicious vomiting; Potter's podalic version; extraperitoneal Cesarean section; disinfection of blood stream in puerperal sepsis; liver function tests in toxemias; Kielland forceps; etc.

—J. H. SIMMONS, M.D.

NEUROLOGIC DIAGNOSIS. By Loyal E. Davis, M.D., Associate Professor of Surgery, Northwestern University Medical School; Fellow of the National Research Council. 12 mo. of 173 pages with 49 illustrations. W. B. Saunders Company, Philadelphia and London: 1923. Cloth, \$2.00 net.

The author attempts in this book to correlate the known facts of nerve anatomy, physiology and pathology with clinical symptoms. Diagnosis is discussed under the headings: Motility, Gait, Electrical Reactions, Reflexes, Sensation, Cranial Nerves, Aphasia and Disorders of Speech, the Sympathic Nervous System and Trophic Disturbances. Fifty-six pages are devoted to diagnosis and the remaining pages of the text, 146, are given over to the presentation of twenty-four illustrative case reports.

This booklet can be recommended because it is essentially practical.

—J. C. MICHAEL, M.D.

THE 1923 COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION, Rochester, Minnesota. Octavo of 1377 pages, 410 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$13.00 net.

This collection of the reports and investigations of the Mayo Clinic and Foundation is remarkably comprehensive, not only in the purely clinical branches but in the laboratory and experimental phases of medicine.

Of these the latter seems more definite and better organized than previously. Although the present volume is eminently satisfactory in size and scope, it is a great disappointment to any one in search of detailed information. Nearly all of the articles are abridged to a degree in which both scientific and literary form suffer markedly. It is extremely unfortunate that what has previously been a valuable reference work must be turned into a rather bulky volume of abstracts.

—A. A. ZIEROLD, M.D.

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MAY 15, 1925

THE AWAKENING OF THE MINNESOTA STATE MEDICAL MEN

The fifty-seventh annual session of the Minnesota State Medical Association began its work with a meeting of the Council on Monday morning, April twenty-seventh, and in the evening of the same day the House of Delegates met. There are sixty members in the House of Delegates, and forty-six were present at the meeting. The Delegates carried out the business of the Association in a very prompt and satisfactory manner. They received reports from many committees after transacting the routine business of the House. The first committee to report was the Committee of Public Policy and Legislation. Dr. H. M. Johnson, State Senator from Dawson, read the report. He had spent the entire winter in St. Paul, during the session of the Legislature, and secured the passage of the bill for the restriction of the time in which malpractice suits may be brought. Dr. Johnson also gave a very comprehensive account of the passage of this bill, and also of a number of bills which were introduced that were antimedical,—introduced by cults or other groups of people ignorant of the subject which they were attempting to defend, such as the laws against vivisection and vaccination. The cults were extremely busy, but, unfortunately for them, they were split in their opinions, and their bills were all dropped by the wayside.

The Legislature apparently had a better understanding of the needs and requirements of medical men than they ever had before. They found there was no medical lobby there, but Dr. Johnson and his Committee, composed of Dr. E. A. Meyerding, Dr. Theodore Bratrud, Dr. C. B. Wright, and Dr. C. L. Scofield, were ready with their advice and assistance in enlightening the various legislators when they were in doubt about what points the bill intended to cover. Dr. Johnson also illuminated his report with various little side-lights which were entertaining, interesting, and amusing. He was evidently the right man, ably supported by his committee, to do just this sort of work, and as an appreciation of his services he was elected President of the Minnesota State Medical Association for the ensuing year.

The Editing and Publishing Committee presented a report of *Minnesota Medicine* and all that it had accomplished. The Association has grown now to 1952 members, a fairly substantial gain over last year.

The report of the Necrologist, Dr. Olga S. Hansen, of Minneapolis, simply gave a list of the men who had died during the last year.

The Committee on Hospitals and Medical Education tendered their report through the Chairman, Dr. N. O. Pearce, of Minneapolis, who, with others of his Committee, gave a very comprehensive report on the situation in general and plans for medical education throughout the state.

The Committee on Substitute Medical Defense, reported on by Dr. E. Starr Judd, of Rochester, had provided for a group system of insurance in one section of their report and in the next section a five-dollar assessment insurance similar to the defense fund which has been used for a few years past, and was adopted with the approval of "B," or Section 2. The final adoption of the report was the abolition of medical defense by the State Association with recommendation that either the men take out group insurance or take out individual insurance, whichever seemed to offer the best protection.

The attendance this year was very much larger than any other year in the history of the society. The actual registration reached a total of 741. Evidently the men found the meeting interesting enough so that they stayed over through the entire meeting and over into Minneapolis Clinic Week. Another evidence of good attendance was the banquet, which was held on Tuesday night in the Radisson Assembly Room at which there were approximately 550 men. It is very difficult to ascertain how many men are likely to attend a banquet, consequently at the last hour

the hotel was swamped by an additional number, about 150, who came in at seven o'clock. This banquet meeting was of particular importance on account of the number of speakers. Dr. W. J. Mayo acted as toastmaster, and among the speakers were the President of the Association, Dr. W. L. Burnap, who made a very happy address; Dr. Emil S. Geist, President of the Hennepin County Medical Society, to whom must be given the palm for a short speech, for his entire address lasted about a minute and a half, and was vociferously received. The address of welcome was given by Mayor George E. Leach, and he admitted he had been surrounded by doctors most of his life, not only at home but in the service, and now found himself surrounded by a large number of Minnesota medical men. Governor Christianson was there to respond to the toast "Minnesota," which he did very ably and in a very entertaining manner, and in which he boasted not only the state but the medical profession. "The Medical College" was the toast given to Dean E. P. Lyon, and he recited the various advantages of the Medical School and its progress and its difficulties, but ended by saying that it was better than ever and would certainly make further progress by the addition of other members to its faculty.

The principal speeches of the evening were delayed until the latter part of the program. Dr. Frank Billings, whom everyone knows, spoke of "Medical Practice To-day," in which he referred very earnestly to the necessity of the general practitioner coming more into the foreground. He strongly advocated the more careful examination of patients, and stated that he knew at least 200 patients, either doctors or members of doctors' families, that had come to him for examination who had never had their clothes off during an examination. This, he thought, was a slipshod method of examining patients, and he assumed that if it existed among doctors and their families it existed in outside patients, in general practice.

Dr. Billings is still young in the service of medicine, still keen and active, and he gave some very good advice which the younger men should appreciate.

The President of the American Medical Association, Dr. W. D. Haggard, of Nashville, Tenn., spoke on "The American Medical Association and the Future of Medicine." He began his talk with several choice southern stories which were interesting and entertaining and brought him great popularity. But he stuck to his text when he reached it, and covered the field with sufficient

thoroughness. He is a very delightful speaker, and has a clear, clean-cut voice, and a clear enunciation.

On account of the large attendance the meeting which was scheduled for the Anatomical Auditorium had to be transferred to the Chemistry Building, and even that could not accommodate the people who came to hear the Monday evening program,—the program especially selected for the benefit of presidents and secretaries of the county and district societies. The first speech was by Major Irving H. Madison on "National Defense," in which he spoke of the necessity for the development of a medical army service and its function in the defense of its soldiers. Next in order was that of Dr. W. C. Woodward, of Chicago, on "Obligations of the Physician," which followed very closely the lines mapped out by his subject, the necessity of the physician carrying out his obligations to a patient, once he had accepted that patient, whether he liked to or not. He also spoke of the fact that no doctor was obliged to take a case; that he could refuse a call or attendance upon an individual if he was unable to respond or for any other good reason, but that when he once took hold he must continue until his services were no longer needed, or he found that he was unable to cope with the situation. This brought up the subject of malpractice.

Following Dr. Woodward, Mr. Peterson, of Oppenheimer, Peterson, Dickson & Hodgson, attorneys for the Minnesota State Medical Association, talked on "Do's and Don'ts for the Medical Man." Mr. Peterson was very pithy and witty, and at times very serious, and he told of several cases of malpractice that simply were blackmailing cases. He told of the dangers the physician is constantly under, the possibilities which may arise under all sorts of conditions in the misfortunes of the doctor.

Fred E. McLucas, Chief Counsel for the Medical Protective Company, of Fort Wayne, Indiana, talked on "Corrective Judicial and Legislative Measures," in which he cited several decisions by the Supreme Court of Minnesota that were distinctly prejudicial to medical men. The decisions had evidently been handed down from year to year, and no effort had been made to correct the wording of the decisions or the final outcome of the case. The result was sometimes very prejudicial to the doctor because of this misconception of the attitude of the medical witness on the part of the judge; that a witness could come into Court and give his opinion against a fellow practitioner and it would stand

as stated although the witness might modify his answers. But the outstanding feature was that the witness for the plaintiff, in giving his opinion, left the deepest impression.

Dr. Frank Billings spoke at this meeting on "Periodic Medical Examinations," and urged their adoption, giving various citations as to their value, and the necessity of physicians following a distinct method and using a common history blank so that eventually these opinions might be filed, if necessary. He stated that a most important effort was made in the Kings County Medical Society, of Brooklyn, N. Y., where the medical men began to examine one another; and they found, in their examinations, that about 25 per cent of the men examined suffered from a disease which they knew nothing about, and had not even suspicioned its presence. If that be true, it is about time the rest of the population were thoroughly examined.

Dr. H. M. Johnson, of Dawson, spoke on "State Legislation," and gave some very interesting accounts of his experience with the legislators. He told how anxious they were to get a correct opinion on what the medical men thought and their reasons for advocating the passage or the killing of a bill in the legislature. He laughingly commented on the public hearings which were held on various occasions, and cited the instance where the vivisection bill came up for public discussion; he stated that the entire floor of the house was packed, all the galleries were full, and every corridor and entrance to the room was filled, and packed with people. He said he did not know so many "nuts" existed in the state of Minnesota, yet he knows now. Of course, the public hearing of a bill does but little good, but it gives the cranks and cultists an opportunity to air their feelings and shout their defiance or appreciation of what the Legislature might do.

Dr. N. O. Pearce talked on "The Medical School and its Relation to the Practitioner." Dr. Frank J. Savage spoke on the "Medical Radio Talks." It is evidently the plan of the Committee on Broadcasting to continue its work under direction of the state or county societies, and, as the writer understood, broadcasting of medical topics was to be given by medical men only. That will keep out the non-medical man and the man who is opposing medicine.

The last evening of the meeting was given over to an entertainment provided by the Hennepin County Medical Society, on Wednesday evening, and was sponsored by a live committee, of which Dr. F. A. Erb was chairman. We feel like complimenting Dr. Erb on his optimism and

his expectation of a large crowd. He was right in his speculation, and it is said there were nearly 600 men at the entertainment in the evening, which consisted of vaudeville acts, singing, and sparring matches. Evidently the doctors liked this sort of thing for they stayed on until twelve o'clock, when the last man was "knocked out." Among those on the Entertainment Committee were Dr. F. G. Benn, Dr. Andrew Sivertson, and Dr. R. J. D. Lyon. These men were responsible for the general methods of the committee and details of arrangements; they saw that tickets were sold, that the entertainment provided was good, and they looked after the needs of their guests both at the banquet and at the smoker. Of course, behind all of the Hennepin County Medical men stood President Emil Geist, who had very carefully selected his committees, and great honor is due him for his thoroughness.

The other local committees were the Committee on Exhibits, the Committee on Lantern Slides and X-Ray, Committee on Telephone Service, Signs, etc., Committee on Clinics and Scientific Exhibits, and the Committee on Clinical Material. All of the material which was used in the clinical parts of the state program, as well as for the intensive dry clinic day of Minneapolis Clinic Week, was sought out by this last-named committee.

Last, but perhaps not least, was the Golf Committee. Evidently there were not very many men who played golf, judging from the large attendance at the State and Clinic Week programs.

THE PROGRAM

The program of the Minnesota State Association this year was a little different from that of previous years, in that there were joint meetings on two successive mornings in the Engineering Auditorium on the Campus, in which there were nothing but clinical demonstrations, the exhibition and demonstration of patients, or the use of lantern slides; and a very entertaining and inspiring set of subjects was brought out. In the afternoon the Association was divided into surgical and medical meetings. Perhaps more doctors were present at the surgical meeting than at the medical, but the accommodations for the medical men were so limited that the hall was packed, and there was not sufficient air space, and yet the program went on. The usual discussions were permitted so that anyone could discuss whatever he chose. This increased the length of the program at the afternoon meetings, but was apparently well received, although, as usual, after a man has listened to medical topics

for a couple of hours and particularly in a close room his attention becomes much less marked.

The Clinical Section of the Hennepin County Medical Society believed it could successfully follow the State meeting with a three-day clinic presentation. The result of the first dry clinic at the Auditorium of the Anatomical Building was extremely satisfactory. The dry clinics began at 8:30 A. M. on Thursday, and continued until 5:00 o'clock in the afternoon. Each man was given thirty minutes in which to present his cases, and Dr. Arthur T. Mann, who was the Chairman of the day, held them absolutely to the line, so that there was no overlapping; there was no discussion of the cases, and consequently the program went off in a very snappy and entertaining manner. Every man was able to present his patients, or to give his lantern-slide demonstrations, on time, and the meeting adjourned at twelve o'clock noon, to begin promptly again at two o'clock in the afternoon. The unfortunate editor of THE JOURNAL-LANCET gave a dry clinic in which he had three patients with congenital brain defects, and much to his amazement one of the patients pulled off a dramatic few moments by having a definite epileptiform seizure. The editor was accused of staging this purposely, but he declines all responsibility because his patient simply had a fit!

The subject matter of the clinics covered obstetrics, goiter, sinuses, the colon, eye diseases, the acute abdomen, acrodynia, and a series of unusual gastro-intestinal lesions; prostatic cases, dislocation of the carpal semilunar bones, Volkman contracture, surgery of the stomach and bowels, neurological surgery, and plastic surgery in some of its phases.

The attendance at the dry-clinic day was very good, better than last year. The following days were given up to hospital clinics, confined to a few of the larger hospitals in Minneapolis, and the reports came in that these were very successfully conducted.

The next meeting of the Association is to be held in St. Paul in 1926, and if the program can be improved upon it will require the assistance of an extra fine committee.

POLITICS AND PUBLICITY

The necessity of a better organization of the state and county medical societies was brought up by several speakers in order to bring before the public in a striking yet inoffensive manner the accomplishments of medicine in Minnesota. The secretaries and presidents of the various societies, component and county associations, were

urged to appoint a committee to organize in a better way, and to attend their meetings in order that they should retain their interest in medicine. Although it has been said time and again that the medical men of Minnesota have been more or less drowsy for two or three years, the political situations and the necessity of publicity have succeeded in stirring them up. When we refer to the political situations we mean the matter of getting the doctor into politics. He sometimes goes to his legislator for favors which he knows are good for the public, but as soon as the bill, or bills, in which he was interested are passed he forgets the man who did him a service, with the result that the feeling between the legislator and the doctor has not been of the best. It was suggested that each doctor write a personal letter to his senator and representative, thanking them for the interest they had taken in the medical side of politics and offering to support them, or any other good men, at election time. We are all too prone to forget our friends for the time being, and we must learn to make them our friends for all time.

The Publicity Department of the Minnesota State Medical Association and the Minneapolis Clinic Week Committee carried on their work in a very active manner under the direction of Dr. Meyerding, the Secretary. The newspapers were particularly generous with their space. They not only commented on the meeting, but gave brief abstracts of papers that were presented to the Association and in the Clinics. This was done under the direction of Mr. Arthur, the assistant-secretary of the Minneapolis Civic & Commerce Association, and to him thanks are due for his work, which was not at all advertising in its character, simply a plain statement of what was done and what was reported at the meetings. It is rather unfortunate that we cannot do more of this, to give the public a wider interest in medical matters. But if the various county societies organize as they are instructed to do, the whole state will be organized, at least so far as the medical men are concerned, and they can accomplish a great deal if they will keep it on a reasonable basis and make it a general and wide explanation of medical topics as related to the health of the people. They can also do, as has been said before, a great deal with and for the legislator by explaining medical problems to him, by getting his point of view, and giving him their point of view, and then continue their attitude of friendship and loyalty. This idea of politics and publicity is not in any way to be construed as an effort on the part of the

Medical Association to boost themselves, but really to boost the public and do constructive rather than destructive work.

CORRESPONDENCE

THE MINNEAPOLIS GENERAL HOSPITAL AND THE JUDD BLOCK

TO THE EDITOR:

In your issue of May 1, there is an editorial on the Minneapolis General Hospital situation. Your readers may receive the impression that not only certain members of the mayor's hospital committee but also the 120 physicians who signed a petition regarding the matter more or less were influenced by a real estate firm who supposedly is behind the deal. May I state that the mayor's hospital committee knew nothing of the owners of the Judd block and that no member either in the majority or minority group had any intention of knowing anything about them. The 120 physicians made no reference to the Judd block whatever, and therefore may I ask you to publish the petition in full to which they subscribed, to-wit:

"We, the undersigned, practitioners of Medicine and Surgery in the city of Minneapolis, hereby declare that we are opposed to the proposed moving of the General Hospital across the river in proximity to the University.

"We are mindful of the needs of medical education as well as of the medical needs of the city of Minneapolis and its needy population.

"We believe the Medical School cannot reasonably expect anything more from the city than what it has now at the General Hospital as all clinical material in the hospital is at its service.

"We feel that the University's contribution to medical knowledge need not be limited in any way by keeping the General Hospital where it is and continuing the present basis of relations which have been and are pleasant.

"We believe that the General Hospital *must, first of all, serve the citizens of Minneapolis* and can at its present location continue also to serve the needs of the medical school in the future as it has in the past."

This petition needs no explanation.

Yours truly,

C. M. ROAN, M.D.

Minneapolis, May 5, 1925.

NEWS ITEMS

Dr. J. C. R. Charest has moved from Murdock to Marshall.

Dr. Charles A. McDonald has moved from St. Paul to Dennison, Ohio.

Dr. A. I. Arneson, who has been practicing in Minneapolis, for a year, has decided to return to Austin to resume practice in that city.

Dr. C. E. Persons, of Marshall, has retired as a member of the Board of Education of that city after thirty years service in that position.

The Ancker Hospital, of St. Paul, has placed an embargo on visitors to the hospital for a period of three weeks to prevent the possible spread of any contagious diseases.

Dr. Kenneth S. Caldwell, of St. Paul, has been assigned by the Government to the medical units of St. Paul and Minneapolis in charge of the post office employees of the two cities.

Dr. George L. S. Schulze, of Minneapolis, died last week at the age 63. Dr. Schulze graduated in medicine in Germany in 1889 and began practice in Minnesota in 1891. He practiced in Minneapolis over sixteen years.

The national vital statistics for 1924 in 26 states keeping proper registration have just been published. North Dakota shows the lowest death-rate, namely, 7.1 per thousand. Minnesota stands fifth in the list, with a rate of 9.7.

A recent survey of South Dakota showed that in thirty-two counties of the state there are 127 crippled children in need of State aid, while in the other counties there are no needy children. An appropriation of \$4,000 a year has been made for the help of such children.

Dr. Henning F. Wiese, Graduate of Christiania University, Oslo, Norway, formerly a fellow at the Mayo Clinic and later associated with the Middlefurt Clinic at Eau Claire, Wisconsin, is now associate surgeon at the Sivertsen Clinic, Minneapolis.

Fergus Falls is to have a postgraduate course of lectures during the first two weeks in June. Physicians and specialists from the Twin Cities, the University of Minnesota, Rochester, and Duluth will give the course, and clinics will be given at different points in the Park Region during this period.

Drs. A. G. Chadbourn and L. D. Tiedemann, of Heron Lake, have become associated in the management of the Southwestern Minnesota Hospital of that place. Dr. Chadbourn purchased the hospital from Dr. A. J. Moe, now of the Moe Hospital, Sioux Falls, S. D., seven years ago, and has conducted it since.

The meeting of Minneapolis Clinic Week in connection with the State Medical Association was a decided success, a large number of physicians remaining in the City to attend the Clinics of the two extra days (Friday and Saturday). This was highly gratifying to the Clinical Section of the Hennepin County Medical Society.

The Women's Auxiliary of the Minnesota State Medical Association elected the following officers at their annual meeting a few days ago: President, Mrs. Dr. F. C. Rodda, Minneapolis; vice-president, Mrs. Dr. O. E. Oredson, Duluth; second vice-president, Mrs. Dr. W. L. Burnap, Fergus Falls; third vice-president, Mrs. Dr. Wade Humphry, Stillwater; recording secretary, Mrs. Dr. George Hagaman, St. Paul.

President Coffman, of the University of Minnesota, authorizes the statement that the acceptance by the City of Minneapolis of land on or near the Campus does not bind the City to remove the General Hospital at once or at any specified time to the new site. The removal could be effected gradually over a term of years, and the buildings on the new site could be erected in units as the need of the City required.

It is confidently believed that the annual meetings of the North and South Dakota State Associations next week will show the same markedly increased interest that has been seen in many medical society meetings during the past year or two, largely due to a new style of program, notably the dry clinics. The physicians of these, as of all others states can greatly benefit the profession and the public by attending their state meetings.

There were three outstanding features of the fifty-seventh annual meeting of the Minnesota State Medical Association held this month in Minneapolis. The attendance was over seven hundred; the attention given to the meeting by the daily papers of the Twin Cities and the other papers of the state was quite unprecedented in both amount and quality; and the brevity and snappiness of the papers presented were also notable.

At the next meeting of the Lymanhurst Hospital Staff, on May 26, to which all physicians are invited, papers will be presented as follows: "Tuberculous Empyema," by Dr. Willis S. Lemon, of the Mayo Clinic; "The Ground Rail vs. the Open Highway," by Dr. E. P. Lyon, Dean of the Medical School of the University of Minnesota; and "Arrangements for Teaching Tuberculosis in the University of Minnesota," by Dr. S. Marx White.

The following officers were elected at the annual meeting of the Minnesota State Medical Association last week: President, Dr. S. M. Johnson, Dawson; first vice-president, Dr. W. F. Braasch, Rochester; second vice-president, Dr. Arthur N. Collins, Duluth; third vice-president, Dr. E. G. McKeown, Pipestone; secretary, Dr. E. A. Meyerding, St. Paul; treasurer, Dr. Earle R. Hare, Minneapolis. Drs. H. M. Workman, Tracy, and J. G. Millsbaugh, Little Falls, were re-elected councilors, and Dr. F. J. Savage, St. Paul, succeeded Dr. Longstreet Taylor, St. Paul, as councilor in that district. Dr. Litzenberg, Minneapolis, was re-elected delegate to the A. M. A. meeting with Dr. W. L. Burnap, Fergus Falls, alternate. The next meeting (1926) of the Association will be held in St. Paul.

THE TWENTY-FIRST ANNUAL MEETING OF THE NATIONAL TUBERCULOSIS ASSOCIATION MINNEAPOLIS, JUNE 17-20

The National Tuberculosis Association will meet in Minneapolis, June 17-20. The occasion is notable in that this is the twenty-first, or "coming-of-age," meeting of the Association, and it is also the first time in the history of the organization that the annual conference has been held in this section of the country.

A Nurses' Institute on Tuberculosis, arranged for June 15 to 19 is, it is understood, the first Institute of the kind to be held. The Extension Division of the University of Minnesota and the Hennepin County Tuberculosis Association are co-operating closely in preliminary arrangements for the Institute whose sessions will dovetail with the sessions of the Nursing Section of the N. T. A.

An Institute for Physicians, under the general direction of Dr. Allen K. Krause, recognized as America's foremost authority on tuberculosis will be held the week following the Conference, at the University.

Among the physicians of note on the program of the Conference are the following:

Dr. Haven Emerson, professor of Public Health Administration, Columbia University, and former health Commissioner of New York City; Dr. Linsley R. Williams, managing director of the National Tuberculosis Association; Dr. Edward Archibald, Chief of Department of Surgery, McGill University, Montreal; Dr. D. A. Stewart, medical superintendent, Manitoba Sanatorium, Ninette, Canada; Dr. Gerald B. Webb, noted tuberculosis expert of Colorado Springs, Colo.; Dr. J. A. Britton, medical director International Harvester Co., Chicago; Dr. Louis I. Dublin, New York and Dr. William J. French, medical director, Child Health Demonstration, Fargo, N. D.

Miss Kathryn Radebaugh, executive secretary of the Hennepin County Tuberculosis Association, is planning an innovation in the Conference program, in arranging for a special public meeting at a down-town theater, with a program that will interest the laity more than the highly technical conference sessions are likely to, although all sessions are open to the public.

Miss Radebaugh in inviting all nurses who are interested in the Nurses' Institute on Tuberculosis to write to Miss Eula B. Butzerin, University of Minnesota, for information and all physicians interested in the Physicians' Tuberculosis Institute to write Dr. N. O. Pearce, care of the Hennepin County Tuberculosis Association, for full information.

SOME POINTS ABOUT THE 21ST MEETING

1. The program is of first importance. Sectional Chairmen are assigning up-to-the-minute topics to nationally recognized authorities known to treat their subjects in a direct, snappy fashion. For the detailed program, consult the April issue of the N. T. A. Bulletin.

2. Special arrangements are being made for delegates to visit Minneapolis' recently completed 600-bed tuberculosis sanatorium (Glen Lake Sanatorium) ten miles out in the country. The American Sanatorium Association will meet there all day Tuesday, June 16.

3. A Nurses' Institute on Tuberculosis will be held June 15-19 at the University of Minnesota with its sessions dovetailing with the sessions of the Nursing Section of the N. T. A. For further information write Miss Eula Butzerin, U. of M.

4. A similar course for physicians will be held the following week at the University under the general direction of Dr. Allen K. Krause. The clinical sessions of these institutes will be held at Glen Lake Sanatorium. For further information write Dr. N. O. Pearce, Minneapolis.

5. The play winning first prize in the National Health Play Contest will be produced during the week.

6. All delegates to the Conference will be invited to visit Lymanhurst School, a nationally unique Minneapolis institution for tuberculous children.

7. Thomas Hospital and Veterans' Hospital No. 68 are the local hospitals for tuberculous ex-service men. Other institutions of interest are the Minneapolis General Hospital with its 700 beds, the University Hospital, and numerous private hospitals.

8. Minneapolis in June is Minneapolis at her best. Sunny skies, lake and river breezes, miles of tree-bordered, winding boulevards.

9. The "Health Follies"—an evening of nonsense—will be put on just for ourselves at a downtown theater. We shall hit off our peculiarities and laugh at ourselves, just for fun.

10. If you like to dance, you'll begin to pack at once. At least three informal evening dances with orchestras playing divinely. One is to be at a country club, the others equally delightful.

11. A half dozen beautiful country clubs within a few minutes ride of the center of the city will offer recreation opportunities to N. T. A. visitors.

12. Minnesota—a paradise in vacation time. Ten thousand lakes of sky-blue water, cabins and lodges nearby, pine trees,—the great outdoors calling you to come and fish, rest, and play at the end of the motor trail.

13. Motor to Minneapolis, or come by train at the special rate for the N. T. A. of a fare and a half the round trip.

14. The Conference City is located conveniently for the East and West, the South and Canada, and is handy for everyone in the Central and Mid-Western states.

Specialist Wanted in Minneapolis Clinic

A pediatrician and nose and throat man is wanted for association in a Minnesota clinic. Address 213, care of this office.

Work Wanted by Technician

A thoroughly competent technician who studied in the Medical School of the University of Minnesota wants work. Will accept moderate salary. Best of references. Address 211, care of this office.

Eye, Ear, Nose and Throat Practice for Sale

Established in Minneapolis twenty-three years. Will sell thoroughly equipped office of three rooms and joint waiting room, with lease, records, and good will. Will introduce buyer for one or two years and retire. Wonderful opportunity for man wishing to specialize and step into large urban practice, which can be largely increased. Address 200, care of this office.

Associate or Partner Wanted

Doctor financially able to buy an equal interest in a clinic group now being formed, also to take charge of a branch office located only 40 miles from Minneapolis. Wanted at once. Preferably Scandinavian. If previously engaged in any specialty please so state in first letter. Large territory. To competent man short of funds a commission arrangement will be made. Address 214, care of this office.

Office for Rent in St. Paul

Dental suite, common reception room with physician, completely furnished. Consists of operating-room, private office, and laboratory. Very modern. Alternating and direct current, compressed air, and gas. Bowl in operating-room, sink in laboratory, hot and cold water. X-ray laboratory available in suite. Best location in city. Corner 6th & Wabasha Sts. Operating-room faces Wabasha St. Six foot window for name display. Address Dr. W. B. Lande, 205 Midland Trust Bldg., St. Paul, Minn.

Associate Wanted by An Eye, Ear, Nose, and Throat Specialist

An Eye, Ear, Nose, and Throat man, experienced, will assist a busy small town doctor in general practice, taking as remuneration only what special work is referred or can be done in the locality. A good opportunity for an agreeable associate who will not compete in general medicine or surgery. For details address 210, care of this office.

A Practical Course in Standardized Physiotherapy

Under auspices of Biophysical Research Dept. of the Victor X-Ray Corporation, is now available to physicians. The course offers a highly practical knowledge of all the fundamental principles that go to make up the standards of modern scientific physiotherapeutic work. It requires one week's time. For further information apply to J. F. Wainwright, Registrar, 236 South Robey St., Chicago, Ill.

Laboratory Technician Wants Position

Graduate nurse, experienced in routine laboratory work, including Wassermanns, blood chemistry, and microscopy. Prefer work in small hospital or doctor's office in Twin Cities. Excellent references. Address 208, care of this office.

Physician Wanted

A good doctor for country practice in a large territory from eight to twenty-five miles; 48 from Minneapolis, and 18 miles from St. Cloud; on paved road and the Northern Pacific Railway; buses every hour. Address J. M. Putney, Mayor, Becker, Minn.

Wanted by Pharmacist

An institutional position is desired by a registered pharmacist (lady). Two years' hospital experience, and has the B.S. and Ph.G. degrees. Address 217, care of this office.

Locum Tenens Wanted

In North Dakota for one or two months in North Dakota, beginning June 1; cash salary and maintenance. Give references and full data in first letter. Address 219, care of this office.

Practice for Sale

A village and country practice for sale. Village of 1,100 population; excellent schools and churches. An excellent opportunity for a Norwegian of ability. One doing eye, ear, nose, and throat work preferred. Instruments and books for sale cheap. Am retiring from practice on account of failing health. Address P. O. Box 263, Kasson, Minn.

Minneapolis Offices for Rent

Very desirable space to sublet. Inquire 812 Besse Building, Minneapolis.

Practice for Sale

An \$8,000.00 practice in a town of 1,000 in central Minnesota. One other physician in town. Otherwise competition is 17, 11, 12, and 5 miles. Collections good. Address 202, care of this office.

Laboratory Position Wanted

A male technician, graduate of accredited school, desires appointment in laboratory. Well qualified to do Wassermanns, blood chemistry, bacteriology, urinalysis, tissue technique, basal metabolism estimation, and all forms of clinical microscopy and blood work. Address 199, care of this office.

Nurse Wanted in South Dakota Hospital

Who is trained in giving anesthetics, can do office work, etc., and who is willing to learn to give diathermic treatments. If you can take x-ray pictures it will be advantageous, but not essential. Salary \$100 a month with board and room. Address 206, care of this office.

Fine Offices with Dentist in Minneapolis

Dr. J. T. Carpenter (Dentist) will share his offices on the second floor of the Hulet Building (Seventh and Hennepin) with a physician. Dr. Carpenter has been in this location for 20 years. Reception room finest in city. Services of office girl and telephone free. Rent very reasonable. Call or telephone (Geneva 2118).

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THE POTENTIALITIES OF A CLINICAL-PATHOLOGICAL CONFERENCE, WITH ILLUSTRATIVE CASES*

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INTRODUCTION

A combined clinical and pathological conference affords an excellent and interesting method of studying clinical medicine and pathology. In such a conference, the clinical records of a single fatal case or group of cases are discussed by a clinician, the post-mortem findings of the same case or cases are then described by a pathologist, and the clinical diagnoses justified from the available data are compared with the post-mortem findings. We have selected four cases from the Mayo Clinic to illustrate the potentialities of such an exercise.

CASE I

CLINICAL FINDINGS

CASE 1—A girl, aged 17, entered the Mayo Clinic September 4, 1924, with swelling of the face, legs, and abdomen.

Family history: The father, mother, and one brother are living and well. No tuberculosis or cancer. Several relatives have kidney trouble.

Previous history: The patient had had whooping-cough, chicken-pox, measles, and adenoidectomy several years ago.

Habits: Not remarkable.

Menstrual history: Menstruation began at thirteen; slightly irregular; flow scanty; lasts only two days; slight pain on day before onset.

Present illness: In June, 1922, the patient came to the Mayo Clinic because of nasal obstruction, which had been present for five or six years, accompanied by frequent sneezing and a profuse watery nasal discharge. With this she had increasingly severe attacks of hay fever, beginning in the middle of August and persisting until the first frost, and asthma. About three or four months before, she had noticed persistent swelling and tenderness in the upper cervical lymph nodes.

Physical examination: The patient's weight was 110 pounds. The cervical nodes on each side were enlarged. The tonsils were enlarged, and there were fibrous plugs of exudate in the crypts. The blood pressure varied from 140-95 to 126-70. The urine ranged in volume from 150 to 800 c.c. and contained large amounts of albumin, had a specific gravity of from 1.009 to 1.031. It did not contain sugar; the sediment contained a few red cells, a few leukocytes and occasional hyaline casts. The phenolsulphonephthalein excretion was 40 per cent. The hemoglobin was 69 per cent, the erythrocytes numbered 4,000,000, and the leukocytes 6,200. The eye-grounds and heart showed nothing unusual. There was no edema.

A tonsillectomy was performed under local anesthesia without undue reaction. Six months later (December, 1922) the patient said that her general health had been good since the operation and that she had gained in weight. The urine, however, was reported still to contain blood and pus.

A year later (June, 1923) the patient felt well. She was now noticing occasional puffiness of the ankles and face, and the urine contained large amounts of albumin. A phenolsulphonephthalein

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test at about this time showed 60 per cent function.

Two years later (June, 1924) the patient reported that she felt pretty well until a few months before, when she had an acute respiratory attack which was called "grip," but which was followed by edema and dyspnea on exertion. Subsequently there had been repeated attacks of edema, increasing dyspnea on exertion, frequent headache, and a progressive dimness of vision.

In July, 1924, the patient was compelled to enter a hospital elsewhere, where the following findings were obtained: Hemoglobin, 40 per cent; erythrocytes, 3,480,000, and leukocytes, 8,550. The blood pressure was 198-124, decreasing after six weeks rest to 170-108. The urine contained a large amount of albumin, red cells, leukocytes, and many hyaline, granular, and epithelial casts. The phenolsulphonephthalein excretion was 15 per cent in two hours. The non-protein nitrogen was 80, the urea nitrogen 56, the uric acid 11, and creatinin 2, 3, and 5. The carbon dioxide was 20.2 volumes per cent. The sugar was 0.11 per cent. During the patient's stay in this hospital oliguria was almost constant with gain in weight of twenty pounds so that her weight on dismissal was 141 pounds. On admission there was a left-sided hydrothorax, which required three tapplings to remove. The fluid was sterile.

Finally the patient re-entered the Mayo Clinic September 4, 1924. She now weighed 125 pounds, and was badly swollen, having edema in the arms, legs, abdomen, and chest. The heart was shown to be hypertrophied, both by physical examination and x-ray. The blood pressure was 142-98. The urine contained albumin 2, red blood cells 2, pus 1 and 2, and hyaline, granular, and waxy casts. The volume was never large. The eye-grounds showed edema of the discs, exudate, and fresh hemorrhages. The hemoglobin was 47 per cent, the erythrocytes numbered 3,500,000, the leukocytes 8,400. The blood urea nitrogen was 109, the carbon dioxide 71 volumes per cent. Despite treatment the patient gradually became comatose and died October 2, 1924.

DISCUSSION OF THE CLINICAL FINDINGS

DR. FITZ

Here is a young girl who has been under observation for more than two years, at first without symptoms to suggest kidney disease but finally developing a typical picture of chronic nephritis and uremia. As one reads the history, one feels certain that in 1922 when the patient was first seen, nephritis was present because at that time the blood pressure was elevated and the urine contained albumin and casts. However, the renal function was normal, there were no eye-ground changes, there was no anemia and no evidence of heart failure or peripheral arteriosclerosis. Doubtlessly the patient was carefully examined for all possible foci of infection and the diseased tonsils were removed in the hope that the destruction of such a possible focus of infection might delay the progress of the disease. The operation was performed under local anes-

thesia without undue reaction. This fact is important because tonsillectomy or any minor operation in nephritic cases may be followed by an acute and serious exacerbation of the disease.

Whether the tonsillectomy was beneficial or not in this case is speculative. In any event, the patient got along comfortably for almost two years, when she developed an acute respiratory infection. This infection, apparently trivial in itself, was immediately followed by symptoms pointing to a progressing nephritis. The rôle of repeated infections in the course of a nephritis of this type is probably of considerable importance. A nephritic patient is not unlike a diabetic patient in certain respects: there may be a level of renal tolerance which stays relatively constant for long periods of time, and which may be markedly lowered by an intercurrent infection of any sort. After the tolerance has once been lowered it is regained with surprising difficulty. Too often the nephritic patient after an infection must live at a lower level of efficiency and comfort than before the infection and becomes progressively worse as infections of any sort are repeated.

In July, 1924, we have all signs of an advanced and active renal lesion. The urine contained albumin, blood, leucocytes, and granular and epithelial casts, as well as hyaline casts. The renal function, judged by the phthalein test and blood chemistry, was seriously impaired; there was a marked secondary anemia, and the blood pressure was much higher than in 1922.

From this time on the patient failed, as one might have expected from the clinical findings of July, and finally died of uremia. It is interesting that in July the patient should have had an acidosis as measured by the blood bicarbonate while in September there should have been a slight alkalosis. Perhaps she had received alkali. The rise in the blood urea nitrogen from 56 in July to 109 shortly before death, is fairly characteristic and shows the prognostic value of the test.

I believe that this patient had chronic nephritis with edema and terminal uremia. Because of the patient's age it is probable that the essential lesion was in the glomeruli and that arteriosclerosis was not an important factor. There was evident cardiac hypertrophy and dilatation associated with the nephritis and long standing hypertension. Since there were no signs of congestive heart failure there is no reason to suspect the presence of any marked chronic passive congestion of the viscera, and there is no evidence of such relatively common terminating complications of nephritis as acute pericarditis or ulcerative colitis.

Clinical diagnosis: chronic glomerulonephritis; cardiac hypertrophy and dilatation.

RÉSUMÉ OF POSTMORTEM EXAMINATION

Principal Lesions: Length, 167 cm. (5 feet 7 inches), weight 105 pounds (underweight 34 pounds). Edema (grade 3) of feet and ankles. Ascites, 1,500 c.c., slightly opalescent. Extensive pleural adhesions. Heart weight, 320 grams. Lungs: Edema and congestion of dependent portions, scattered nodules of caseation-necrosis from 1 to 4 cm. in diameter. Caseation in hilus nodes. Spleen weighs 32 grams. Numerous miliary nodules scattered through pulp. Liver weight, 1,515 grams; occasional miliary nodules in pulp. Ulceration in duodenum. Ileum: Ulceration of Peyer's patches and solitary lymph follicles in lower portion, increasing toward valve, and with a few in cecum. Tubercles on peritoneal surfaces of these ulcers. Mesenteric lymph nodes caseous. Kidneys: Weight, each 168 grams; color pale and yellowish; markings irregular, consistency increased.

Anatomic Diagnosis:

1. Chronic glomerulonephritis, with ascites, anasarca (2) and anemia (3).
2. Generalized chronic tuberculosis.
3. Hypertrophy of heart (320 grams) and spleen (332 grams).
4. Ulceration of duodenum.
5. Emaciation (3).
6. Arteriosclerosis (1).

DISCUSSION

DR. ROBERTSON

The point of chief interest in this case, aside from the main lesion which stands out so prominently, is the hidden generalized chronic miliary tuberculosis which probably represents an exacerbation of an old miliary tuberculosis, practically healed. This fact can readily be appreciated from the microscopic character of the tubercles and the quite clear evidence of their recent accessions of activity. We may readily conclude that it is only because of the very large diminution in the specific resistance of the host, perhaps by reason of the nephritis or some of its associated complications, that the tuberculosis was allowed to flare up. The ulceration in the duodenum is probably not tuberculous but a manifestation of the frequency with which these lesions occur and are undetected during life. In the kidney are the clear evidences of the rather chronic stages of proliferative activities of the glomerulus and its capsule, which constitute the fundamental lesion of glomerular nephritis.

CASE II

CLINICAL FINDINGS

A physician, aged 58, entered the Mayo Clinic May 30, 1924, complaining of shortness of breath on exertion.

Family history: Unimportant.

Previous history: At the age of three the patient had had "rheumatic fever, endocarditis, and nephritis." At fifteen "rheumatic fever and pericarditis." At twenty "pericarditis and effusion." Between the ages of twenty and thirty he had two attacks of "heart trouble" with edema and afterward had had "numerous attacks of rheumatism," but was able to carry on his profession until six months before, when, following a heavy meal, he suddenly became dyspneic. Since then he had been in bed most of the time and very short of breath on even the slightest exertion. On two occasions within the last few months he had had oliguria at which times the urine contained a great deal of albumin. During the ten days previous to admission he had observed edema of the extremities and "enlargement of the liver," and he secreted but little urine. He has been taking digitalis steadily.

Habits: Unimportant.

Physical examination: The patient was well developed, undernourished, obviously cyanotic, and dyspneic. The heart was markedly enlarged in percussion; rate absolutely irregular in force and rhythm. An apical systolic murmur was transmitted in all directions. There was a rough to-and-fro murmur at the aortic area and to the left of the sternum. The blood pressure was 130-70. The liver was palpable across the epigastrium. There was moderate edema of the legs. The pulse was 76; temperature, 97° to 100°; respiration normal. The hemoglobin was 86 per cent. The erythrocytes numbered 4,880,000, and the leukocytes, 8,700. Specific gravity of urine was 1.024, acid, albumin 3, a few blood cells and leukocytes in the sediment. The phenolsulphonephthalein excretion was 30 per cent, urea nitrogen 64. The Wassermann reaction was negative. Roentgenograms of the heart revealed enlargement 4.

Electrocardiogram: Ventricular premature contractions. Slurred QRS in Lead II; left ventricular preponderance; inverted T in Leads II and III.

Course: Patient's condition remained much as on admission until June 2, when he had a severe nose bleed and several attacks of paroxysmal dyspnea. June 6 he complained of pain in the left leg. June 9 he vomited and developed difficulty in breathing. June 11 he died suddenly.

DISCUSSION OF THE CLINICAL FINDINGS

DR. FITZ

Here is a patient of fifty-eight complaining of shortness of breath on exertion with an antecedent history of rheumatic fever in repeated attacks and with two attacks of pericarditis. From such a story we must suspect rheumatic heart disease and all its complications.

The heart muscle must have been surprisingly efficient despite the repeated rheumatic infections since after the age of thirty the patient was able to work for twenty-eight years without much discomfort. During the six months previous to death there were symptoms of progressive heart failure which were not benefited by rest and digitalis. This fact is important: cases of heart

disease which do not improve perceptibly with rest and digitalis usually have a hopeless outlook.

The heart, as should be predicted from the history, was markedly enlarged to percussion and by *x*-ray examination. The rate was absolutely irregular in rate, force, and rhythm, a finding which suggests auricular fibrillation. On the other hand, the electrocardiographic tracing shows that the auricles were not fibrillating, but that the irregularity was due to extra systoles. The abnormal ventricular complexes noted in the second and third leads of the cardiogram may have pointed to an underlying myocarditis or may have been due in part to the long continued use of digitalis.

The apical systolic murmur as described means but little. It may have been due to a relative or true mitral insufficiency. There are no signs of mitral stenosis as evidenced by any apical diastolic murmur or thrill. The absence of auricular fibrillation, also, is against mitral stenosis. The to-and-fro murmur at the base of the heart suggests a lesion at the aortic or pulmonary valve. The relatively low pulse pressure speaks against any marked aortic insufficiency; and while the rough systolic murmur, the relatively low pulse rate, and the marked degree of cardiac hypertrophy suggest an aortic stenosis, yet there were no thrills and no characteristic pulse wave. The murmurs may have been due, conceivably, to a lesion at the pulmonary orifice. There are no signs of congenital heart disease, such as clubbed fingers, no thrills, and nothing in the shape of the heart to suggest a congenital lesion. An acquired pulmonary lesion is possible in rheumatic heart disease, but is very rare. Functional insufficiency of the pulmonary valve, with a so-called Graham-Steel diastolic murmur does not usually occur in the absence of well-marked mitral stenosis.

On the whole, therefore, the murmurs as described are of relatively little significance. The chances are that in view of the rheumatic history they were due to organic lesions of the mitral and aortic valves. On the other hand, the repeated attacks of pericarditis bring up the possibility that the patient had a resultant chronic adhesive pericarditis and that the murmurs were of no diagnostic importance. The diagnosis of chronic pericarditis at present is largely a matter of chance. Such signs as Broadbent's sign, a paradoxical pulse, or failure of the apex impulse to shift with change of position are inconclusive. The *x*-ray does not help unless calcification of the pericardium is demonstrable. Characteristic electrocardiographic tracings cannot always be

obtained with the patient in various positions. Therefore, while we have good reason to suspect the presence of chronic pericarditis from the history, we have no definite evidence from the physical signs with which to justify such a diagnosis.

Finally we know that many cases of rheumatic heart disease develop myocardial lesions as well as endocardial or pericardial lesions. Clinically, rheumatic myocarditis may manifest itself by partial or complete heart block or by other signs of myocardial disease best as shown by electrocardiographic tracings. In this case we can logically suspect the presence of chronic myocarditis of rheumatic origin from the history, but we have no positive evidence for such a diagnosis unless we lay great stress upon the abnormal ventricular complex of the electrocardiogram, and, as already mentioned, this may have been due to the toxic action of digitalis.

The dyspnea, the enlarged liver, and the edema of the legs are manifestations of congestive failure and are of no particular significance.

The urine with a specific gravity of 1.024 contained a large amount of albumin and red cells and leucocytes in the sediment. This finding coupled with a phthalein excretion of 30 and a blood urea nitrogen of 64, is noteworthy. Most cardiac cases with chronic passive congestion alone, have a urine of high specific gravity and slight albuminuria, a relatively normal phthalein excretion and a normal blood-urea concentration. Our patient supposedly had one attack of nephritis in the past and more recently at least two attacks of marked oliguria with albuminuria. While the recent attacks may have been due to heart failure or possibly to renal infarction, yet the persistent presence of a high degree of albuminuria and a high blood-urea figure should make us suspicious of a chronic nephritis which has been coincidental to the heart lesion.

Cases of long standing heart failure such as this are likely to develop mural thrombi in the heart. I wonder whether the several attacks of paroxysmal dyspnea, the leg pain, and the sudden exitus were not due to embolism from intracardiac thrombosis?

On the whole, I believe that the patient died of heart failure due to rheumatic heart disease. On the chances there are valvular lesions of the mitral and aortic valves, there may be a chronic adhesive pericarditis and a chronic myocarditis, all the result of repeated attacks of rheumatism. There is certainly chronic passive congestion of the liver, and probably of the spleen, kidneys, and lungs. There may be a well-marked chronic nephritis which has developed along with the

heart lesions and which gives the clinical manifestation of albuminuria and a greater impairment of renal function than is usually found in renal congestion alone. The character of the history and the acute symptoms before death justify the tentative diagnosis of intracardiac thrombosis with embolism in lungs and leg.

Clinical diagnosis:

Rheumatic heart disease with cardiac hypertrophy and dilatation.

1. ? Valvular disease of mitral and aortic valves.

2. ? Chronic adhesive pericarditis.

3. ? Chronic myocarditis.

4. ? Intracardiac thrombi.

Chronic passive congestion of viscera.

Chronic glomerulonephritis.

? Pulmonary embolism.

? Embolism in vessels of left leg.

RÉSUMÉ OF POST-MORTEM EXAMINATION

Principal lesions: Length, 172 cm. (5 feet, 9 inches); weight, 150 pounds. Ascites (1,000 c.c. clear fluid). Pleural cavities: Numerous fibrous adhesions. Healed tubercles in lung pulp. Caseous lymph nodes at bifurcation of trachea. Pericardial cavity obliterated by fibrous adhesions. Heart weight, 960 grams (normal, 300 grams). Left ventricle hypertrophied and dilated. Aortic leaflets thickened and shortened. Mitral cusps thickened.

Spleen weight, 189 grams; healed tubercles in pulp. Gall-bladder contained about 30 stones. There is cholesterosis (1+). Left kidney, 215 grams; right, 210 grams. Surfaces coarsely granular and dark red. Aorta, sclerosis (grade 2). Around the aorta and thoracic duct dense connective tissue thickening.

Anatomic Diagnosis:

1. Chronic aortic and mitral endocarditis with insufficiency, hypertrophy (960 grams), and dilatation of left ventricle.

2. Chronic adhesive pericarditis.

3. Chronic passive congestion of liver, spleen and kidneys.

4. Chronic diffuse nephritis.

5. Chronic aortic lymphadenitis with perilymphadenitis of thoracic duct.

6. Old healed tuberculosis of lungs and spleen with tuberculous pleuritis and lymphadenitis.

7. Arteriosclerosis (2).

8. Cholelithiasis (30+ stones).

DISCUSSION

DR. ROBERTSON

This heart has reached almost the extreme outer limit of weight which the human heart can attain. This fact can to a certain degree be explained by the presence of an insufficiency of the mitral valve, perhaps a stenosis of the aortic, and a very definite oblitative pericarditis. It is also fairly certain evidence that the myocardium itself has only suffered in the later stages of this man's existence and this suffering came more

from a final failure to meet demands by further hypertrophy than from any inherent disease. There are evidences throughout the body, particularly along the aorta, that the man has suffered with a chronic infectious condition of lymph nodes, lymph channels, and other tissues of the body, particularly the gall-bladder. We find no flare-up of the old healed tuberculosis, as the passive congestion of cardiac failure does not tend to promote this. One further point needs emphasis, namely the dilatation of the left ventricle. This lesion can hardly be appreciated clinically with any clear degree of certainty, but it is probably of fundamental concern in cases of cardiac insufficiency.

CASE III

CLINICAL FINDINGS

A woman, aged 42, entered the Mayo Clinic December 26, 1923, complaining of pain in the chest and shortness of breath.

The family history: Unimportant. The patient had been married twice, at twenty and twenty-five. Her first husband died of heart trouble. Her second husband was living and well.

Previous history: The patient had had measles, scarlet fever, and meningitis when young. She had had one miscarriage; there were no living children. The menstrual history was not abnormal.

Habits: Unimportant.

Present illness: In 1918, six years before admission, the patient had noticed considerable "gas on the stomach" accompanied by "heart-burn" and palpitation. She felt weak and dizzy, and when she exerted herself unduly she was short of breath. An examination at this time showed the blood pressure to be 168-90. The Wassermann reaction and x-ray examination of gastro-intestinal tract were negative.

In 1921, three years before admission, the patient began to have severe stabbing, substernal pain, radiating across the chest and down the left arm into the elbow. She was pale and dyspnoic. Subsequently the attacks, lasting from three to fifteen minutes, became more frequent until they occurred almost every day. They were brought on by exertion after a heavy meal; sometimes they occurred at night and were relieved by standing. She required four pillows to sleep on. An exploratory laparotomy elsewhere in 1921 did not bring relief of digestive symptoms. She was constipated, and there were frequency and urgency of micturition during the painful attacks.

Physical examination: The patient was well developed and nourished; she weighed 162 pounds. Both breasts were hypertrophied. The heart measured 3 by 12 cm. There was a systolic murmur over the aortic area transmitted down the sternum, and the second sound was slightly roughened. There was a moderate degree of peripheral sclerosis. The heart's action was regular, 98. The blood pressure varies between 174-80 and 142-68. There are a few loud râles over the left bronchus but no sign of consolidation. The specific gravity of the urine was 1.023, acid, and albumin and sugar-free. The sediment was negative except for occasional leukocytes.

The hemoglobin was 89 per cent, erythrocytes numbered 4,320,000, leukocytes 8,300. The Wassermann reaction was strongly positive. Electrocardiogram (during an attack) showed the rate to be 108. Ventricular and nodal premature contractions. Inverted T in Lead I, II, and III.

Roentgenogram of the chest showed nothing of clinical significance.

During the patient's stay in the Clinic she had several severe attacks of precordial pain. Finally, within a few minutes after an attack, which was relieved by nitroglycerin, she died suddenly.

DISCUSSION OF THE CLINICAL FINDINGS

DR. FITZ

Here is a woman of forty-two complaining of pain in the chest and shortness of breath, without an antecedent history of rheumatic fever or chorea. She has been married twice, her first husband dying of heart trouble. It would be interesting to know of what form of heart trouble the husband died, at what age, and whether suddenly or of long-continued heart failure. The patient herself has had one miscarriage and no living children, a fact which may or may not be significant.

Six years ago she noticed indefinite digestive symptoms, palpitation and dyspnea, and was known to have had a high systolic and a high pulse pressure. At that time, no other evidence of cardiovascular disease was apparent despite the history of dyspnea, and attention was focused upon the gastro-intestinal tract.

Three years ago she began to complain of angina pectoris. The attacks of precordial pain, brought on by exertion or a full meal, radiating across the chest and down the left arm, accompanied by pallor, and relieved by rest are so typical as to outweigh any other possibilities. It is interesting, however, that an exploratory laparotomy should have seemed indicated at that time. Angina pectoris may simulate attacks of biliary colic or even the chronic painful indigestion of peptic ulcer and may be relieved by such digestive remedies as whisky, castor oil, or bicarbonate of soda. I imagine that the gall-bladder was examined with particular care at this time and that the operation was performed for suspected gall-stones.

The attacks of precordial pain persisted in spite of the operation and the shortness of breath increased so that the laparotomy was not a successful therapeutic procedure.

Physical examination, except for the cardiovascular system and the Wassermann reaction, was negative. The heart was enlarged, there was a systolic murmur and a short diastolic murmur heard loudest at the base of the heart and trans-

mitted down the sternum, the pulse pressure was elevated, and the Wassermann reaction was strongly positive, signs all pointing to syphilitic aortitis. It is interesting that the retrosternal dullness was not increased and that the chest x-ray plate showed nothing of clinical significance. Usually in syphilitic aortitis the fluoroscope shows a widened and rather expansile pulsation in the region of the aorta.

During the period of observation the patient had several attacks of precordial pain relieved by nitroglycerin, a point throwing additional evidence in favor of their anginal character. None of the attacks were severe enough or of long enough duration to suggest coronary occlusion, nor did the electrocardiogram show characteristic tracings. There were no other signs or symptoms to suggest syphilis or other diseases elsewhere. On the whole, therefore, I believe that the patient had syphilitic aortitis and that there was also an accompanying coronary sclerosis so often found in these cases of aortitis with symptoms of angina pectoris.

CLINICAL DIAGNOSIS:

Cardiac hypertrophy and dilatation.

Syphilitic aortitis.

Sclerosis of the coronary vessels.

RÉSUMÉ OF POST-MORTEM EXAMINATION

Principal lesions: Length 157 cm. (5 feet, 4 inches), weight 150 pounds. Breasts hypertrophic. Appendectomy scar in abdomen. Heart weight 340 grams. Thickening and retraction of aortic valve leaflets, with obstruction of openings of coronary arteries and marked scarring and distortion of root of aorta. Remaining portions of aorta show scarring, particularly in the arch, with numerous fine linear striations. Calcified lymph nodes at the hilus of each lung, and one calcified subpleural nodule in pulp. Left kidney, 192 grams; right 212. Hydrosalpinx with tubo-ovarian adhesions on each side.

Anatomic Diagnosis:

1. Luetic aortitis with aortic valvular insufficiency and stenosis of both coronaries.
2. Hypertrophy (340 grams) of heart and kidneys (404 grams).
3. Bilateral hydrosalpinx with chronic pelvic peritonitis.
4. Old healed tuberculous pleuritis and lymphadenitis with healed pulmonary tuberculosis.
5. Hypertrophy of breast (3+).

DISCUSSION

DR. ROBERTSON

This case illustrates the specificity, as well as the severity, with which a luetic lesion can attack individual organs or tissues. The aorta affords a beautiful example of luetic aortitis with whitish alternate raised and depressed scars, extending throughout the entire wall's thickness, and the fine parallel linear striations representing

depressions caused by adventitial fibrosis. In the adventitia itself are perivascular collections of lymphocytes, in some cases simulating the beginnings of tiny gummata. The changes in the aortic leaflets and the obstruction to the coronary arteries are secondary manifestations of the aortic disease which, however, gave primary clinical signs and symptoms. The coronaries were so nearly entirely closed as to hardly admit the point of a pin. Beyond the opening, however, the coronary arteries were in good condition, as were practically all the other aortic branches. This again is a remarkable manifestation of the localization of this lesion. Accessory lesions which are illustrated by the microscopic examination of the tissues of this case show hypertrophic local changes in the breasts, uterus and kidneys. Some of these constitute potential basis for carcinomata and are an almost constant finding in people past middle age.

CASE IV

CLINICAL FINDINGS

A woman, aged 55, entered the Mayo Clinic September 14, 1924, complaining of shortness of breath. She had had no significant illness in the past. The menopause had occurred four years before. Her habits were normal.

Present illness: About 1915, nine years before, the patient first noticed the gradual onset of shortness of breath and failure in strength. She had visited the Clinic in December, 1923. Her weight was 218 pounds. The heart was enlarged with a systolic murmur in the aortic region. The blood pressure was 210-160. The eye-grounds showed edema and exudate. The electrocardiogram showed left ventricular preponderance, inverted T in Lead III aberrant QRS waves in isolated derivations. The hemoglobin was 76 per cent. Erythrocytes numbered 4,071,000, the leukocytes 10,800. The Wassermann reaction was negative. The specific gravity of the urine was 1.018; no sugar; albumin, 2; and occasional hyaline casts in the sediment. The phenolsulphonephthalein excretion was 40 per cent (intravenous). The blood urea was 33; creatinin 1.8. Under treatment she lost twenty pounds; the diastolic pressure fell to 130.

For the next six months (until June, 1924,) the patient was fairly comfortable. Then she developed temporary aphasia and numbness of the ulnar side of the right arm. Two months later (August, 1924,) she suddenly developed marked dyspnea and orthopnea, which persisted until her return to the Clinic in September.

Physical examination: On examination the patient weighed about 200 pounds. There were marked orthopnea and dyspnea; icteroid sclera; much retinal sclerosis with old hemorrhages, and fresh exudates in both eyes. The thyroid was enlarged; there were multiple adenomas in both lobes. The heart was markedly hypertrophied and dilated, so that the apex impulse was felt in the anterior axilla. There was a loud systolic murmur at the apex transmitted to the axilla. The peripheral vessels were thickened

and sclerosed. The blood pressure was 240 and 160. There were scattered râles through both chests, but no signs of pleural effusion. The liver was felt four inches below the costal margin, and was tender to pressure. There was marked edema over the sacrum, and in both legs.

The urine was of small volume, contained large amounts of albumin, no sugar, hyaline and granular casts, no blood and a few leukocytes. The hemoglobin was 70 per cent, the erythrocytes numbered 4,000,000, and the leukocytes 16,800. The blood urea was 91, and the creatinin 3.9.

The patient gradually grew worse and died September 19; the blood urea forty-eight hour before death was 134.

DISCUSSION OF THE CLINICAL FINDINGS

DR. FITZ

Here is a woman of fifty-five complaining of shortness of breath on exertion, as in the two last cases, and, as in the previous case, without any antecedent history likely to cause valvular heart disease. We know that she developed her first symptoms of dyspnea at least nine years before death, but there was no evidence of syphilis, and that almost a year ago she had hypertension and evidence of kidney and heart disease, as shown on the one hand by albuminuria, hyaline casts in the urinary sediment, and eye-ground changes, and on the other hand by cardiac hypertrophy, an abnormal electrocardiographic tracing, and a basal systolic murmur.

From the history and these findings I get the impression that we are dealing with a very common type of case, the important underlying condition being chronic vascular disease. It is of this type of case that Sir William Osler wrote his paper "On the advantages of a trace of albumin and a few tube casts in the urine of certain men above fifty years of age." This paper was published in the *New York Medical Journal* in 1901 and deserves much re-reading.

Patients with non-syphilitic vascular disease may live for years without any particular discomfort and even with high blood pressures. However, the disease is usually generalized, more or less progressive, and will eventually produce serious manifestations in the brain, heart, pancreas, kidney, or extremities. If the vessels of the brain are particularly affected the patient develops cerebral hemorrhage or progressive mental changes; if the vessels of the heart are particularly affected there is angina pectoris or chronic myocarditis and heart failure; if the vessels of the pancreas are particularly affected there is diabetes; if the vessels of the kidneys are particularly affected we get the picture of chronic nephritis and renal insufficiency; and if the vessels of the extremities are particularly involved

a superficial infection may cause gangrene.

I believe that this case is a good example of advanced arteriosclerosis. That cerebral sclerosis was present is suggested by the temporary aphasia and numbness of the right arm described in June. These symptoms may well have been due to a small cerebral hemorrhage. That cardiac sclerosis was present is suggested by the symptoms of dyspnea and orthopnea, by the physical signs of cardiac hypertrophy and by abnormal electrocardiogram noted a year before death. The systolic murmur heard at the base of the heart is usually present in these cases, and in the absence of other signs does not signify valvular disease. That renal sclerosis was present is suggested by the long-continued hypertension with a high diastolic pressure, by the urinary findings, and by the final blood chemical changes. That peripheral sclerosis was present is evident from the description of the peripheral vessels. To make the picture complete, the patient should have had a high blood-sugar concentration and glycosuria.

Clinical diagnosis:

Arteriosclerosis.

1. Cerebral sclerosis.
2. Cardiac sclerosis with chronic myocarditis, cardiac hypertrophy and dilatation.
3. Renal sclerosis with chronic vascular nephritis.
4. Peripheral sclerosis.

Chronic passive congestion of viscera.

RÉSUMÉ OF POST-MORTEM EXAMINATION

Principal lesions: Length, 169 cm.; weight, 190 pounds (40 pounds overweight). Heart weight, 838 grams (normal 275 grams). Scars on pleura, no calcification at either hilus. Spleen weight, 261 grams. Liver weight, 1,737 grams. Left kidney, 160 grams; right, 142. Cortical scars on both kid-

neys. Atherosclerosis of aorta and branches (3+). Brain: Multiple hemorrhages, particularly in the left posterior central gyrus and the mid brain.

Anatomic Diagnosis:

1. Malignant (essential) hypertension with hypertrophy (838 grams) of heart and fatty and fibrous changes in myocardium.
2. Multiple hemorrhages into brain.
3. Chronic diffuse nephritis (arteriosclerotic (?)).
4. Chronic passive congestion of lungs, liver and kidneys.

DISCUSSION

DR. ROBERTSON

In discussing the relations of the lesions of such a typical case of hypertension as this one, the pathologist is always at a disadvantage. He quite usually finds a large heart, definite arteriosclerosis and more or less localized atrophy of the kidneys. Whether one of the three lesions constitutes the primary one, or whether all three are dependent upon another entirely external factor, has proved a source of endless discussion. This case does not serve to settle the question. Two features deserve special mention. One is the large size of the heart, without any anatomical explanation therefore. Even if shortly before death high blood pressure could not have been recognized, as occasionally happens, the inference of a pre-existing hypertension would be almost inevitable. The second point is the appearance of the muscular walls of the adrenal veins; the extreme hypertrophy of the longitudinal bundles of muscle that sometimes occurs on the walls of the adrenal vein is well illustrated in this case. It is quite possible that the adrenal glands are an important factor in maintaining blood pressure and perhaps the hypertrophy of the muscle on the wall of these veins in individual cases is coincident with an increase in vascular tension.

FIBROPLASTIC TYPHLITIS AND APPENDICITIS: PSEUDO OR CHRONIC INFLAMMATORY TUMORS OF THE ILEOCEAL REGION*

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Motto:—

Wenn Eener dauhn deilt, wat hei deilt,
Denn kann hei nich mehr dauhn, as hei deilt.

The recent experience of the writer with two cases of fibroplastic growths in the abdomen,

presenting the usual difficulties in achieving a correct diagnosis is the occasion of this report of cases and analysis of the literature on the subject.

CASE 1.—Mrs. C., aged 57, native of Bohemia. Father and mother lived to very old age. Two sisters and two brothers are alive and well. Mar-

*Presented before the Minnesota Academy of Medicine, March 11, 1925.

ried at twenty; has borne one son. No history of miscarriages or of other severe illness. First noticed pain in right quadrant of the lower abdomen two years ago. Obstinate constipation usually and subject to occasional so-called bilious attacks with vomiting as the abdominal condition became worse. Loss in weight, about twenty-five pounds.

Examination on June 31, 1920, showed a very much emaciated woman, who appeared much older than her years. Lungs, negative. Heart, soft systolic murmur at apex with occasionally an extra systole. Hemoglobin, 60 per cent; red blood count, 2,800,000; White blood count, 9,000. Stained smear, normal. Urine, negative. The abdomen was flaccid, showing nothing abnormal except an irregular tumor in the right lower quadrant occupying the region of the cecum. The tumor mass was like a large orange in size, moderately tender, immovable from its location. Manipulation could not alter its form or outline. The percussion note was dull. The body could be seen on inspection, but there were no movements of the intestines.

No change developed under ten days of observation at St. Andrews Hospital except that the patient's weakness increased. She was scarcely able to take any nourishment, vomited more regularly and more frequently, and passed gas only occasionally. Through the kindness of Dr. J. E. Hynes the writer at this time became associated on the case, when a tentative diagnosis was made of malignant tumor of the cecum requiring an attempt to relieve the obturation.

A transverse incision was made to approach the cecum laterally. On separation of the muscular bundles of the transversus a little milky fluid escaped. A sponge was put into the opening, gloves were changed, this part of the wound covered, and the abdomen entered at the mesial extremity of the incision. A normal ileum was found entering a tumor mass as large as a big fist. It consisted of cecum, firm, inelastic, smooth of surface, and immovably fixed to the parietal wall. The colon immediately above appeared normal and rather free from adhesions. As further exploration seemed unwise, no other changes were noted. Consulting with

Dr. I. A. Preine, present, an ileocolostomy was made and the abdomen closed. For four or five days fecal material drained from the wound, and she had more or less regular bowel movement at the same time. Vomiting ceased. The patient felt quite well and gradually became able to take care of the proper amount of food. The wound closed about the twelfth day and within a few months Dr. Hynes reported the tumor to be gradually disappearing. At this writing the woman is still well and able to do her work.

For the second case the writer is indebted to the courtesy of Dr. Gustav Schwyzer.

CASE 2.—Mr. J. G., aged 60, street railway employee. Entered the Northwestern Hospital April 24, 1922.

Diagnosis: appendicitis and intestinal obstruction.

His father died at 39, his mother at 70; death causes in both cases unknown. Five brothers are living and well. Best weight, 140 pounds; present weight 100 pounds. Never seriously ill; has had no accidents.

About a week before coming to hospital he was

seized at night with severe abdominal pains and vomiting. After having taken a physic, he felt somewhat relieved, but the pain continued intermittently. In the afternoon of the day of hospital admission his temperature was 102°; his pulse, 110. He did not look very sick and rested comfortably in bed. Physical findings were negative except that he exhibited pyorrhea, a coated tongue, a papilloma on the neck, and tenderness with rigidity over the right lower quadrant of the abdomen. Malignancy was suspected.

Dr. Schwyzer operated the morning of April 25, 1922, removing the growth on the neck and exploring the abdomen. Besides a subacute appendicitis there presented a heavy-walled cecum and a tumor-like mass pertaining to the omentum. The appendix and a small section of the omentum were removed. The first bowel movement was recorded on April 25, the second on April 28, with movements more or less regularly thereafter. The patient made a normal recovery and was discharged on May 16, 1922.

Dr. M. Smith, pathologist, reported as follows: Tissue from neck showed basal cell carcinoma; tissue from abdomen showed chronic inflammatory tissue.

The patient returned to work and got along fairly well except for irregularity of bowel movements (usually constipated) until August 14, 1923, when during the night he was seized with sudden severe pain in the abdomen. Vomiting soon developed and later diarrhea, and then distention with no movement at all. The diarrheal stools had been watery and scant. Crampy and intermittent pain persisted.

On August 16, 1923, he was sent to the hospital with a provisional diagnosis of intestinal obstruction, and, in the absence of Dr. Schwyzer, the writer was called on the case. The man did not look well. His temperature was 99°, his pulse 80. A tumor-like mass presented in the ileocecal region and resistance was noted in the whole right abdomen. Distention was moderate with very little tenderness; leukocytes, 12,700; urine, normal. The roentgenological investigation revealed a patent bowel lumen. The cecum, though free from any filling defect, mesially was in intimate connection with the tumor mass. The man was not operated on. His symptoms gradually disappeared, and he was discharged on August 23, 1923. Dr. Turnacliiff reported some six weeks later that the tumor had gradually diminished. The man is doing well at present and is busy at his usual work.

Inflammatory or pseudotumors of the large bowel were described by Virchow in 1853. Reports of clinical cases became numerous about twenty years ago. Moynihan, Braun, L  jars, Mayo Robson, and others record patients with growths in the abdomen diagnosed as malignant who after surgical treatment, radical or palliative, surprised the surgeons by remaining well for years and by the final disappearance of the tumor mass. The title of Moynihan's paper, "The Mimicry of Malignant Disease in the Large Intestine," is illuminating.

For a long time tumors of the ileocecal region

were considered to be malignant or actinomycotic, or tuberculous until Schloffer, Braun, and others showed that streptomycosis, as well as staphylococcosis, and infections with the bacterium coli might also cause similar growths. Quite a few of these tumors—the so-called Schloffer tumors—have been reported following hernia operations, and they have been observed after other surgical measures in any part of the abdominal wall. There are gastric and peptic tumors and those of the gall-bladder and the omentum. The small intestine is very rarely the seat of these formations, while the big bowel is the most favored of all. Diverticulosis and diverticulitis (hernia mucosae) follow the vessels and often cause palpable growths, which are encountered most frequently about the sigmoid. The ileocecal tumors may follow an appendectomy, but most often proceed from a subacute appendicitis. Laewen has given us the name "appendicitis fibroplastica" and has grouped the clinical growths as follows:

1. Tumors not connected with an appendicitis: Phlegmonous inflammations of the colonic wall, usually proceeding to death from perforation and peritonitis, but occasionally continuing to chronic fibroplastic formations.

2. Tumors arising from the appendix without inclusion of the appendix itself: (a) appearing in the anterior or posterior wall of the colon or as an inflammatory tumor of the abdominal wall or as a perityphlic callosity in the retroperitoneal tissue; (b) appearing in the adjacent structures involving sections of the intestines or omentum, forming fibrous callosities and conglomerate tumors.

3. Tumors of which the appendicitis is a part, remaining more or less circumscribed and involving the cecum and lower ileum in continuity. A few cases have been described in which the fibrous induration was limited to the appendix and its mesentery.

Some authors wish to limit the term pseudotumor to the proliferating fibroplastic formations. Others include the hypertrophic strictures and the inflammatory infiltrates of the intestinal wall following an acute process of the whole gut, which may disappear spontaneously or by a simple operation of excluding the section affected. In practice it seems impossible to make these distinctions. We are therefore compelled to deal with things we are finding at the bedside, and determine as tumor, reserving distinct and final diagnosis till opportunity permits.

Patients with a tendency to form adhesions after laparotomies are many, but those inclined to grow inflammatory tumors are seldom seen.

The largest series (15) we found reported by von Bergmann of Riga. It is believed that certain individuals possess special forces of protection (allergy), calling our attention forcefully to the individual constitution as a powerful factor in combating and shaping disease. The propensity to produce excessive scars and adhesions is said to be observed particularly in more or less nervous people.

In discussing indurating ulcers of the stomach, Mandel speaks of a status neurotonicus ventriculi. Laewen names it a fibroplastic diathesis. The appendix and parts of the large bowel resemble the structure of the tonsil. Their submucosa is rich in lymphatic tissue; and, like the tonsil, says Aschoff, they have an abundance of mucous folds and deep crypts.

Predisposing conditions favoring fibroplastic proliferation are the long-continued stay of feces lacking the impeding influence of gastric juice, the great number and variety of bacteria, and an unfavorable blood supply. The exciting cause is probably a continued irritation most frequently effected by bacterial infection, less often mechanically by foreign bodies or fecal stones, or chemically by fat necrosis. At a kink or behind a stone a primary epithelial defect is started from which the inflammation spreads into the overlying layers, advancing in a wedge-shaped formation toward the serosa, the apex being at the mucosa.

What we palpate as tumor in the ileocecal region is usually not the intestine alone, but a conglomerate growth consisting of the diseased gut as the center, agglutinated to the neighboring structures, such as the omentum and the abdominal wall, also involved in the change. The inflammatory or pseudotumors as described in the literature have distinct structural features in common. They are hypertrophic, cicatricial processes with large indurations growing from huge proliferation of all the tissues composing the gut with the exception of the mucous membrane. This disproportion of the light lesion in the mucous coat and the gross changes in the rest of the wall is the outstanding feature which often determines the course of the disease and its symptomatology. In some cases, especially following dysentery, the mucosa may ulcerate extensively so that agglutination and atresia result. The changes described do not represent a clinical cure, however. They included on the contrary within them foci which maintain a more or less active chronic inflammation. Their development is insidious extending over a period of months and years. The inflammatory process may light

up sooner or later and lead to perforation and peritonitis, or regeneration may again take place and result in a heavy scar of the gut wall which narrows its lumen.

The microscopical picture is one of chronic inflammation. There is round-cell infiltration. The submucosa, especially involved, is fibroplastic, cicatrix-like, with the cells diminished in number toward the periphery. The muscularis is soggy with serum and spread apart by bands of connective tissue, and in places it is entirely replaced by dense fibrous material. Foci of granulation tissue may be seen and spaces filled with pus. The blood vessels do not show any changes as in lues, such as gummatous infiltration of the vessel wall, obliterating endarteritis, and endophlebitis. The serosa is much thickened and fibrous, showing round-cell infiltration and formation of new blood vessels. There is serous extravasation productive of fibrin deposits upon its surface agglutinating with the adjacent organs, thus giving rise to the so-called conglomerate tumors. The fibroplastic process is especially pronounced in the omentum.

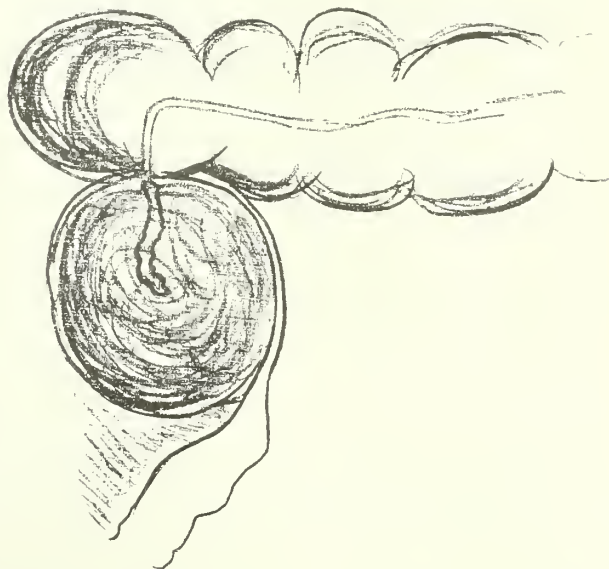
Within these tumor masses and between the different structures composing them, fistulae and abscess cavities may occur containing pus which is often sterile. Beneke, Fraenkel, and others have held that these growths are usually due to primary tuberculosis, but other careful observers have disproved this opinion, failing, in spite of the most painstaking search to find, even far away from the locality involved, any giant cells of Langerhans or any follicles showing tuberculous changes.

Owing to the slight lesion of the mucous coat mentioned, the intestinal tract remains silent for a long time. There are neither mucous nor bloody stools, and evidence of narrowing of the lumen of the bowel appears very late in the process. In the majority of cases the tumors develop insidiously, very slowly, and almost without symptoms. While some patients present themselves with symptoms of a low-grade and long-continued infection and vague discomfort in the abdomen, many come with the tumor complete, without being conscious that they carry such a thing. Others, again, after intestinal disturbances, such as diarrhea and constipation over a period of years, finally notice the growing mass in the abdomen. The outstanding clinical symptom, however, is the large, inelastic tumor, usually indistinct in outline, and often adherent to the abdominal wall of which a satisfactory history is lacking. The nodular, hard quality, characteristic of neoplasms is usually absent; but advanced

malignant growth in the stage of disintegration, with spreading peritonitis, presents closely similar symptoms. Stierlin studied the fibroplastic gut roentgenologically. He found the affected section in a state of contraction, thus explaining the signs of obturation, a chronic spastic, more or less tubular, stenosis, so frequently observed. Complete obstruction, appearing early in malignancy, comes on late in the inflammatory tumor and is not at all frequent. Bergmann states that ten out of his fifteen cases did not know of the tumor growth. One had experienced tenderness for two months; four had been aware of the tumor's presence for more than a year; five experienced attacks of appendicitis; four reported no intestinal symptoms; four had constipation; two were subject to attacks of diarrhea; one had bloody stools. Most of them experienced vague abdominal pains not in regular correspondence with food intake or digestive processes.

Very often in these cases we must content ourselves with the clinical diagnosis, "abdominal tumor," and wait to specify its nature after it has been dealt with clinically and time has afforded an opportunity for study. It may be of interest, therefore, to cite a few cases:

1. Two cases related by Dr. A. Schwyzer: (a) a man about thirty years old, presenting an ileocecal tumor with intestinal obstruction. Resection of the cecum and a few inches of ileum restored him to health for years since operation. There was a tumor



in the mesentery of the terminal ileum stretching the intestine and occluding its lumen for several inches. The tumor was fibroplastic throughout, having grown about a diseased appendix, found lying in a pus cavity. Diagnosis: appendicitis fibroplastica.

(b) A child ill with subacute appendicitis which had been dragging along for some time. On operation a heavy appendix was peeled out of the adjacent hugely thickened cecal wall. Diagnosis: appendicitis fibroplastica with spreading of the proliferating process into the cecum.

2. A man fifty-three years old; barber most of his life, farmer for past three years. Had suffered digestive disturbances for many years at irregular periods and in a typical clinical form. His loss of weight was slight as he had been abnormally spare for years. Four months before entering the hospital he had two copious intestinal hemorrhages about ten days intervening. Both were preceded by severe cramps. Though not feeling well, he walked into the office and did not look sick. He presented an ileocecal tumor of grape-fruit size, indistinct in outline, globular in form, and elastic in consistency. The leukocyte count was very moderate. Roentgen examination showed filling defect of the cecum. There was no obstruction of intestinal function. On operation the bowel and valve were little changed. There was a retrocecal appendicitis with an abscess heavily walled, and not the expected malignancy.

3. A young woman of twenty-four; stenographer; previous health good; became suddenly ill of what seemed to be acute appendicitis. Operation was refused. About the fifth day she had a sensation of great relief and a few hours later discharged a quantity of mucus by bowel. After about three or four weeks she was back at work, apparently well. A year and a half later she came back to have her appendix removed. There had been no more attacks, but she had not felt quite at ease, and there was a resistance in the ileocecal region. Operation disclosed tuberculosis of the chronic hypertrophic type. The appendix and the tubes were of enormous size and remained undisturbed. Recovery was normal, and several years later she reported, enjoying good health, having attained normal weight, working meanwhile as cashier in a bank.

Lemon follows Stengel in dividing intestinal tuberculosis into three groups: ulcerative, stenotic, and chronic hyperplastic. He mentions one case of obstruction of the ileocecal valve among fifty of such patients. The indistinct and almost painless tumor arising from tuberculous thickening of the cecum without destruction of the mucous coat may be impossible to differentiate clinically from the inflammatory growths under discussion. The fecal abscess which makes its debut usually during the last stages of chronic phthisis is very tender and progressive. Logan, quoted by Lemon, found thirty-six cases of tuberculous enterocolitis almost evenly distributed over the ages from twenty to sixty. There were pain in 89 per cent, nausea in 72 per cent, vomiting in 64 per cent, constipation in 50 per cent, and diarrhea in 16 per cent. Onset occurred with history of acute appendicitis in 50 per cent, with acute abdominal pain in 50 per cent, discomfort and symptoms after meals in 49 per cent. Gas was observed in 58 per cent of the cases, and anorexia in 58 per cent. Lemon con-

cludes that the surgical and necropsy evidence of tuberculous enterocolitis is almost invariably more widespread than the clinician could anticipate.

Lues prefers the small intestine and seldom causes enlargement of the cecum. Dermoid cysts growing between the layers of the mesentery of the valve region or other retroperitoneal tumors may be ruled out by roentgenological examination or by inflation of the bowel.

Actinomyces of the cecum gives rise to tumors which may be diagnosed, if there is a tendency to abscess formation, destruction of the mucosa with perityphlitis signalized clinically by pain, alternating constipation and diarrhea, colics, and spasms of the psoas muscle. Nevertheless there are cases described (Brunner) with circumscribed fibroplastic, symptomless tumors, the patients having been alarmed only by their enlargements in the abdomen. These forms are impossible of differentiation by clinical evidence alone as the tumor is movable, inelastic, and not tender.

The acute inflammatory growths grow very fast, arising from an acute intestinal inflammation with symptoms of fever, mucous and bloody stools, and severe colics.

In children under ten years we may encounter chronic intussusception as an ileocecal tumor with tenesmus. Colics and the discharge of blood and mucus are typical symptoms. A growth in the right lower abdominal quadrant in a patient past twenty-five, and more so between forty and sixty years of age is suspected as malignant. Sarcoma is very rare, but cylindrical-celled carcinoma rather favors the cecum. In typical cases a definite clinical picture is rapid of development. Destruction of the mucosa invites bleeding, and the narrowing of the lumen necessitates signs of stenosis, such as a locally ballooned intestine, visible peristalsis, tenesmus, and colicky pains which appear at certain periods following the ingestion of food. Some, however, run a more latent course. A man of about sixty-three years of age with acute bowel obstruction and a large, rather hard and nodular ileocecal tumor assured us that he had never consulted a doctor and that he had been constipated only of late. According to Notlmagel, this class of malignant tumors, which may continue for from six months to two years or more, disintegrate little and do not interfere seriously with nutrition. Thus they may be impossible to differentiate from the chronic inflammatory fibroplastic growth.

Recently quite a number of publications have appeared from workers in the fields of biological

chemistry (Boyksen, Groebly, Vorschuetz, and others) offering evidence by the aid of which a definite diagnosis of malignancy is supposed to be possible. Normally, sedimentation and agglutination of the red corpuscles in defibrinated or citrated blood is slow, requiring from six to nine hours. These authors state that the carriers of malignant growths precipitate their erythrocytes in less than sixty minutes. This phenomenon is, however, only of relative value since practically all acute and inflammatory processes may show similar speeds of sedimentation. The determination of the phosphorus content of a given quantity of centrifuged and washed erythrocytes is affirmed by Neuman to be more definite and conclusive. Normal readings exclude malignancy. One author gives the results of four hundred determinations..

In the absence of diabetes, and all diseases of the bones, and pernicious anemia, a pathologically increased blood phosphorus points definitely to malignancy. According to these authors tuberculosis, with the exception of the bony forms, invariably shows abnormally diminished blood-phosphorus. Boyksen, working with a serum prepared by Bayer & Co., reports positive reaction as proof of cancer, while a negative reaction he holds as inconclusive. A negative tuberculin reaction speaks against tuberculosis. A positive Diazo has not been found with malignancy, says Tenkhoff, but is almost always present in ileocecal tuberculosis. The Wassermann test should never be omitted.

Provided painstaking efforts toward a definite diagnosis have been made, the treatment of choice of the ileocecal fibroplastic tumor is surgical, involving resection with lateral entero-enterostomy, but there will always be cases which cannot be handled routinely and must be judged according to the individual findings.

Reference is made of necessity to an extended literature because the subject matter involved is not of a character circumscribed and distinct, but rather of a complex nature, and somewhat vague, leading off into various directions of thought.

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INDICATIONS AND TECHNIC OF PROCEDURE IN GASTRIC SURGERY*

By J. M. HAYES, M.D.

MINNEAPOLIS, MINNESOTA

The most ready approach to the stomach and duodenum is through the high midline incision. On entering the peritoneal cavity, slight traction downward and forward on the pylorus draws the first portion of the duodenum into view.

Recent necropsies, surgical explorations, and roentgenological observations have taught us that from 75 per cent to 80 per cent of all the ulcers occurring on the duodenum and stomach, are on this first portion of the duodenum; about 90 per cent of all the gastric ulcers are between the angle of incisura and cardiac end of the stomach; about 70 per cent of all the gastric carcinomata are between the angle of incisura and pylorus.

Traction on the pylorus usually causes sufficient constriction of the duodenal vessels to make evident the so-called "anemic spot." This may be mistaken in appearance for a duodenal ulcer. The absence of induration or scar tissue on palpation eliminates the possibility of an ulcer. Rubbing the surface with gauze will usually produce a "stippling" if an ulcer is present. Much controversy has existed between the surgeon and internist as to the relative value of surgical and medical treatment of duodenal ulcers. This has already been discussed, and, I believe, as the doctor has suggested, that practically all duodenal ulcers should be turned over to the internist in the early stage of the disease. Co-operation between the surgeon and internist is very essential to the proper management of these cases.

Many surgical methods have been devised for the treatment of duodenal ulcer. Gastroduodenostomies and pyloroplasties have been devised by such men as Kocher, Jaboulay, Kümmel, Villard, Finney, and others. I shall not discuss the technic of these various operations. Of these, the Finney pyloroplasty has perhaps met with most favor. It is still the operation of choice in se-

lected cases. It is merely an anastomosis between the anterior walls of the duodenum and pyloric end of the stomach. (Fig. 1.)

A glance at the figure may suggest the limited scope of its application. If, for any reason, the duodenum or stomach is immobile, this anastomosis becomes practically impossible on account of the tension necessary to approximate the two.

Such difficulties lead to the gastrojejunostomy of Wölfer. Wölfer made his first gastro-enterostomy in 1881. The one outstanding feature of this operation was the absence of tension on the line of anastomosis; however, many other obstacles presented themselves in the early years of this operation. The "vicious circle,"—gastrojejunal ulcer, post-operative hemorrhage, obstruction in the proximal loop, and sagging of the transverse colon causing tension on the line of anastomosis,—all proved to be barriers to the success of this operation.

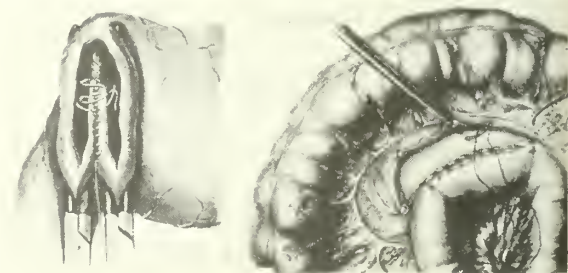


Fig. I

Fig. II

Fig. I.—Finney's operation. The first line of suture complete, the stomach and duodenum opened, and the inner suture commenced.

Fig. II.—Stay suture distal to the anastomosis and suture of margin of the opening in mesocolon to stomach. Note that stomach hangs below transverse mesocolon, making a funnel.—Mayo.

In 1885 von Hacker first made his posterior gastro-enterostomy. This method eliminated to some extent at least one objectionable feature of the anterior method. The sagging colon usually

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did not make traction on the line of anastomosis. For many years each method had many advocates, but to-day the posterior method practically has replaced the anterior except in special cases in which the transverse colon and stomach are bound down to the extent of making the posterior method impracticable.

Figure II shows the posterior method almost in its completion. The rent in the mesocolon is being closed by suturing the cut edge to the anterior wall of the stomach above the line of anastomosis of the gastro-enterostomy.

To expose the first portion of the jejunum the transverse colon and omentum are lifted upward and forward, and the assistant retracts the left side of the wound. The desired segment usually presents in the middle of the wound. Following this segment down to the posterior attachment assures us of having the proper segment. The most dependent portion of the stomach is pressed against the mesocolon at the center of the arc formed by the middle colic artery. With a dull instrument an opening may be readily made through the mesocolon by pressing against the fingers on the opposite side. As the stomach wall presents it is grasped with Allis forceps, one at the most dependent portion and one, two, or three inches from this point obliquely toward the pylorus. The jejunum is picked up in the same way at a point about one-third the distance from its upper mesenteric border and far enough from its origin to leave a slack proximal loop. The two may now be clamped in separate rubber-covered stomach clamps or in the one three-pronged instrument, the Roosevelt clamp. I shall not discuss the minute details of this anastomosis. The technic of this operation has been refined recently and perfected to a high degree.

The use of absorbable suture material, minimal trauma, and attention to the prevention of post-operative hemorrhage have been important features in popularizing this most important surgical procedure. Post-operative hemorrhage usually comes from the gastric side. To prevent this an extra lock-stitch may be put in posteriorly; or for even greater assurance the gastric vessels may be picked up individually and ligated after the serous coat has been cut through.

Proper selection of cases and recent refined technic have eliminated, to a large extent, the difficulties formerly encountered by the "vicious circle," obstruction of the proximal loop, and improper functioning of the artificial stoma. The various methods of entero-anastomosis devised by Doyen, Roux, Moynihan, and others, in addition to the gastro-enterostomy, should not be nec-

essary if the proper precautions are taken in making the gastro-enterostomy.

The gastrojejunal ulcer was formerly thought to be due entirely to errors in technic. To-day, in spite of every precaution and in the hands of the best gastric surgeons, about 2 per cent of the cases still have this unfortunate complication.

It is now believed that this percentage of stomachs are especially susceptible to the formation of ulcers and that they tend to recur repeatedly. In view of these observations it is considered advisable to resect the ulcer-bearing area of these stomachs following the appearance of a gastrojejunal ulcer, rather than doing a local excision. The posterior gastro-enterostomy, as it is performed to-day, is not only the most popular surgical method of treating duodenal ulcer, but is perhaps one of the most satisfactory abdominal operations performed.

The treatment of gastric ulcer is still a subject for controversy. A controversy as to the precancerous condition of a gastric ulcer is easily aroused. I shall not discuss this phase of the subject. Few gastric surgeons are there who have not excised a supposedly benign lesion only to find after they had completed the operation that the lesion contained carcinomatous cells. In case of doubt then would it not be wise to take the safer course and do an excision?

Some surgeons advise a radical resection of the stomach for simple ulcer. Ordinarily a cautery excision of the ulcer and a gastro-enterostomy, as suggested by Balfour, would seem the advisable course. The radical resection carries with it a considerably higher mortality rate, and the end-results do not seem to justify this added risk.

As stated above, about 90 per cent of the gastric ulcers occur between the angle of incisura and cardia.

Forsell has shown that by excising an ulcer on the lesser curvature, we permanently cripple the corresponding area on the greater curvature, thus interfering with the gastric motility.

To offset the interference with the gastric peristalsis, a gastro-enterostomy must be made in addition to the excision of the ulcer. If the patient's condition does not warrant extensive surgery, the gastro-enterostomy may be deferred to a later date. Such may be the case in acute perforations. Multiple ulcers of the body of the stomach may be removed by a sleeve resection.

Many surgical methods have been devised for the treatment of the hour-glass stomach. The method of Coffey, or the simple excision of the hour-glass part and an anastomosis of the cut-off ends, seems a very practicable method.

Surgery of the carcinomatous stomach at times may seem hopeless. A close study of the recent progress in this branch of surgery at least should arouse our interest for a better outlook.

Without surgery carcinoma of the stomach yields 100 per cent mortality. It is estimated that, on the average, the patient with carcinoma of the stomach lives but one year from the time the diagnosis is first made.

Billroth made his first resection of the stomach for carcinoma in 1881. Then and for some years thereafter the surgical mortality was from 45 to 50 per cent. In 1910 such men as Krölein and Mikulicz reported from 25 to 37 per cent surgical mortality. To-day the care of the patient and the refinement of surgical technic have been advanced to such a degree that the surgical mortality of carcinoma of the stomach is now well under 10 per cent and in well-selected cases below 5 per cent.

Statistics of the highly trained gastric surgeons show 37 per cent three-year cures and 25 per cent five-year cures. In view of these facts we should not look upon carcinoma of the stomach as a hopeless condition.

Gerota, Cúneo, Polya, von Navratil, Jamieson, Dobson, McCarthy, and other such men have done much to pave the way to the present success in surgery of the carcinomatous stomach. Their painstaking work in determining the blood and lymph supply of the stomach have led to the so-called anatomical operation on the stomach involved by carcinoma. They have demonstrated the lymph and blood supply and the channels along which metastasis from carcinoma of the stomach extends. Fig. III indicates the direction of metastatic extension.

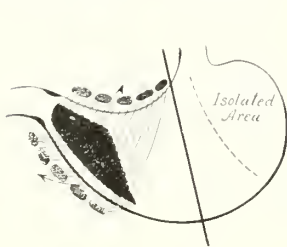


Fig. III

Fig. III.—Diagram to show the mode of spreading of a pyloric cancer, the lymphatic invasion, and the line of division of the stomach in partial gastrectomy. Note especially that the whole of the lesser curvature is removed. The arrows indicate the direction of the lymphatic currents. —Moynihan.

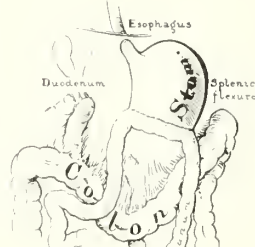


Fig. IV

Fig. IV.—Schematic diagram. Method of attaching jejunum and stomach. Omentum not shown.—Balfour.

Inspired by Mikulicz, Most, Boorman, and Lengemann first worked out the principles of the anatomical resection of the stomach. The dark

line in Fig. III indicates the line of resection in the carcinomatous stomach. Practically the entire lesser curvature is removed.

As stated above, Billroth first did a resection of the stomach in 1881. The type of operation used was the Billroth No. I. In this operation the carcinomatous portion of the stomach was resected, and the cut-off end of the duodenum was sutured to the partially closed end of the stomach. In this type of operation the mortality rate was very high. Leakage was very common at the Y-closure between the duodenum and stomach. To eliminate this feature Kocher closed the cut-off end of the stomach and anastomosed the cut-off end of the duodenum to the posterior wall of the stomach. The tension necessary to make this anastomosis was still a serious factor in a large percentage of cases.

With Hartman and Mikulicz, Billroth devised the Billroth No. II. This has been and perhaps still is the most popular method of resection of the stomach. In this operation both the cut-off ends of the duodenum and stomach were closed and an ordinary posterior gastro-enterostomy made.

Polya modified the Billroth No. II by anastomosing the jejunum to the cut-off end of the stomach. He employed the posterior method. Balfour brought the jejunum up anteriorly to the colon for the anastomosis to the cut-off end of the stomach. This is called the anterior Polya or Balfour-Polya operation. Fig. 4 shows a diagrammatic sketch of this operation. A more recent diagram would show the lesser curvature resected much higher to conform with the principles of the anatomical resection. This method is perhaps the one of choice in one-stage radical resection of the stomach at the present time.

Pre-operative management of stomach cases should be especially emphasized. In the high-grade obstructions, or those in which there have been recent inflammatory changes in the lesions, the patient should be carefully studied and prepared for operation. These patients should be hospitalized at least for a short time. Rest in bed, alkalization, and a bland diet usually improve the general condition of the patient and decrease the operative risk.

Gastric lavage, administration of salt solution, and increasing the body fluids generally are indicated in the highly obstructed cases. A knowledge of the blood chemistry may be of value in these patients in determining the operative risk.

Peck has suggested the Billroth No. II type of resection in one or two stages in the highly obstructed carcinomatous stomach. He suggests

that a high gastro-enterostomy be made first. Then, if the condition of the patient warrants, do the second stage or resection immediately. If the condition of the patient is not such that the surgeon feels he should continue after the gastro-enterostomy is made, then defer the resection to such time as the condition of the patient would warrant this added interference.

I have here a case which well illustrates this method:

Patient, aged 47, had been a strong robust man; foreman of a road construction crew. Normal weight 200 lb. Came to us in May, 1924, with almost a complete pyloric obstruction, vomiting practically everything taken by mouth. He had lost about 40 lb. in weight. Hemoglobin, 60 per cent. Patient appeared extremely emaciated and dehy-



Fig. V

Fig. VI

Fig. V.—Marked pyloric obstruction due to carcinoma.

Fig. VI.—Stomach following two-stage Billroth No. II resection.

drated. He had become so weak that he fainted when attempting to stand behind the fluoroscope. Fig. V indicates the degree of pyloric obstruction. He was immediately sent to the hospital, put on gastric lavage, and fluids administered hypodermatically and per rectum.

On May 31, under local anesthesia, a high gastro-enterostomy was made. The condition of the patient did not seem to change, but, on account of his extremely weakened condition at the outset, it was deemed advisable to defer the resection to a later time.

The patient made a rapid recovery following the first-stage operation. Had no vomiting, no increase of pulse rate, and very little elevation of temperature. Three weeks later, the general condition of the patient had improved so markedly that the second stage of the operation was performed. Again the patient showed very little reaction to the operation. He improved rapidly almost immediately following the operation. He resumed work one month after the second stage of the operation. Has been on a very liberal diet. He states that he feels practically normal in every way. The patient, as you see him here, appears normal. He has regained his original weight, strength, and color, and is doing a normal man's labor. Fig. 6 shows his stomach as it appears at present.

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MISCELLANY

THE SEDGWICK MEMORIAL LIBRARY
TO THE SUBSCRIBERS TO THE SEDGWICK
MEMORIAL FUND

The total receipts from friends of the late Dr. Julius Parker Sedgwick toward the purchase of his library for the University of Minnesota, to be maintained as a memorial to him, amount with interest to \$1,777.97. Mrs. Sedgwick agrees to accept the above sum of \$1,777.97 for the library, exclusive of duplicates, and this sum has been forwarded to her.

The duplicates will remain Mrs. Sedgwick's property and the University Librarian will assist her in selling them, thus adding to the total which she will receive.

In accordance with these provisions the library has been turned over to the University of Minnesota and accepted by the Board of Regents. I have received the following letter from the President on this subject:

"The Board of Regents of the University of Minnesota directed me to express to you and to the other donors its appreciation for the gift of the Dr. J. P. Sedgwick Library in accordance with the conditions named in your letter of May 18th."

In addition, on behalf of the Administrative Board of the Medical School, and the staff of the Department of Pediatrics, may I extend our sincere thanks for helping provide this excellent addition to our facilities, which will be maintained in memory of our very able and highly respected colleague.

E. P. LYON, Dean.

May 16, 1925.

THE JOURNAL-LANCET

Represents the Medical Profession of
Minnesota, North Dakota, South Dakota and Montana
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JUNE 1, 1925

THE CONGRESS OF PHYSICIANS AND SURGEONS

The triennial meeting of the American societies of specialists, which include sixteen different departments of medicine and surgery, met at Washington on May 4, 5, 6, and 7 and was attended by approximately seventeen hundred members. The president of the Congress, Dr. William J. Mayo, gave the opening address at the Hall of Nations in the Washington Hotel and again outlined the advances made in medicine and surgery; what improvements had taken place within the last decade; how the span of life had been increased by modern methods in diagnosis, treatment, and surgical technic, and the care of the sick and injured. We are grateful to Dr. Mayo for telling us that we are growing better and longer lived, that we have a better chance for comfort and old age because of the striking progress which has been made by scientists in medicine.

The program of the organization was, perhaps, a long one and especially the program of the various affiliated societies. It may be said, without fear of contradiction, that very often some of the papers were too highly technical; that they were really one-man papers, or, at best, might be interesting to three or four men in an American Section. It is all very well for us to be educated up in these technicalities if we can possibly apply them in practice.

There was a striking absence of papers on general and common topics together with what to do for the individual except in the Surgical Section. There they knew what to do; they could make a surgical diagnosis and operate and thus relieve an illness requiring surgical interference. But in many of the other sections of the Congress the papers dealt with symptoms and almost with no attempt at treatment. Perhaps it is because doctors are getting skeptical about their therapeutic efforts. Perhaps they are becoming indifferent to the personal effort in regard to the betterment of the sick. Perhaps they do not care what becomes of the patient so long as they can describe a chain of symptoms and a pathological showing. Occasionally there was a clear rent in the skies of obscurity and a paper was read which was very instructive and interesting, but only occasionally. At one meeting of the General Congress the subject before the afternoon session was on the "Disturbances of Internal Secretion," in which we heard the terms "endocrines," "ductless glands," and things of that sort. It was presented by physiologists and anatomists and other scientific men, and there was a great deal of technical laboratory information given without much regard to their conclusions in the matter. Three papers which the writer heard on these subjects were discussed by Dr. Barker, of Baltimore, and Dr. Harvey Cushing, of Boston, and it was quite evident that the men who discussed the papers were not wholly in sympathy with the theories advanced concerning the glands of internal secretions. There were two glands, however, that were agreed upon as being better understood, one in particular being the thyroid gland. A great deal of progress has been made in our knowledge of the thyroid, and it is quite encouraging to know that now the thyroid is not so frequently extracted as it was formerly. Even the surgeons are veering away from it a bit rather than attacking every swelling or enlargement of the thyroid gland by surgical means. The other is the pituitary gland, and this gland has developed a good deal of discussion. Some very successful measures have been adopted for the relief of pituitary-gland disorders. But for the rest of the glands of internal secretion there was but little favorable comment despite the fact that gland products of all kinds are manufactured with a sort of "shot-gun" idea that they are going to do some good. On the whole it was interesting to hear this very able presentation of the subject, and not at all discouraging because, as the years go by, we shall learn more and more about these various organs.

The writer was particularly interested in the Neurological Section and spent most of his time there, eager to hear some very wonderful papers on the embryological side of the nervous system. Some of these papers were couched in such terms that it was very difficult to follow them, always, nor could they be made so interesting to the general practitioner as to the specialist. But they indicated the advances that have been made and showed that the investigation of the physiological and anatomical side was being elaborated. One of the men who spoke at the banquet in the evening, at the Neurological Section, made the assertion that if we could cure multiple sclerosis and other or similar types of progressive chronic nervous diseases there would be nothing left for the neurologist but the study of behavior; and, as the times show and as the reports come in, it is going to be even a more tremendous study than the investigation of organic nervous diseases, for the people generally are behaving like sin; they do not want to think, they do not care, and they will take any chance that is offered. Neither can many of them be cured by gland products!

So the question before us now is how shall we behave? how shall we train our children to behave? and what will we do from the standpoint of behavioristic doctrines? This subject was presented to the Section on Neurology in three very interesting papers. There was little discussion as most of it was theory.

Washington was beautiful during the time of the meeting of the Congress. Anyone who goes there in May and looks at the verdure and the blossoms and the beautiful buildings and particularly the Memorial Buildings and the great department buildings of the Government must be immensely impressed with the beauty of the Capital City.

OLD-FASHIONED DISCIPLINE

"Spare the strap and spoil the child," is a modification of the old saw. All over the country there seems to be an attempt to return to former disciplinary measures. The average child who was raised on a strap or lath, or the palm-of-the-hand mode of punishment, seems to stand better in his community than the child of the present day who is brought up on twaddle and on whom disciplinary measures are not enforced at home. A recent case in point was the disciplining of a truant, tardy, and unruly boy in the public schools by a principal, a woman of high character and a good disciplinarian. This child was reported to the parents time and again, and the

teachers were told that the parents could do nothing with him. After repeated suggestions on the part of the teacher that something must be done, the mother of the boy telephoned to the teacher to discipline the child herself. After having been given this authority, the teacher took the child into her room, laid him over a chair, and slapped him a few times with a strap. He made no apparent objection, he made no noise, and went out of the room in evidently the same condition in which he went into it. Yet this teacher was obliged to defend herself with an attorney in the municipal court, in a suit brought by the father and mother of the boy. The testimony covered a good share of the boy's behavior and the conversation between the teacher and the mother and also the kind of discipline that the child received. Judge Levi Hall, who heard the case, decided promptly in favor of the teacher, thus putting his seal upon the necessity of home care and responsibility and home discipline instead of leaving it to the teacher to carry out the disciplinary measures which were the duty of the parents. The School Board were not very enthusiastic about the defense of the teacher, that is, some of the chief members of the Board were not; but the women of the School Board stood by and commended the teacher for her work and for her stand. Had the School Board been active in the matter the whole thing could have been settled by a simple investigation on their part, but evidently someone chose to let the affair go through. Now that it has gone through, it is to be hoped that it will establish a precedent and the teachers will be given authority to discipline children when this is not possessed and used by the parents; for, if there is anything under the sun that does an impudent and undisciplined child good, it is to give him a good sound "licking," and this applies to the thousands of children in the public schools of to-day in Minneapolis, as well as in other places. Those of us who were raised on discipline and mild punishment appreciate the urgency of the situation. Yet, for fear of public opinion and because political issues are coming on in June, those in authority hesitate to express an open opinion, a condition much to be deplored.

The humiliation of the principal who administered the punishment, however, has been extreme and wholly unjustified when protection and inquiry might have saved her all this publicity. As it is, she probably stands commended by the majority of the people,—teachers and parents.

In some of our schools the indifference of the parents and the deceitful attitude of the children

is becoming almost unbearable. It is time something was done to remedy the situation, however painful it may seem. Children invent excuses, they feign illness, are tardy and absent, and absolutely indifferent and impudent to their teachers; and if the teacher dares to lay a hand upon such a pupil the parent makes much of it, as a rule, although, fortunately, there have been found many instances where the parent comes into the schoolroom and upholds the teacher in her method of discipline and her manner of administering it. The principal is usually timid about sending children away from school and sending them home because of the criticism that will come from the Board members, to say nothing of the criticism that comes from the parents.

The Parents and Teachers Association members throughout the city ought to take this matter up and discuss it and stand by the teacher when the parents fail in their duty. Take, for instance, an incident which is not uncommon,—the mother who believes that her children are “angels.” She relies absolutely upon what they tell her; she thinks that they can do no wrong. Consequently, she forbids discipline by others under all circumstances. And, although her child or perhaps three or four members of the family, create a disturbance in an entire school, the teacher is not allowed to do anything. The outcome of the situation is that all of these children go to the bad; one becomes a murderer, another ravishes a girl, and a third kills himself,—why? Because they were not disciplined and were not subject to discipline by others, and they were brought up on the “sweet darling” method of treatment, whereas a good trouncing in the barn by the father might have saved the morons from becoming criminals and public nuisances. People talk about environment but they do not choose, always, the happy time in the form of a little environment in the way of a lath; neither are parents always aware of the fact that they may have defective children to deal with, and they let them go undisciplined when they are “babies,” bullies, or braggarts; and yet if they were brought up right they might turn out to be useful citizens. In the present generation, as in the past, in those who are deficient, whose environmental situation goes uncorrected we can look for a continued crop of undisciplined and unprincipled children who grow up to manhood and womanhood and become a disgrace to the community.

The effort to start a Child's Guidance Clinic is to be approved, but it should be carried out through every department of education before

we can expect much benefit to the child during the growing and formative period. The old German method of whipping the child about once a week just to keep him in trim still holds good, and it is to be recommended to the public as a wise measure, followed by success, in the training of the unruly child.

THE HEAD WAITER AND THE ASPARAGUS

Two very important things impressed the visitor in the East recently, that is, what to do, first, with the head waiter when you land at your hotel, and, second, how to proceed to enjoy asparagus.

How do you recognize the head waiter, and, if you do, what do you do with him—because in some of the better hotels it is not considered quite the proper thing to hand the head waiter a five or ten-dollar bill; the real New Yorker sends him a very substantial check once in a while because he is of great service to his known patrons. But the man from out-of-town who thinks that sometime he will send the head waiter a check never inquires for his name or number; he does not know whether he is a real head waiter, because he has so many subordinate waiters under him and to tip them all would require the purse of a millionaire; hence the tipping is done surreptitiously through the waiters and occasionally through a second head-waiter. Most of these men are well trained for their duties. They know what is going on in every part of the room, and they look after the dining public with great care and skill, as a rule. But when you have to wait twenty minutes for your dessert and you have an engagement at the theater, or lecture, if you are so inclined, it causes a disturbance of some of the endocrine glands, and one gets impatient, sometimes peeved, and occasionally angry at the non-service. Then, too, we confess that occasionally the guest at the hotel, although he tips fairly well, slips out of the hotel without the knowledge of the head waiter, and his joy is not excessive because he knows he will have to tip someone else anyway. The tipping system has grown to such enormous proportions that the tips become almost the important expenditure of the day. Yet that is what many men live by,—their tips.

The writer is prone to speak of a bit of dining-room ethics, and he was very impressed with the efforts of the various guests to demonstrate their own method of eating asparagus. Many, many different ways of imbibing this tid-bit were ob-

served. In some instances it is necessary to tilt one's chair back to an angle of about 60 degrees, after one had grasped the asparagus in one's fingers, guide it on a plumb line to the mouth, biting off what he wants and returning the better part of the vegetable. One may then be permitted to right one's chair again and sit up at the table, when suddenly it is observed that some other person in the room is simply picking up his asparagus with his fingers and placing it in his mouth, biting off what he wants and returning the stub to his plate. Then there are others who are somewhat indifferent to custom, who boldly and with indifference attack the asparagus with a fork and knife, cut off what they think is about the proper length, and use their fork, or perhaps even their knife, to convey it into their system. Others, notably women, who are more delicate in their table manners, cut off the asparagus tip with the side of the fork and introduce it skillfully and carefully into their mouths and eat it as they would eat anything else. An important and prominent club member eats asparagus with his fingers, and he does not care how it looks or how it gets to his mouth just so it gets there. It is quite noticeable, sitting around a club table, that the man who first begins to eat asparagus is followed in the same way by all the other men of the table. You have it in a nutshell, follow your leader! Eat it any way you please just so you eat it.

These little incidental customs are quite to be expected. Every man has his own way of doing things. Even if he holds his knife in his left hand, with the grip of a man with a shovel, or thrusts his food into his mouth by means of his knife is really of no special interest. But it really does pay to observe some of the various behavioristic manners in introducing food into one's system, with little pretension, with a great deal of suavity, and a manner delicate and entertaining. Fortunately the time for asparagus is drawing to a close, and later we may discuss the introduction of other kinds of food. But for the present the asparagus gesture is closed.

THE NORTH AND SOUTH DAKOTA

STATE MEDICAL ASSOCIATION

MEETINGS

As we go to press word reaches us from the meetings of the North and South Dakota State Medical Associations held a few days ago, and it is very encouraging to the profession and gratifying to us that these meetings were suc-

cessful to a degree beyond the expectation of anyone who has noted the trend of late medical society meetings.

We noted in our last issue that the late meeting of the Minnesota State Medical Association seemed like a new birth of that body, which had almost threatened to become moribund; and we naturally felt anxiety for the two Dakota meetings. Now these Associations have shown that they, too, can rally to new efforts and repel a threatened slump. In each meeting the invited outside men held the interest of all in attendance to a remarkable degree, and the dry clinics proved of unusual attraction, as they invariably have in other places, and the local men also proved themselves equal to the occasion.

At each meeting the attendance was larger than at most, if not at all, former meetings of these two Associations; and all present went home with a largely increased interest in the work, the progress, and the opportunities of the medical profession.

NEWS ITEMS

Dr. A. J. Heimark has moved from Finley, N. D., to Fargo, N. D.

Dr. H. J. Rothschild, of St. Paul, has gone to Europe for the summer.

Dr. J. U. Joffrion has moved from Madison Lake to Parker's Prairie.

Work on the new Deaconess Hospital building at Billings, Mont., will be begun, probably, in July.

Dr. Paul H. Rowe, of Minneapolis, has gone to Europe for six months or longer. He will spend some time in Vienna.

Dr. G. E. McCann, of Onamia, has accepted a position in the Veterans' Hospital at Fargo, N. D. Onamia is without a physician.

Dr. A. P. Bratrude, who has been in practice with Dr. C. R. Christensen at Starbuck for several months, has gone to Chicago to locate.

Dr. J. E. Crewe is the temporary health officer of Rochester, having been appointed to the office during Dr. C. H. Mayo's absence in Europe.

Dr. Robert Sponner, who recently came to this country from Vienna, has become associated with Drs. Miller and Blanchard, of Waseca.

The Hendricks Hospital Association of Hendricks was incorporated last month with a capital

stock of \$30,000, with the limit of liability \$4,500.

St. Alexis Hospital, of Bismarck, N. D., will soon begin work on a home to accommodate eighty nurses. The architect will soon have the plans ready.

Dr. J. M. Graham, who has served for the past two years with the U. S. Veterans' Bureau in St. Paul and Minneapolis, has been transferred to Atlanta, Georgia.

The Black Hills (S. D.) Medical Society held an interesting and informing meeting at Rapid City last month. Dr. D. T. Quigley, of Omaha, gave a talk on radium.

The National League of Nursing Education was in session in Minneapolis last week as this issue of THE JOURNAL-LANCET went to press. The attendance was large.

Dr. L. T. Pare, who has been in practice for forty-two years, twenty-five of which were spent in Duluth, has retired from practice, and has gone to Montreal, Canada to live.

Dr. J. S. Chapin, of Euclid, died last month at the age of 69. Dr. Chapin had practiced in Euclid forty-three years, and was postmaster of that village for over twenty years.

The Grand Forks (N. D.) District Medical Society hereafter will hold quarterly, instead of monthly, meetings. The Society is a flourishing organization, composed of both young and elderly men.

The Hennepin County Medical Society will hold its June meeting at Glen Lake Sanatorium on Monday evening, June 8, at 6:30 P. M. The program is to be given by members of the Sanatorium staff.

At the annual meeting of the Pine-Chisago Medical Society, held last month, Dr. H. P. Dredge, Sandstone, was re-elected president, and Dr. C. G. Kelsey, Hinckly, was re-elected secretary-treasurer.

Dr. Ralph H. Creighton, of Minneapolis, was married last month to Miss Dorothy Gilman, also of Minneapolis. Dr. Creighton is a graduate of the Medical School of the University of Minnesota, class of '23.

At the meeting of the Medical Staff of the Lymanhurst School, in Minneapolis on June 20, the following distinguished men will present papers: Drs. Allen K. Krause, Philip Jacobs, and Linsley R. Williams.

Dr. Frank R. Weiser, of Windom, died last week of heart disease at the age of 60. Dr.

Weiser was a graduate of Jefferson Medical College, class of '91, and had practiced in Windom almost since that date.

The Southwestern District (N. D.) Medical Association held a very interesting meeting at Bowman, N. D., Wednesday, May 21. Dr. J. P. Schneider, of Minneapolis, gave a very instructive talk on arthritis and pernicious anemia.

The National Tuberculosis Association Conference, to be held in Minneapolis on June 17 to 20, inclusive, will be one of the largest medical meetings ever held in the Northwest. Most of the American physicians distinguished in this line of work will be present.

Dr. H. J. Rowe, formerly of North Dakota and now living in Minneapolis, has charge of the practice of Dr. F. E. Lehman, of Minneapolis, who is attending commencement exercises at Jefferson Medical College, of which both Drs. Lehman and Rowe are graduates.

Dr. Rolf F. Nannestad, of Lanesboro, died last month after an illness of only two days. Dr. Nannestad had been associated with Dr. F. A. Drake at Lanesboro for a couple of years. He was the son of Dr. J. R. Nannestad, of Albert Lea. He was a graduate of the University of Minnesota Medical School, class of '20.

Dr. Parke B. Jenkins, of Waubay, S. D., resigned as Superintendent of the South Dakota State Board of Health last month, which position he had held for twelve years. Dr. J. F. D. Cook, of Langford, was appointed by the Governor to succeed Dr. Jenkins. Dr. Cook is also secretary and treasurer of the State Medical Association.

At the annual meeting of the Southern Minnesota Medical Association, held at Owatonna on June 18, the following officers were elected: President, Dr. F. R. Huxley, Faribault; first vice-president, Dr. J. S. Holbrook, Mankato; second vice-president, Dr. A. H. Logan, Rochester; secretary-treasurer, Dr. H. T. McGuigan, Red Wing.

Dr. W. N. Theissen, of Faribault, died on May 15 at the age of 49. Dr. Theissen graduated from Hamline College of Physicians and Surgeons in the class of '01, and had practiced at Jeffers, Henderson, and Minneapolis before settling at Faribault. He was prominent in civic matters at Faribault and was a useful and highly respected citizen.

The following officers were elected at the annual meeting of the South Dakota State Medical Association last month: President, Dr. W. R.

Ball, Mitchell, S. D.; first vice-president, Dr. T. F. Riggs, Pierre; second vice-president, Dr. S. M. Hoff, Yankton; third vice-president, Dr. N. K. Hopkins, Arlington; secretary-treasurer (for three years), Dr. J. F. D. Cook, Langford. The next meeting (1926) will be held in Aberdeen.

The Northwestern District Medical Society of North Dakota held a dinner meeting on May 8. The subjects of fees and ethics were thoroughly discussed. It was decided to hold a joint meeting with the Devils Lake District Society at the State Tuberculosis Sanatorium at Dunseith in July. Two new members, Dr. A. L. Cameron, of Minot, and Dr. A. Flath, of Stanley, were voted into the Society.

The Minnesota Neurological Society holds its last meeting of the year at the Mayo Clinic, Rochester, on Saturday, June 13. The forenoon will be devoted to neurological surgery and clinical presentations. The afternoon will be devoted to papers and discussions by the members of the Mayo Clinic staff. Officers of the Society for the year are the following: President, Dr. J. C. Michael, Minneapolis; vice-president, Dr. Arthur Sweeney, St. Paul; secretary, Dr. E. J. Engberg, St. Paul.

At the annual meeting of the North Dakota State Medical Association the following officers were elected: President, Dr. John H. Rindlaub, Fargo; president-elect, Dr. N. O. Ramstad, Bismarck; first vice-president, Dr. Thomas Mulligan, Grand Forks; second vice-president, Dr. W. F. Sihler, Devils Lake; secretary, Dr. Alex. J. McCannel, Minot; treasurer, Dr. W. W. Wood, Jamestown; delegate to the A. M. A., Dr. E. A. Pray, Valley City; alternate, Dr. J. W. Bowen, Dickinson. The next (1926) meeting will be held at Minot.

Dr. Richard Olding Beard, of the Department of Physiology of the Medical School of the University of Minnesota, is just now receiving notable recognition of his work in the Medical School from which he retires on the age limit. He has been entertained by the Medical Six O'Clock Club and by Dean E. P. Lyon. Next week he will be given a farewell dinner by the faculty and alumni of the Medical School; and on June 15 he and Professor Nachtrieb, also retiring on the age limit, will be guests of honor at the General Alumni Association meeting.

Minneapolis Offices for Rent

Very desirable space to sublet. Inquire 812 Besse Building, Minneapolis.

Specialist Wanted

With a general practitioner and dentist in city of 30,000. Rent reasonable. Address 225, care of this office.

Assisted Resident Physician Wanted

Must be an experienced x-ray technician. Single man preferred. Address Mudeura Sanitarium, Shakopee, Minn.

Specialist Wanted in Minneapolis Clinic

A pediatrician and nose and throat man is wanted for association in a Minnesota clinic. Address 213, care of this office.

Static Machine Wanted

Please state number of plates, name of maker, and price, and what accessories are available. Address Dr. J. C. R. Charest, Marshall, Minn.

Young Internest Wanted

In a well-established clinic in a South Dakota city. Must be very competent. Excellent future for one who can qualify. Address 226, care of this office.

Wanted by Pharmacist

An institutional position is desired by a registered pharmacist (lady). Two years' hospital experience, and has the B.S. and Ph.G. degrees. Address 217, care of this office.

Locum Tenens Wanted

A good physician is wanted to take care of a practice in North Dakota for several weeks beginning at once. Must be able to drive an auto. Address 223, care of this office.

Locum Tenens Wanted

In North Dakota for one or two months in North Dakota, beginning June 1; cash salary and maintenance. Give references and full data in first letter. Address 219, care of this office.

Practice for Sale

In a good Minnesota town of over 1,000 population. A good man can make money from the start and build up a lucrative practice at once. Country is rich and competition not strong. Address 228, care of this office.

Laboratory Technician Wants Position

Graduate nurse, experienced in routine laboratory work, including Wassermans, blood chemistry, and microscopy. Prefer work in small hospital or doctor's office in Twin Cities. Excellent references. Address 208, care of this office.

Physician Wanted

A good doctor for country practice in a large territory from eight to twenty-five miles; 48 from Minneapolis, and 18 miles from St. Cloud; on paved road and the Northern Pacific Railway; buses every hour. Address J. M. Putney, Mayor, Becker, Minn.

Offices in North Minneapolis for Rent A Fine Opening

A suite of plain offices at 1901 Washington Ave. North, in connection with a dentist established at that location for 18 years, are offered at nominal rent. For information telephone Dr. H. G. Ramstead (Tel. Hyland 0500).

Physician Wanted

Dr. Bjornstad wants young, aggressive M.D. at his Clinic. Must be interested in physiotherapy and have surgical inclinations. Scandinavian preferred. Excellent prospects and future for right man. Address Dr. Bjornstad's Clinic, 831 Second Avenue South, Minneapolis, Minn.

Practice for Sale

General practice in southern Minnesota village; good dairy farming community; 3 tributary towns without physician; cash business last year \$9,000. Residence designed as small hospital; separate office building. Good man will make money from start. Address 276, care of this office.

Assistant Physician Wanted

To do general practice, mining contract work, Minnesota. Small hospital. Five other assistants. Must be graduate of Class A college and have had hospital experience. Initial salary \$275.00. Early increase to right man. Give full information in first letter, with photo. Address 230, care of this office.

Apparatus for Sale

Owing to duplication of equipment in our organization, we have for sale the following: Tropometers, Perimeters, D. C. Motors, Ophthalmic Lamps, Sterilizers, Microscope, Campimeters, and Typewriter, and other equipment. Address Eye, Ear, Nose and Throat Clinic, 74 South 11th Street, Minneapolis, Minn.

Fine Offices with Dentist in Minneapolis

Dr. J. T. Carpenter (Dentist) will share his offices on the second floor of the Hulet Building (Seventh and Hennepin) with a physician. Dr. Carpenter has been in this location for 20 years. Reception room finest in city. Services of office girl and telephone free. Rent very reasonable. Call or telephone (Geneva 2118).

Practice for Sale

A village and country practice for sale. Village of 1,100 population; excellent schools and churches. An excellent opportunity for a Norwegian of ability. One doing eye, ear, nose, and throat work preferred. Instruments and books for sale cheap. Am retiring from practice on account of failing health. Address P. O. Box 263, Kasson, Minn.

Location Wanted

By a graduate of the University of Minnesota, B.S., 1919; M.B., 1921; M.D., 1922. Mason, married, one child. Has been practicing in a city of 35,000, but desires location in Minneapolis as assistant in busy general practice or to an obstetrician or in a good town within about fifty miles of Minneapolis, preferably south or West. Address 207 care of this office.

Eye, Ear, Nose and Throat Practice for Sale

Established in Minneapolis twenty-three years. Will sell thoroughly equipped office of three rooms and joint waiting room, with lease, records, and good will. Will introduce buyer for one or two years and retire. Wonderful opportunity for man wishing to specialize and step into large urban practice, which can be largely increased. Address 200, care of this office.

Associate Wanted by An Eye, Ear, Nose, and Throat Specialist

An Eye, Ear, Nose, and Throat man, experienced, will assist a busy small town doctor in general practice, taking as remuneration only what special work is referred or can be done in the locality. A good opportunity for an agreeable associate who will not compete in general medicine or surgery. For details address 210, care of this office.

A Practical Course in Standardized Physiotherapy

Under auspices of Biophysical Research Dept. of the Victor X-Ray Corporation, is now available to physicians. The course offers a highly practical knowledge of all the fundamental principles that go to make up the standards of modern scientific physiotherapeutic work. It requires one week's time. For further information apply to J. F. Wainwright, Registrar, 236 South Robey St., Chicago, Ill.

Associate or Partner Wanted

Doctor financially able to buy an equal interest in a clinic group now being formed, also to take charge of a branch office located only 40 miles from Minneapolis. Wanted at once. Preferably Scandinavian. If previously engaged in any specialty please so state in first letter. Large territory. To competent man short of funds a commission arrangement will be made. Address 214, care of this office.

Office for Rent in St. Paul

Dental suite, common reception room with physician, completely furnished. Consists of operating-room, private office, and laboratory. Very modern. Alternating and direct current, compressed air, and gas. Bowl in operating-room, sink in laboratory, hot and cold water. X-ray laboratory available in suite. Best location in city. Corner 6th & Wabasha Sts. Operating-room faces Wabasha St. Six foot window for name display. Address Dr. W. B. Lande, 205 Midland Trust Bldg., St. Paul, Minn.

Warning Against an Imposter

Service men's organizations, doctors, and hospitals throughout the country are warned to be on guard against an imposter who will probably work in much the same way as he did at Montevideo, Minnesota, as follows:

He represented himself as an ex-regular army major of engineers, badly wounded in action and totally disabled ever since; stated that he had been operated upon repeatedly since the war in an attempt to heal a fecal fistula; he showed an abdomen literally covered with scars of operation wounds and a bona-fida fistula; said that he needed to be hospitalized and wished to enter the Montevideo Hospital for a short period.

After a few days acquaintanceship, he cashed two bad checks and disappeared.

He went by the name of Major Wm. Stewart; was about 5 feet 9 inches tall; weight about 180 pounds; dark brown eyes and black hair; about 45 years old; wearing dark-blue coat and trousers and black plush fedora hat. Easily identified by scars on abdomen.

Any one having information of this man kindly telegraph collect to Sheriff of Chippewa Co., Montevideo, Minn.

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A PHYSIOLOGICAL EXPLANATION OF CERTAIN SYMPTOMS IN PNEUMONIA*

BY J. A. MYERS, PH.D., M.D.

MINNEAPOLIS, MINNESOTA

It has been said that "when seen on the second or third day the picture in typical pneumonia is more distinctive than that presented by any other acute disease." There is fever, which usually has followed a severe chill; there are pain, cough, rapid heart action, flushed face, dilation of the *alae nasi* with inspiration and the expiratory grunt. Then there are the blood-tinged sputum and often an inequality of the pupils. All of these are accompanied by rapid respiration and usually a desire of the patient to lie upon the affected side. It so happens that not all cases are typical; hence some of the symptoms recited may be absent, thus leading to confusion in diagnosis. If one investigates the causes of some of the more important symptoms one is not only aided in the diagnosis of atypical cases, but also aided in the symptomatic treatment of pneumonia.

The increased pulse rate apparently is due to the toxins stimulating that part of the sympathetic system carrying accelerator fibers to the heart, as well as to the stimulation of the suprarenal and thyroid glands. There is some evidence to indicate that over-stimulation of the thyroid is the important factor in increased pulse rate in acute infections such as pneumonia.

In increased heat production in bacterial infections it is now believed that the thyroid plays an important part. Marine believes that the

toxins produced by the bacteria affect the functional activity of the thyroid through the blood stream or possibly through the sympathetic nervous system. He points out that there is a notable increase in thyroid activity during protracted febrile reactions. Moreover, it has been shown that in a good percentage of experimental animals with the adrenal glands removed, or injured so as to cause adrenal insufficiency, there appears a rise in heat production varying from 10 to 63 per cent in three to six days after the experiments were begun. It is believed that the inhibitory and regulatory influence of the adrenals having been removed, an increased thyroid activity results in the increased heat production. In most animals with the thyroid removed also, this increase in heat production does not occur. It has been shown also that in animals following adrenalectomy the iodine store in the thyroid is very definitely reduced during the period of increased heat production and that when the thyroid has become exhausted the administration of small amounts of iodine will cause a secondary rise in heat production.

Means and Barach have pointed out that the respiratory battle is the outstanding difficulty in pneumonia. Because of the marked dyspnea exhaustion results which very definitely reduces the patient's ability to overcome the disease. On first thought one might attempt to explain the dyspnea on the basis of actual involvement of lung tissue, thus reducing the amount of air

*Presented by invitation before the Hardin County (Iowa) Medical Society at Eldora, Iowa, November 11, 1924.

space. This explanation will not suffice, however, since several writers have shown that a patient with a very small pneumonic lesion may be just as dyspneic as another with a very extensive lesion; therefore other causes for the dyspnea must be sought. Means and Barach have pointed out that the symptom dyspnea will appear at the moment when a person's pulmonary ventilation called for by his life processes exceeds the quantity of air that his pulmonary bellows is mechanically capable of delivering with ease. It is, therefore, a problem of demand and supply. We know that increased metabolism calls for an increase in pulmonary ventilation. Moreover, we know that in some bacterial infections the thyroid activity is increased, thus resulting in increased metabolism. This increase may be as much as 40 to 50 per cent. It is obvious, therefore, that with this increased metabolism there is a need for increased breathing.

Another factor mentioned by Means and Barach in the production of dyspnea is acidosis. In pneumonia they believe there is a retention of carbon dioxide in the blood giving rise to a carbonic acidosis, and that it is quite possible that all blood passing through the lungs is not properly aerated because of consolidation, foam in the air passages, edema or exudate. Therefore, since the proper gas exchange cannot take place in a part of the lung, the blood leaving the lung will have a higher carbon dioxide tension than the alveolar air. This will result in increased breathing.

A third factor suggested as contributing to dyspnea is an insufficient circulation rate. Obviously, poor heart action resulting in insufficient blood flow will result in increased breathing.

A fourth factor is anoxemia. This is believed to result from improper aeration of blood as it passes through the lungs or from the admixture of aerated and unaerated blood.

Means and Barach also call attention to the fact that if a patient's vital lung capacity is definitely reduced his ventilatory needs must be met by increasing the rate of breathing since he can no longer depend upon depth of breathing. We know that vital capacity is materially reduced in pneumonia because of pleurisy pain, actual lung involvement, marked decrease in movements of the diaphragm and thoracic wall, etc. I have seen patients with the vital capacity reduced to 18 and 20 per cent of the normal. Obviously, such patients must have an increased rate of breathing.

Knowing the factors which produce dyspnea one is able in a measure to combat it and thus

lighten the respiratory burden which so often results in exhaustion and may cause the patient to lose the battle. As yet we do not know just how to control with a high degree of success the increased metabolism which probably is due to the toxins stimulating the thyroid gland. In order, therefore, to get at the root of the metabolism change one must deal with the toxin. Although we have nothing specific we may aid by insisting upon good elimination, particularly flushing of the kidneys.

In recent years alkali has been administered to overcome the acidosis. When alkali is administered the reaction of the urine should be carefully watched. As soon as the reaction becomes alkaline to litmus the sodium bicarbonate is discontinued, but it may be given later if the urine becomes acid.

There is some evidence in favor of the administration of oxygen. Blood analyses have proved that the oxygen content can be materially increased in this manner. One handicap in the past has been the scarcity of proper apparatus for the administration of oxygen. The recent excellent work of Henderson in resuscitation from carbon monoxide poisoning, etc., by the inhalation of oxygen and carbon dioxide has been productive of a simple apparatus easily used to administer oxygen in pneumonia cases. The administration of oxygen is guided by the degree of cyanosis present and the general comfort of the patient.

About all we can do to increase the vital lung capacity is to use narcotics sufficiently freely to control the pleurisy pain.

It is well known that the first manifestation of pneumonia may be pulmonary hemorrhage. Although this type of onset is not common, pneumonia must be considered when hemorrhage occurs. Obviously, the hemorrhage is due to a rupture in a blood vessel after which the free blood finds its way into an air passage and is expectorated. The sputum which appears later in the course of the disease is cast from the lesion itself.

The cough in pneumonia is brought about reflexly. The irritation is produced about the tubes or in the pleura, but the tickling sensation is felt in the throat. This is because the stimuli are carried upward over the vagus nerve and referred to the larynx over the sensory fibers of the superior laryngeal nerve. The cough should be brought under control as soon as possible as it is not only painful to many patients but also tends to spread the infection as well as to demand much of the patient's energy which he so badly needs in com-

bating the disease. Later in the course of the disease some coughing may be necessary to remove the exudate.

It will be recalled that the sympathetic trunk on each side lies just under the parietal pleura. The anatomical connections between the sympathetic trunk and the spinal cord lie almost entirely in the thoracic region. It is obvious, therefore, that considerable disturbance may be caused by encroachments upon the sympathetic trunks by disease of certain thoracic organs. It is just such encroachment in some cases of pneumonia that causes dilatation of the pupils.

Pain is a very common symptom of pneumonia and inasmuch as serious errors have been made in diagnosis because of referred pain it has been deemed worth while to devote considerable space to a discussion of this subject. For a more complete discussion of the innervation of the chest and its practical significance, the reader is referred to Rasmussen's recent work. It has been shown that in the epithelium of the bronchi and especially at the points of bifurcation of the bronchial ramifications almost to the alveolar ducts in the muscles of the bronchi and also in the walls of the larger pulmonary arteries are found sensory nerve endings. These come from the vagus nerve. They are, however, not pain fibers. It is obvious, therefore, that the patient suffering from a central pneumonia will experience no pain in the region of the lesion. Even when the lesion extends to the periphery of the lung no pain is experienced unless pleurisy appears involving the parietal pleura. So far as we know the visceral layer of the pleura is not supplied with pain fibers except for a possible small area near the hilum although afferent nerves and nerve endings are found in the interlobar regions of the pulmonary pleura. But large areas of the visceral pleura in contact with the parietal pleura are without nerve fibers of any kind.

The parietal pleura is richly supplied by pain fibers. The costal portion of the parietal pleura derives its innervation from the deeper branches of the intercostal nerves. The pain produced by irritation of these nerves is located quite accurately over the area of involvement.

A knowledge of the innervation of the diaphragm is of much practical value to the physician because of the fact that in the development of the body the diaphragm is derived from two distinct sources; hence its nerve supply is also derived from two distinct sets of nerves. Developmentally the septum transversum appears in the cervical region. It becomes innervated by

that nerve on each side (the phrenic), derived chiefly from the fourth cervical nerve. Later the septum transversum, like the heart, descends. This descent continues until it reaches the position of the diaphragm in the adult, the central and greater portion of the ventral two-thirds of which it actually forms. Along with its descent the transverse septum carries the phrenic nerve as its sole nerve supply; therefore the central and greater portion of the ventral two-thirds of the diaphragm receives its entire innervation from the phrenics. The remainder of the diaphragm,—that is, its periphery and dorsal portions,—is derived from folds originally from the body wall in the region of its permanent position. These folds are supplied by branches from the lower six thoracic spinal nerves which, therefore, become the permanent nerve supply of the periphery and dorsal portion of the diaphragm. These spinal nerves apparently are entirely sensory, however.

The chief motor nerve supply of the diaphragm comes by way of the phrenics. This fact is of much practical value to the physician when in extreme conditions, such as singultus or coughing due to diaphragmatic injury, he wishes to block the motor impulses by the injection of novocain into the phrenic nerves. Again, under certain very definite indications, it may be desirable to perform a radical phrenicotomy to immobilize permanently the diaphragm.

This motor supply of the diaphragm is important from the standpoint of partial immobilization of the diaphragm reflexly in pneumonia. Everyone who has treated pneumonia knows how diminished the excursions of the diaphragm become on the involved side. This is because the stimuli from the area of involvement are carried to the medulla by way of the vagus or carried to the spinal cord by way of the sympathetics or upper thoracic spinal nerves, whence they are transferred to the phrenic in control of diaphragmatic movement.

The limited movement of the entire chest upon the side of the involvement is also a common finding. This is brought about reflexly by stimuli passing from the region of the lesion by way of the vagus and sympathetics to the medulla oblongata and spinal cord. From here they are transferred to nerves supplying the muscles of respiration including the diaphragm on the affected side. This is a great protective mechanism in that it is nature's attempt to throw the lung at rest, thus aiding the process of healing. This, together with the actual involvement of the lung itself, plays considerable part in the production

of dyspnea and the reduction of vital lung capacity, which is so characteristic in pneumonia. It is believed that in no other acute disease of the respiratory tract is the lung capacity so reduced from the beginning. After the crisis in lobar pneumonia when most symptoms have disappeared the movements of the chest remain restricted and the lung capacity remains low for some time. This serves as an excellent criterion in guiding the physical activities of the patient.

The pneumonia patient often is found lying upon the affected side. He learns to do this because it reduces his pain; but why is the pain reduced? Webb, Forster, and Gilbert have shown that the lung on the side upon which one lies becomes partially compressed by the gravitation of the heart and other mediastinal structures and the pressure of the body against the chest wall. These, together with the partially immobilized diaphragm produced reflexly, so diminish the movements of the chest and lung as to greatly reduce the pain. In addition to its motor fibers the phrenic nerve on each side carries the sensory fibers to both surfaces of the central portion of the diaphragm. Moreover, it supplies branches to the capsule and ligaments of the liver, and some evidence has accrued to lead to the belief that branches reach the suprarenal and renal regions, as well as the gastric and pancreatic regions.

For a long time it has been known that certain disease conditions of the liver and biliary passages may be accompanied by pain in the right shoulder. The pain stimuli come in over the phrenic to the region of its origin in the cord, the pain being referred to the shoulder which is supplied by the same cord segment. From a knowledge of the regions supplied by the phrenic nerve it appears that shoulder pain is not alone diagnostic of liver or biliary duct disease, as some are inclined to think, but may result from disease in the region of the suprarenal gland or possibly from the renal and pancreatic regions. Moreover, one must be cognizant of the fact that a basal lobe pneumonia resulting in diaphragmatic pleurisy is quite capable of causing pain referred to the shoulder region.

Besides supplying sensory fibers to the periphery and the dorsal portion of the diaphragm, the lower six thoracic spinal nerves supply the lower

chest wall and the upper abdominal wall. It is an established fact that irritation of that part of the diaphragm supplied by these nerves may result in pain in the abdomen. The stimuli arising in the region of the periphery and dorsal portion of the diaphragm are carried by the lower thoracic spinal nerves and transmit the sensation of pain. An understanding of the distribution of the lower six thoracic spinal nerves is of much value in differentiating between acute appendicitis and pneumonia in the right basal lobe resulting in irritation of the pleura over the periphery and dorsal portion of the diaphragm. Many a physician has opened the abdomen and much to his surprise and disappointment found a normal appendix, and much to his chagrin detected a pneumonia the next day.

It is true that pneumonia and appendicitis may co-exist, but the proof necessary to justify laparotomy in the presence of pneumonia consists of much more than rigidity of the right rectus abdominis and tenderness at McBurney's point. In such cases the detection of the pneumonia is important as it will determine the type of anesthesia to be used.

A pneumonic lesion may also produce symptoms which closely simulate those of gall-stone colic. The differentiation of appendicitis, gall-stone colic, and pneumonia is not easy; yet one is dealing with a process (appendicitis) on the one hand which may require immediate operation and with a process on the other hand upon which ether anesthesia may result disastrously. There are a few points of considerable value in the differential diagnosis. First, if the temperature is 102° or above one is more likely to be dealing with a pneumonia; second, if the rigidity of the abdominal wall is accompanied by markedly diminished or absent respiratory movements appendicitis should be given first consideration; third, if the leucocyte count is 25,000 or above pneumonia should be given first consideration; fourth, if the vital lung capacity is definitely reduced one should think first of pneumonia; fifth, since most cases are operated on in hospitals one should always have stereoscopic x-ray plates made of the chest before operating. Even if no pneumonia is detected one may obtain evidence of old tuberculous lesions, which would contra-indicate the use of general anesthesia.

BONES IMPACTED IN THE FOOD PASSAGES AND THEIR REMOVAL BY ESOPHAGOSCOPY, WITH A REPORT OF FIFTEEN CASES*

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Considering how frequently fish bones or fragments of meat bones are swallowed it is remarkable that they do not become impacted more often in the food passages. Most of the small bones eventually find their way into the stomach and produce no symptoms; but every once in a while one becomes lodged in the esophagus. In my experience of about one hundred cases of foreign body in the food or air passages, fifteen came as the result of bones impacted in the esophagus.

There are three conditions under which bones may become lodged in the esophagus: (1) in cases where the bone itself is inordinately large; (2) in cases where the bone has sharp points or serrated edges that might catch in the folds of the esophagus; (3) in cases where the esophagus is narrowed as the result of a pre-existing disease, such as spasm, paralysis, or stricture.

Clinically, bones differ in several respects from other classes of foreign bodies, and it is interesting to note that most of the foreign body cases in adults are the result of impacted bones, whereas other kinds of foreign bodies are more frequently observed in children. It has been noted that the great majority of these adult cases occur in patients whose teeth have been extracted. The absence of the dental sensation, partially auditory, diminishes the ability of the patient to detect a hard substance in the food, and thus bones slip by that otherwise would have been intercepted. The absence of teeth is an advantage to the esophagoscopist, however, in that he can more easily manipulate the esophagoscope, as it can be passed more readily when there are no upper teeth.

It is easier to secure a definite history in this group of cases than in those of other foreign bodies; while eating, the bone is swallowed and a sudden sharp pain is experienced in the throat, often accompanied by coughing, choking, or vomiting and followed by more or less difficulty in swallowing associated with pain when attempting to do so. Pain is a marked feature. Pain not only occurring while swallowing, but

persisting continuously, is quite suggestive of the presence of a foreign body. The pain is particularly severe when the foreign body lodges in the upper portion of the esophagus, where mere phonation may set up a muscular spasm, thus augmenting and aggravating the condition. A scratch, caused by the foreign body in passing, frequently causes pronounced dysphagia, but rarely pain that persists. As is to be expected, most patients are very apprehensive, uneasy, and excited, anticipating the worst.

It is worthy of notice that this class of foreign bodies produces in the patient a feeling, amounting almost to an obsession, that the foreign body is still present, even though it may have moved on long since. However, the history of this class of patients is not typical, as I shall demonstrate by citing eight cases:

Mrs. M., aged 55, while eating strained soup, became convinced that a bone was lodged in her throat. In two weeks she noticed in her throat what she described as a queer feeling, although she experienced no pain at any time and no dysphagia. In spite of negative x-ray findings, she insisted upon esophagoscopy, which, also, was negative. The sensations in her throat immediately disappeared.

Mrs. K., aged 49, thought that a chicken bone was caught in her throat. After a month she still felt that the bone was present, although she experienced no pain in swallowing; but there was some pain when the throat was particularly dry. Three different x-ray examinations, including fluoroscopy, performed by three successive, competent roentgenologists, were all negative. She still insisted that the bone was present, and she persisted in that belief until two esophagoscopies were performed, one under a local, and the other under a general, anesthetic. At last she was convinced that the bone had disappeared.

Mrs. T., aged 55, believed that she had swallowed a bone while eating a veal cutlet. Ten days later she complained of itching in her throat whenever she swallowed, although this was not accompanied by pain. She was x-rayed twice and she was esophagoscoped twice with negative results, and later this finding was confirmed, I learned, by an esophagoscopist in St. Paul.

The other five cases were similar to these in almost every detail. The history and the x-ray findings led me to believe that no foreign bodies were present, and esophagoscopy was performed only to convince the patient.

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Plate 1. Small bone opposite the 6th vertebra, lying transversely in the esophagus. Note that the patient is almost edentulous.



Plate 2. Large bone impacted in the esophagus at level of the 6th and 7th cervical vertebrae. Patient is edentulous.

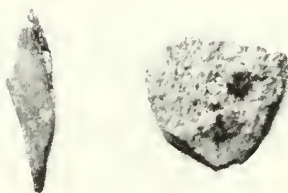


Plate 3. View of the bones, after extraction, shown in Plates 1 and 2.

Most patients feel that they know exactly where the foreign body is lodged, and occasionally their localization is accurate. Granting that a patient occasionally is able to localize a foreign body and that he usually experiences distinct painful sensations, it is hard to believe that the esophagus is insensitive, as Jackson⁴ maintains. He bases his opinion upon the fact that the sensation from a hot drink is felt in the throat and in the stomach, but not in the esophagus. I have not been able to find any information on this particular point in medical literature, but Professor Boring,¹ a psychologist at Harvard, has made some interesting investigations along this line. He has demonstrated that the esophagus is sensitive to cold at zero C. and to heat at 50° C. throughout its entire length, the upper end being more sensitive than the lower. He also found that the upper half refers the sensations of temperature and pain to the throat, and the lower half refers the sensation to the epigastrium, all points of reference being in the midline. Hence there is a section in the middle of the esophagus, which refers its sensations to one end or to the other, giving us the impression that this middle area is dead. Boring also maintains that the lower parts of the esophagus are less sensitive than the skin and the upper part about equally so. This lowered sensitiveness to pain may account for many small bones being present for a short time and then passing on without producing symptoms. In fact, there are cases on record of symptomless perforations of the esophagus.²

For the esophagoscopist,⁴ bones are frequently harder to deal with than foreign bodies, such as coins. The reason for this is obvious: a bone is usually regarded by the family and often by the medical adviser in the nature of food; and attempts are made by them to dislodge the bone, which results in trauma to the surrounding tissues, thus impelling its removal. As is generally known, the probang was formerly very popular in the removal of foreign bodies from the esophagus; but lately it has fallen very properly into disuse for reasons that are obvious to most operators. In bone cases it is frequently possible for the patient to gag himself and thus regurgitate the foreign body; and in cases where it is impossible to secure the services of an esophagoscopist, the attending physician can sometimes accomplish his end by administering an emetic.

Bones which have produced a laceration are very likely to cause rapid inflammatory changes, such as edema and ulceration; these naturally increase the difficulty of extraction and make blind efforts doubly hazardous. Under such cir-

cunstances there should be no delay, and the bone should be removed under direct inspection by means of the esophagoscope. As Tucker⁶ says: "The esophagus is one of the most intolerant organs with which one has to deal surgically. Besides being a septic canal which drains all the infectious secretions from the mouth to the stomach, it is susceptible to shock to an extent out of all proportion to the severity of the operation or lesion, as shown in the ordinary acute esophagitis from traumatism."

The *x*-ray is of very great value in localizing the bone and in determining its relation to other structures, the arch of the aorta particularly, and it should always be employed before the esophagoscope is used. Guthrie,³ in an excellent article on this subject, maintains that the fluoroscope is the best instrument for locating a foreign body. I have found this to be valuable, but a plate taken with the head completely extended in order to stretch the cervical esophagus will usually furnish an accurate demonstration of the bone, as the accompanying illustrations show. In cases where the film is negative, the barium method should be used. Pancoast⁵ advises the use of a barium capsule, stating that its passage is practically always obstructed by even the smallest foreign body. In no case have I ever found a bone by esophagoscopy that could not be localized by the *x*-ray; hence I believe that a correct diagnosis can be made before the esophagoscope is used.

It goes without saying that the best treatment is the removal of the bone with the assistance of the esophagoscope. Personally, I very much prefer general anesthesia. Under it the relaxation is more complete, allowing more deliberate manipulations, thus decreasing the possibility of serious damage being done to the surrounding tissues. In cases where the bone has been lodged for any considerable length of time, tissue changes are produced, making necessary very gentle manipulations on the part of the operator in order to avoid the possibility of perforation. When the swelling is pronounced the bone may be over-riden or pushed down without being noticed by the operator. The employment of moderate-sized tubes will tend to obviate such a possibility.

You may be interested in the illustrative cases that I shall briefly outline here. A twenty-year old girl had a fish bone lodged in her throat for twenty-four hours. She felt it every time she swallowed, and phonation was painful. She coughed and gagged almost constantly, but without relief. She localized the bone in the midline on a level with the thyroid cartilage. Laryngoscopy showed the bone transfixing the epiglottis

from side to side. Its removal was easily accomplished, and the patient was relieved instantly.

A man forty years old choked on a bone while eating. He went at once to the Minneapolis General Hospital, where the bone was located by *x*-ray in the esophagus at the level of the clavicle. I removed it by esophagoscopy under general anesthesia. Recovery was satisfactory and complete.

Mrs. J., aged 65, choked on a chicken bone at noon and reported for examination the next afternoon. She stated that she felt the bone immediately behind the larynx. She had constant pain, which was augmented by swallowing. She was edentulous. The *x*-ray located the bone at the level of the third rib, demonstrating how pain in the upper half of the esophagus can be referred to the larynx level. The bone was removed under local anesthesia, giving her prompt relief.

Mrs. G., aged 46, choked on a pork bone. Eighteen hours later she reported for examination, stating that she could feel the bone in her throat. She complained of constant pain ever since the accident, pain which was more acute when she swallowed. She carried her head as if her neck were stiff, and she scarcely dared to talk. The *x*-ray localized the bone immediately behind the thyroid cartilage, lying transversely in the esophagus. It was removed under a general anesthetic, and was found to be one inch long and a quarter inch in diameter. Her recovery was rapid.

A six-year old boy choked on what was thought to be a piece of meat. Twenty-four hours later, he was absolutely unable to swallow anything, not so much as a drink of water. While an infant he had sustained a lye stricture of the esophagus. It was treated, and the physician thought it to be safe. His mother took him to the Minneapolis General Hospital where an *x*-ray examination was made. Under a general anesthetic esophagoscopy was performed removing from the esophagus a large piece of meat surrounding a small piece of bone. Following the removal of the bone, an annular stricture was plainly to be observed, a stricture which closed off about one-third of the lumen. The stricture was dilated and the child has suffered no inconvenience since.

An adult woman complained of pain in her left ear. The pain was intermittent and considerably augmented by swallowing. The ear was found to be normal, upon which the operator sought the cause of the referred pain. Laryngoscopic examination revealed the presence of a piece of bone one-half an inch in diameter imbedded in the left arytenoid cartilage. Upon its removal the earache disappeared.

Mrs. F., aged 40, felt a bone in her throat while eating soup. She tried unsuccessfully to remove the bone by gagging herself. The pain was constant and was increased by swallowing. She localized the bone on the left side below the thyroid cartilage. Three hours later she reported to her family physician, who, by means of the *x*-ray, demonstrated the presence of a large bone at the level of the

clavicle. Under a general anesthetic it was removed by esophagoscopy with no further symptoms appearing.

In conclusion, I wish to stress the importance of carefully examining with the x-ray every edentulous patient who feels continuous pain after swallowing a bone. In cases where the x-ray is positive, the bone should be removed without delay by esophagoscopy.

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THE ATTITUDE OF THE TRAUMATIC SURGEON TO THE INDUSTRIAL TRIAD: THE EMPLOYER, THE EMPLOYEE AND THE EMPLOYER'S INSURANCE CARRIER*

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I. INTRODUCTION

We are in the midst of the turmoil of an intense industrial civilization, and the existence of certain elements in the progress of industrial relations as they pertain to the employee, the employer, and the employer's insurance-carrier, is our apology for the presentation of this paper.

Among the underlying causes of such advance are the urge for social betterment on the part of the employee and the growing spirit of altruism on the part of many employees. Private and public compensation companies, recognizing these forward movements, have rendered through compensation insurance, these advanced motives practical.

The rôle of the doctor in his relations to this industrial triad, is the subject which we wish to present to this scientific section.

II. THE INDUSTRIAL OR TRAUMATIC SURGEON

The relation of the surgeon to his industrial practice differs in many respects from his relation to his private practice. In his private practice he has but to consider his patient and that patient's family. The industrial surgeon, besides maintaining a helpful attitude to his patient, the injured employee, must co-operate to

the fullest degree with the employer and, as well, with the employer's insurance-carrier.

It must be realized that industrial surgery is fast becoming a specialty unto itself, and the broadest of surgical specialties, because the most inclusive. Since this is true the traumatic surgeon must be equipped along all the lines necessary for the adequate handling of this specialty. To cope with the conditions which arise, he must not only be equipped academically and professionally, but he must have, or be a part of, a surgical organization equipped in every way to render adequate general surgical service. Such professional training presupposes a preparation along general surgical lines. By this we do not intend to convey that he be technically proficient in the caring for the more unusual injuries, such as obscure brain and nerve lesions, but we do mean however, that his general training shall enable him to correctly diagnose such lesions in order that proper treatment be promptly instituted.

The industrial surgeon must be broadminded enough to realize his own limitations and not to exceed them and to relegate such treatment to the surgeon best equipped to do that work. Moreover, many conditions present themselves whose progress may seem, or be, unsatisfactory. Such surgeon may be fully competent to handle such cases, but, for the best interest of all concerned, there should be no hesitancy on his part

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in calling for consultation and advice, or even assistance

Individual and allied, private and public, and national and international groups of experts have, through the World War experience, sufficiently emphasized the need of training in postoperative, or reconstruction surgery. Since many data have been accumulated in the recent years relative to the value of the physiotherapeutic side of surgery, it would seem needless here to emphasize the necessity for a thorough training and understanding of this important adjunct of surgery. In the hospitals properly caring for industrial surgical cases there are found in increasing numbers, well-equipped physiotherapy organizations. The industrial surgeon in any case must have access to such an organization, and in the event that no hospital organization is accessible he must form such an organization for himself.

III. THE SURGEON'S OBLIGATION TO THE INDUSTRIAL TRIAD

We have considered the qualifications of the industrial surgeon and have duly emphasized the co-operative part he plays in industrial relations. It now remains for us to indicate in what manner he may be of assistance, nay, indispensable, to each of the components of our triad. Since the compensation insurance companies have engaged or contracted to assume the responsibility of all the occupational injuries of employees, let us first point out the surgeon's duties to such companies.

(A) OBLIGATION TO THE INSURANCE CARRIER

Since accidents may occur during day or night shifts, it is necessary that the industrial surgeon or some competent assistant be available at all times for prompt service.

The surgical organization must be equipped to operate the most economically. The better the equipment the greater the quantity of work capable of being done, with the result that that work will be done at a cost which carries no unjustified burden. Such an organization must be thoroughly equipped with laboratories and *x*-ray facilities, as well as have able assistants, competent nurses, and proficient technicians.

Reasonable medical cost can be obtained only by rendering immediately the proper treatment. Such treatment reduces to a minimum excessive charges, protracted disability, and needless functional impairment.

Too much emphasis cannot be laid on the necessity for the careful development of the clerical phase of industrial surgery. We must keep in mind that our reports are the only pen pictures that the carrier has of the condition for which he may be called upon to pay large sums of money. The best stenographic help is none too good for the construction of the various reports as they fall due, whether initial, supplementary, final, or special. These reports must satisfy the Claims' Department of the various insurance companies, and in addition must be sufficiently accurate to stand judicial criticism by commission or bureau. It is only by strict attention to such detail that we can obtain the proper dovetailing and co-ordination between the medical and Claims' Department, that can alone produce the desired results. An incomplete report, where a given case is in litigation, delays proceedings, since additional information is often required. Such an incomplete report, moreover, reflects unfavorably upon the insurance company and the insurance company's surgeon, and may influence a verdict in favor of an unjust claim.

We must remember, too, that in all such service the compensation, though possibly small, has been adjudged adequate and is duly paid; therefore only every necessary attention should be charged.

(B) OBLIGATION TO THE EMPLOYEE

It is always necessary to maintain a humanely helpful attitude to the employee. That ideal must be striven for which makes of each patient in one's industrial practice a private patient of one's own clientele.

We must avoid, in our attitude toward the injured employee, the unnecessary duplication of medical advice. Enough industrial surgery by this time has been done for us to know that the mind of an injured man, suffering from some obscure condition, is readily acted upon unfavorably by medical opinions which, though scientifically coinciding, appear to him to be conflicting or divergent. There is no surer way of prolonging compensation and increasing medical costs than by failing to recognize this very potential danger.

Another of the obligations to the injured man is, that his care be under the personal and direct supervision of the surgeon. By this we mean, that an industrial surgeon's practice be of no greater volume than that which can be cared for personally and efficiently, in order that nothing serious escape notice.

(C) OBLIGATION TO THE EMPLOYER

Since the employer of the injured man through the insurance company really retains the surgeon, it is only just and proper that such employer be at once apprised of any injury befalling his employee. This gives the employer an opportunity to maintain more intimate relations with the injured employee and his family. Moreover, it is to that employer's interest that he becomes acquainted with the extent of injuries in order that he may gauge the duration of treatment, the time of disability, and the extent of permanent total disability, if any. In this way he may keep in closer touch with his operating organization.

Since the surgeon comes into the closest contact with the injured employee he is in a position to estimate, apart from the injury, that employee's general physical condition, and his capacity satisfactorily to serve his employer. He may observe that such an injured man, through some physical incapacity unknown to the employer, is a potential liability. It, therefore, becomes the duty of such a surgeon to apprise the employer of any such information that would be of value to him.

A more intimate relation and co-operation between the surgeon and the employer of labor may lead to a closer inspection of the potential dangers of the industrial plant. Such an inspection may lead to the amelioration of many conditions, bringing about ultimately lowered medical costs.

SUMMARY

In conclusion, we must remember that the ultimate obligation on the doctor is to so perform his duties to this industrial triad as to obtain the best possible results in the shortest possible time and at a cost which carries no excessive charges. This means that an unnecessary degree of total permanent disability reacts seriously on each member of this industrial group. To the injured employee it means a lowered degree of efficiency due to his incapacity and a sense of inferiority resulting from his knowledge of this incapacity. To such a degree is his morale broken. To the insurance company it means the expenditure of

a greater or a lesser amount of money, which, in its final analysis must revert to and be ultimately paid by the employer. Finally, to the employer it means that there may be avoided a dislocation or disruption of his organization, with the possible loss of the help of an efficient workman.

IV. TWO PROBLEMS FACING INDUSTRY

This analysis has enumerated certain of the relations between the doctor and the members constituting the co-operating forces in the industrial world. We have, however, always before our mind certain problems which are occasionally unearthed by the doctor doing his work or service.

It frequently comes to his attention in the case of an injured employee that the present injury is only indirectly chargeable to the employment in which he has suddenly become disabled. Inquiry into his history brings out the fact that his previous twenty or thirty years of employment have been of such a nature as to develop conditions which almost destroy his usefulness. These conditions, however, have not absolutely incapacitated him. His disabling injury has come during this final employment, but we realize that the underlying factors which have indirectly made possible the injury, occurred during his previous employment. Wherein, then, lies the fairness of the insurance-carrier for the last employer being saddled in some states with all the expense of a permanent total disability rating properly attributable to his many previous years of useful occupation?

There still remains a question as to the men who enter employment with existing frailties not sufficiently evident at the time of employment to be recognized by the casual examination of the employers for labor. The necessity for discovering such handicapped men is leading to the thorough physical examination of all employees as a precautionary measure. Such a routine forces us to the natural conclusion that a group of handicapped men will soon be upon the public. This group, of course, has no justifiable claim on industry for indemnity or sustenance.

THE TREATMENT OF CHRONIC STOMACH CONDITIONS*

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The chronic stomach conditions calling for surgical treatment include ulcer, tumors, malignant and benign, and the less commonly occurring granulomata.

Ulcers of the stomach when chronic offer opportunities for exercising the judgment, first, as to whether or not the treatment is to be medical or surgical, and, if surgical, what type of such treatment is best employed for the particular case. It is my belief that a simple uncomplicated ulcer of the stomach should be given the advantage of a thorough trial with accurate medical management.

Accurate medical management means almost always that the patient must go to the hospital for three to four weeks; that he must remain in bed; that the physician must know that the acidity is controlled by the regular use of an adequate amount of alkali and food and by actually pumping the stomach every day or nearly every day and testing the stomach contents to see that the acidity is controlled. The stools should be examined for blood quite regularly, especially if the ulcer was bleeding before treatment was instituted. If you know that the acidity has been controlled and that the occult blood in the stool is not from bleeding about the gum margins of the teeth or other extraneous source, in other words, that the ulcer continues to bleed on accurate management, this phenomenon speaks for, but may not prove, a malignancy at the site of the ulcer and is then one of the indications for surgical procedure. If the opportunity for an accurate medical management is not available, or if the management is not or cannot be carried out over a long period of time, at least a year, then the patient with an ulcer of the stomach is better off if he is operated on by a good surgeon.

Medical treatment has the advantage of having no mortality and almost no morbidity from the treatment itself as opposed to surgical operation, and a high percentage of cures, but it may not cure some cases that surgery would cure, and my point is that selection of cases for medical or surgical treatment is what should be done and not adopt an attitude of a too routine procedure of either medical or surgical treatment.

Definite rules cannot be formulated, but certain general principles can be followed. An ulcer

treated accurately medically which has a tendency to recur is probably better treated surgically.

Other complications of ulcer in which surgery is indicated are obstruction at the outlet which does not subside on medical management.

The writer has seen several cases where there has been an ulcer at the outlet giving obstruction noted clinically and by x-ray which has gradually but very definitely been relieved by accurate medical management. If there is not real evidence of relief of the obstruction in a comparatively short time and quite, complete relief in three weeks on treatment surgery is probably indicated, and gastro-enterostomy relieves many of them. Obstruction by an ulcer at the outlet of the stomach is caused either by an inflammatory swelling about the lesion or by a pylorospasm or by an actual tissue narrowing. The inflammatory swelling and the pylorospasm respond quite readily to the influence of control of acidity. Actual tissue narrowing does not. A good custom is to place patients with an obstruction of the outlet of the stomach due to ulcer on medical management. Often some relief is obtained in a few days. In many the relief of obstruction is complete in three weeks. If there is not a rather definite relief in three weeks surgery should be advised.

The above discussion has to do with the principle that an ulcer of the stomach would heal, as would an ulcer on the surface or other part of the body, if it were not for the corrosive action of the gastric juices, that is, that the portion of the stomach wall which has lost its protective coat of epithelium is acted upon by digestion. This digestion can take place only in the presence of free hydrochloric acid. The purpose of the treatment, medical or surgical, is to prevent the digestive action on the sore spot.

In the medical management this is prevented by neutralizing the acid by alkaline powders and milk and cream. This brings us to the consideration of the type of surgical procedure.

Gastro-enterostomy has been for several years a much-used means of treatment for peptic ulcer which accomplishes its purpose by hastening the emptying of the stomach, thereby shortening the time that the ulcer is subjected to the action of the digestive juices. It has resulted in the cure of many ulcers. On the other hand it has been followed by some mortality, some morbidity, and

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some failures to cure. The mortality varies with the surgeon or clinic, and the statistics have varied with the true mortality and the diligence and honesty in their keeping.

In the hands of a good surgeon the mortality of gastro-enterostomy should be low.

Resection of the ulcer should be the operation of choice where this is feasible. This is for theoretical and practical reasons. It has the advantage of complete removal of the diseased area, thus lessening the probability of recurrence and of malignancy developing. Ulcers that have existed for a long time and especially the untreated ones sometimes become large and perhaps indurated. These are much better resected than treated medically or by gastro-enterostomy, both on account of the fact that if they should heal eventually it would be at best a slow process and also on account of the possibility of malignancy starting at the site of the ulcer.

Perforation is more apt to occur with an acute ulcer than with a chronic one. When a chronic ulcer perforates it changes classification from a chronic stomach condition to an acute one, and of course, immediate operation is called for.

Hemorrhage from an ulcer is usually better treated by non-operative methods,—morphine in large enough amounts to keep the patient very quiet, and fluids by proctoclysis, hypodermoclysis, or even intravenously. Blood transfusions may be necessary. Hemorrhage is apt to continue or recur because after a clot forms it is digested away and allows further bleeding. This can be handled usually by giving alkali in sufficient amounts and frequency to keep the stomach content alkaline. The morphine aids by keeping the patient quiet. When the bleeding is very profuse immediate operation to secure the bleeding point may be necessary, but it does not become necessary in a very high percentage of cases.

Hour-glass constrictions of the stomach are very apt to require operative treatment, and the type of operation will vary with location, degree, and type of constriction.

One thing we know, but are apt to forget, is the importance of focal infections in the etiology and therefore in the treatment of ulcer. We should impress the patient with the importance of removing all infectious foci if possible.

TUMORS OF THE STOMACH

The benign tumors are less common than the malignant ones. Adenomata are those most frequently seen, and they may be pedunculated or sessile and single or multiple. At or near the

outlet they may interfere with the emptying of the stomach, and when they do they are best removed by resection. Indeed, the benign tumors are not likely to call attention to themselves unless they do so by mechanical obstruction on account of their location or by bleeding. Lymphadenoma, myoma, and lipoma are so uncommon that they are of pathological, more than of clinical, interest. When encountered they should be removed, as some may bleed, some may interfere mechanically, and there is the possibility of malignancy originating.

The malignant tumors, sarcoma and carcinoma, occur in the stomach with carcinoma in much the greater relative frequency.

Surgery is indicated sometimes to clear up the diagnosis. The lesion may have been an ulcer, with or without treatment, and where the acidity is decreasing and especially with other corroborative evidence of beginning malignancy an exploration may aid in determining the nature of the lesion and at the same time give an opportunity for a resection. It is this type of case that early resection can be done in and that offers the most favorable outlook for complete cure. An operation is called for also when the lesion is known to be a cancer, as in some by a wide resection a cure can be effected or the disease may be greatly delayed in its progress.

A larger cancer may occur near the outlet so that the emptying of the stomach is interfered with to such an extent that a gastro-enterostomy may spare the patient much suffering from starvation and vomiting and the pain attendant on these. In the same way gastrostomy is occasionally called for when an irremovable growth is at the cardiac end and the patient suffers from starvation and by irritation of food passing over it and also the tumor grows less rapidly when spared such irritation. Jejunostomy may sometimes be called for for similar reasons, especially when an inoperable cancer mass involves the body of the stomach and a gastro-enterostomy cannot be done. I believe that we are sometimes inclined to be too conservative in handling cases of cancer of the stomach. If we are in doubt as to whether or not we are dealing with a cancer of the stomach exploration properly done does no harm to the patient and may give him his only chance of recovery. These border-line cases offer the best outlook for cures. If the growth be an early one a resection may entirely cure and is almost sure to prolong life and lessen suffering. If the case proves to be one of an undoubted but early carcinoma there is still some chance of recovery if a wide enough resection

can be done. If the growth is not removable and there is evidence of spreading to the lymph nodes, a gastro-enterostomy will give much relief; if so much of the stomach is involved that this cannot be done jejunostomy will prevent the patient from starving to death.

The granulomata are rare in the stomach. Syphilis and tuberculosis may involve the stomach as a part of a general process, and their treatment should be mainly the treatment of the general condition.

ENTEROSTOMY*

BY M. A. STERN, M.D.

SIoux FALLS, SOUTH DAKOTA

An enterostomy is—

- (a) An incision into a bowel for temporary drainage, or
- (b) An incision for introducing food or liquid when there is an obstruction above.

This operation is variously called "ileostomy," "jejunostomy," and "duodenostomy," according to the location in which the drainage tube is inserted. Usually a medium-sized catheter is employed. This is folded into the bowel wall after insertion into the gut. The peritoneal surfaces will lie in apposition, and the fistula will heal promptly when the tube is withdrawn. The folding of the peritoneum over the catheter may be done after the method of Witzel, or the external peritoneal coat may be incised and the catheter buried in the musculature of the bowel. Dr. C. H. Mayo compares enterostomy with tracheotomy as a life-saving operation.

Physiologists have shown the great toxicity of the content of the small bowel when obstructed. This increase of toxicity in stasis of the small bowel has been proved by animal experimentation. This, together with gas-distention, is properly relieved by drainage. I think we have all noted the marked clinical improvement in cases of peritonitis when a so-called spontaneous fecal fistula develops. This, of course, is nothing more than nature's method of enterostomy. In cases of gangrenous appendicitis it may be well to make an enterostomy opening at the time you do the appendectomy. Usually, however, this operation will be indicated on the fourth or fifth day. There is danger of putting this operation off too long. The patient has been operated on, is not doing well, is very ill and fretful, the relatives are up in the air, and one's whole tendency is to avoid suggesting a second laparotomy.

The following three cases were classed as hopeless. The enterostomy was done as a last resort. It is not often that one can say that a life has been saved, at least without mental reservation, but it is my firm opinion that in the three cases which are cited below, this simple operation was the life-saver.

CASE I.—A boy aged 6. The boy, whom you now see, was examined on August 22, 1924. On the evening of August 21 he had acute generalized abdominal pain, vomited several times, and was restless that night. Severe pain recurred again on the 22d.

Examination: Rigid and tender over McBurney's; pulse, 100; temperature, 101°; looked ill; pale; nostrils pinched. Otherwise he was a well-developed boy; chest negative; nose and throat negative; hemoglobin 60 per cent; white blood count, 11,200; polymorphonuclears, 86 per cent. He was operated on at once for acute gangrenous appendicitis; free turbid fluid in the abdomen.

(There was some discussion as to whether or not this abdomen should be drained, and on account of the uncertainty a small drainage tube was inserted.)

He left the table in good condition and continued to improve up until August 28. On this date severe pain recurred; the patient vomited; extremities cold; skin, moist and clammy. The pulse rose rapidly, and the temperature gradually increased to 102°.

August 29: The abdomen was opened on the left side, and a large localized abscess drained under local anesthesia.

August 30: He seemed better; temperature, 99°; pulse, 116; slept well; but the abdomen still distended. He vomited on this date. No results from enemas.

August 31: Distention still marked; severe pain in spite of all the usual methods used for relief. Under local anesthesia an enterostomy was done.

At the time the enterostomy was done it was impossible to identify the different portions of the bowel as all loops were distended, inflamed, and adherent, and the catheter was inserted into the first loop presenting.

September 1: Rested well; pulse and temperature, normal; 200 c.c. normal salt solution were given through the enterostomy opening. He got along well until the 4th of September, when a duodenal fistula developed, and the enterostomy tube was

*Presented at the McKennan Hospital Staff Clinic, first semi-annual staff meeting, March 16, 1925.

removed at this time. About 200 to 300 c.c. of light colored fluid drained through the enterostomy opening daily. Excoriated skin over the abdomen; the patient became dehydrated from loss of fluid; all the usual methods used to replace the fluid. Blood transfusion given.

September 2: Complained of pain and gas distress and a large abscess was opened through the rectum.

September 22: Another abscess was evacuated through the rectum.

September 2: Enterostomy tube was re-inserted, and the patient was fed through the tube and also by mouth, taking 2,700 calories daily.

September 25: Patient discharged with fistula draining.

Today you see a strong healthy active boy. There is still a small drainage through the fistula, amounting to perhaps ten or fifteen drops a day. We believe that this will close if left alone.

CASE 2.—The patient's age not stated on the operative record, but he was about six years of age.

September 2: Operated on by another surgeon for ruptured gangrenous appendix. Got along well until September 19, seventeen days after the operation, when he was taken with acute pain in the abdomen with nausea and vomiting; temperature, 101°; pulse, from 100 to 140.

September 20: Frequent vomiting, light-green color, abdomen distended; no relief from distention; no bowel movement; no result from enemias; morphine had to be given.

September 21: Seen in consultation. A sick child; abdomen greatly distended and very tender; no bowel movement for three days.

September 22: Distention worse. Under ether an enterostomy was done. Coils of small intestine enormously distended; gas and fluid.

September 23: 1,000 c.c. of fluid. From that time until November 4, the date of discharge, the patient improved greatly. When last heard from he was well and strong, but had a ventral hernia.

CASE 3.—Patient, a female, aged 35. (Age not stated on record).

February 10, 1925: Patient was operated on by another surgeon for gangrenous appendix.

February 15: Seen in consultation. Abdomen blown up like a toy balloon. General condition poor; pulse, 104; temperature, 101°; involuntary bowel movements for last twelve hours. On this date an enterostomy was done under local anesthesia.

The patient was very ill from December 18, 1924 until her discharge on February 8, 1925, when she had improved greatly, and she is in excellent health today.

PROCEEDINGS OF THE MINNEAPOLIS CLINICAL CLUB

Meeting of March 19, 1925

The regular monthly meeting of the Minneapolis Clinical Club was held at the University Club on Thursday evening, March 19, 1925. Dinner was served at 6:00 p. m., and the meeting was called to order at 7:00 p. m. by the President, Dr. J. S. McCartney. There were 23 members present, and one visitor.

The minutes of the February meeting were read and approved.

The scientific program of the evening was as follows:

Dr. R. C. Webb presented a case of dislocation of the ankle without fracture.

The patient was a young man, 23 years of age, whose right foot slipped, while he was handling a trunk, in such a manner that the foot was caught and adducted at the ankle joint in the manner which usually produces a sprain of the ankle. At the same time the trunk edge struck his foot on the medial aspect of the ankle joint. He suffered extreme pain, but was able to continue his work for several minutes.

On examination the foot was found considerably swollen, in marked adduction, and with a swelling on the anterolateral aspect of the joint just between the external malleolus and a point corresponding to the middle of the anterior lip of the tibia. It was extremely painful on any attempt at

movement. Anteroposterior and lateral radiographs were made, and these showed the anterolateral dislocation of the ankle joint, the astragalus being pushed outward and anteriorly from its normal position in contact with the tibia. (The proximal articular surface of the astragalus is grooved, normally, in the center, the groove running antero-posteriorly, and the distal articular surface of the tibia presents a corresponding ridge. In addition, the astragalus is normally held by the malleoli between which it is wedged.) In this x-ray the astragalus is seen to be pushed laterally so that the mesial half of the upper articular surface of the astragalus is articulating with the lateral half of the distal articular surface of the tibia. The lateral view shows the astragalus pushed forward and the upper surface rotated outward.

Under nitrous-oxide anesthesia the deformity was first slightly increased, and the foot was then extended by direct pull, the leg being held firmly by an assistant; pressure was then made over the protruding astragalus, and the foot was brought into a position of abduction. During this procedure a definite click was heard and felt, and the deformity disappeared.

On account of the considerable swelling present it was deemed advisable immediately to re-ray the ankle, and the second series showed that, although the condition was improved, the reduction was not complete when the foot was allowed to fall without restraint. It would appear that effusion of blood into the joint and the relaxation caused by the torn ligaments permitted this dislocation to recur, al-

though it had snapped into place as is usual in dislocations in other parts of the body.

The dislocation was again readily reduced by placing the foot in a position of dorsal flexion combined with abduction of the foot at the ankle joint. A posterior molded plaster splint was applied, reaching from the toes to the knee; while in this position and as soon as this became firm a lateral sugar-tong molded splint was applied, reaching from the knee on one side around the bottom of the foot and up to the knee on the other side. An x-ray taken of the ankle in this position showed the dislocation perfectly reduced and held in the most desirable position for healing.

After three days he was given crutches, and he continued to wear the plaster splints for three weeks, at the end of which time adhesive plaster strapping served to hold the ankle joint in position with slight abduction of the foot. He wore a heavy shoe and was allowed to step on the foot, using one crutch.

DISCUSSION

DR. GIESSLER: Were there any symptoms of pressure on the posterior tibial artery and nerve?

DR. HAYES: This is an interesting case of Dr. Webb's. We see many injuries to the ankle joints, but not many of this type. Not many have this sort of a dislocation without some complicating fracture. Injuries about the ankle joint usually cause much disability over long periods of time. I notice, by a recent medical report of the New York Police Force, that injuries of the ankle joint are among the most disabling of injuries. I would like to know more about the resulting disability of this patient of Dr. Webb's.

DR. WEBB: In answer to the question concerning pressure on the posterior tibial artery and nerve, I would say that the astragalus did not go forward sufficiently to render these structures under tension enough so that the posterior lip of the tibia would cause such pressure as to cause symptoms.

As to the after-results in this type of injury: I must confess that this is the first case of this kind which has come under my care, and the ordinary text-books are rather cursory in their discussions and advice. Five weeks after injury this man is walking about and is quite comfortable with the ankle well strapped. He complains of pain over the anterolateral aspect of the ankle when he bends the ankle too far. He will be supplied with a heavy high shoe, and this will be reinforced over the ankle by straps sewed to the shoe. There is a certain danger of recurrence.

Dr. J. M. Lajoie reported a case of "Generalized Edema," as follows:

Scientific investigators have given much time and attention to the problem of the cause of edema, but as yet they are of divided opinions. The pioneers were of the opinion that mechanical factors were quite frequently the cause of the "excessive accumulation of lymph in the intercellular spaces or serous cavities of the body." More recent investigations have shown that mere increase of volume in the blood vessels does not produce edema. Large amounts of saline may be introduced into the blood stream without producing noticeable edema. It is

concluded that hydremia and hydremic plethora are not a direct cause.

A more recent hypothesis of the cause of edema is "an increased swelling capacity of protein colloids in the presence of acid." Fisher is responsible for this view. The basis of it is "an abnormal production or accumulation of acid products in the tissues," resulting in increased hydration capacity of the tissue colloids. Opposed to this theory Robertson contends that "the buffer action of the tissues and tissue fluids must undoubtedly prevent the development of a sufficiently high acidity to account for the accumulation of fluids that occurs in edema."

The acidity required to influence so decidedly the swelling of proteins is far greater than the acidity that could possibly prevail within living tissues or the tissue fluids derived from them. Moreover, much edema may be found in tissues neutral or faintly alkaline in reaction. Besides, the fluid of edema is found between the cells and not within the cells, where the protein is more concentrated. There has been found no appreciable amount of acid in edema fluid.

There may be multiple causes concerned in the cause of edema. Recent evidence seems to indicate that a part is played by filtration through the walls of injured capillaries; that something has occurred which prevents or lessens the normal flow of fluid through the capillary walls.

Very recently Aldrich has reported observations made on the clinical course of generalized edema. He is inclined to believe that generalized edema is a pathological process and, like most pathological processes, in a general way may be considered to have protective and curative functions; that salt solution injected under the skin was absorbed more rapidly from the skin of edematous parts than from the skin of normal parts. This seemed to indicate that the cause of edema resides in the tissues, that is, is extra-renal, and that generalized edema appeared insidiously, associated with an infectious process. He noted that decrease in subcutaneous edema was not due to increased urinary output, and, in two cases, he observed from the onset that there was no marked reduction in urinary output preceding the edema. He favors the colloidal inhibition theory of Fisher. It appears that increased urinary output occurs as soon as renal edema subsides. Moreover, he is of the opinion that perhaps edema is Nature's way of diluting toxins which, if concentrated, might injure the tissues and he cites three instances where vigorous dehydrating measures appeared to be harmful.

CASE REPORT

No. 8726—L. B., male, aged 19; father died at 49 of some spinal trouble; mother died at 43 of diabetes. Four brothers and 2 sisters living and well. Patient had measles in childhood.

Chief complaint is swelling of face, abdomen, and legs.

Four months ago he was picking over potatoes in a cellar when his face began to swell, followed by swelling of legs. He was given a milk diet and hot packs. After four weeks the swelling disappeared except from the abdomen, which remained large. Six days later the swelling began again. He went to another physician, who told him he had

sugar and albumin in his urine. He was given insulin and wet packs without improvement.

During the past four months he has had some boils on his legs. Appetite poor since onset of edema. Has been taking cathartics almost daily since the illness began four months ago. Urinates two or three times daily; none at night. The amount is less than it was previous to onset of the illness.

There was no complaint of cardiac or respiratory trouble, and no history of venereal infection.

Physical findings: Pulse, 74; blood pressure, 120/90; respiration, 18; temperature 98°; weight, 178 pounds; face, edematous; pupils react to light and accommodation and are equal; tonsils appear normal; no caries of teeth; slight gingivitis present; neck, edematous; ears and nose, normal; no palpable glands. Heart and lungs are normal. Abdomen, distended; fluid wave present. There is a skin eruption in the upper left quadrant. External genitalia very edematous. Both lower extremities edematous and feel cold to touch. Legs have numerous dark red areas which appear to be the remains of former furuncles. Bones and joints, normal. Knee jerks, hyperactive. No Babinski or ankle clonus.

Laboratory findings: Urine: acid, sp. gr. 1030; alb., 4+; sugar, 0; hyaline casts, 3+; granular casts, 2+. Numerous examinations of urine were made, with findings fairly constant. Sp. gr. at times went down to 1008 or up to 1045. P.S.P. test gave 15 per cent at the end of the first hour and 15 per cent at the end of the second hour; total 30 per cent. 2-hour test: Fluid taken, 1967 c.c., salt 4 gms.

| Time | 8:00 A. M. | 10:00 A. M. | Noon | 2:00 P. M. |
|---------|------------|-------------|----------|------------|
| Volume | 45 c.c. | 40 c. c. | 40 c. c. | 28 c.c. |
| Sp. Gr. | 1026 | 1038 | 1039 | 1040 |
| React. | neut. | acid | acid | acid |

Combined specific gravity, 1034. Total output, 386 c.c.

Blood chemistry: Van Slyke 48.5 per cent; urea nitrogen, 28 mg. per 100 mil. Sugar, 0.11; creatinin 2.4.

Three weeks later the urea nitrogen was 17.5 mg. per 100 mil., and creatinin 1.5.

Fluid collected from a break in the skin of the abdomen gave 8 mg. of uric acid per 100 mil.

Blood: Hb. 85 per cent; R.B.C., 4,700,000; W.B.C., 8,900; P.M.N., 55 per cent; small lymph., 39; large lymph., 3; eosinophiles, 3. Wassermann negative.

X-ray of paranasal sinuses showed no abnormality.

Diagnosis: Chronic nephrosis with edema.

Patient spent three months in the hospital under my care. During this time his weight varied from 170 to 178 pounds. His liquid intake was for a time between 800 and 900 c.c. daily, while the urine output remained about 450 c.c. daily. Later his intake was kept below 400 c.c. daily, and his urinary output ranged from 150 to 300 c.c. daily. His protein intake at first was kept at 50 gms. daily; later it was increased to 65 gms. daily. Diet was salt-free. His blood pressure (average) was systolic, 138; diastolic, 88.

Patient was given hot packs for a time without noticeable perspiration or decrease in weight. For periods he was given tr. digitalis, m. 15, t.i.d.; tab.

anasarein, 2 tablets t.i.d.; sod. citrate, gr. 20 t.i.d., mag. sulph., 21 daily; pulv. jalap. comp., gr. 30 daily; pill digitalis, mercury mass and squills aa gr. 1, t.i.d.; caffein citrate, gr. 2, t.i.d.; thyroid gr. ½, t.i.d.; calcium chloride, gr. 50, t.i.d., without noticeable effect. Adrenalin chloride, 1 c.c. of a 1/1000 sol. was given hypodermically t.i.d. for one week, when it was necessary to discontinue it because of sinking spells which came after the last two injections. During this week his weight dropped only four pounds, but the edema practically disappeared from his face and his lower extremities; but he soon returned to his previous condition.

Four weeks after leaving the hospital his weight was 170 pounds (Dec. 3, 1924), and his general condition was unaltered. He was given adrenalin 15 m. t.i.d. P.C. At the end of one week his weight was 164.5 and the urine had increased. At the end of the second week his weight was 147. At the end of the third week his weight was 116, and the adrenalin was discontinued. At the end of the fourth week his weight was 104 pounds and there was no edema, but all the muscles were found to be greatly wasted. He felt well now, but weak. He was put on mild exercise, increasing gradually; and one week later his weight was 108 and increased weekly as follows: 111.5, 118, 122, 126, 129, 134, 135, during which time there was little or no edema.

The patient is now passing 1260 c.c. of urine in twenty-four hours. The specific gravity is 1022; albumin, 3+; hyaline casts, occasional; granular cast, occasional. P.S.P. at end of second hour 17 per cent; total 49 per cent.

A two-hour test showed a fixed sp. gr. between

| 4:00 P. M. | 6:00 P. M. | 8:00 P. M. | Elimination till 8 next A. M. |
|------------|------------|------------|----------------------------------|
| 48 c.c. | 47 c.c. | 38 c.c. | 100 |
| 1035 | 1035 | 1042 | 1035 |
| acid | alk. | neut. | acid |

1024 and 1028, and the amounts between 100 and 200 c.c. with the night excretion 600 c.c.

It is my intention to follow up this case as long as I can get the patient's co-operation. The question arises, "Did the administration of adrenalin produce the loss of edema?" At first I believed it did, since, experimentally, in the kidney of the frog, adrenalin in very small amounts produces diuresis. Now, it occurs to me that perhaps other unknown factors were responsible for the good results. I would like very much to use this method on another similar case.

DISCUSSION

DR. BARRON: I would like to say something about this very interesting case. We do not see this type of kidney disease very often. The clinical picture was entirely characteristic of a case of nephrosis. The edema is very pronounced and the urine shows characteristic findings of high specific gravity, large amount of albumin, and a decreased excretion, generally from 300 to 400 c.c. in twenty-four hours. The disturbance is localized in the convoluted tubules and not in the glomeruli. The blood chemistry gives normal findings and shows no retention products as that found in true glomerulonephritis. The blood pressure is practically never increased. Another condition that is frequently found in these cases is

pseudo-chylous fluid whenever ascites or hydrothorax is present. These transudates have a peculiar opalescence, due probably to an increased cholestrin content. The exact reason for this is not definitely known. We had a case at the University Hospital a short time ago, from which the aspirated fluid from the pleural and peritoneal cavities presented this peculiar milky opalescent appearance.

As to the cause of the edema, we are still considerably in the dark. Several theories have been brought forth recently that may have a real bearing on the subject. We shall not discuss the localized edema, but only the generalized form. The two main causes of generalized edema are cardiac decompensation and renal insufficiency. Cardiac edema has a somewhat definite pathogenesis in that the cardiac decompensation causes an increased pressure in the veins, which results in a distention of the capillaries. This may spread the endothelial cells lining the capillaries and allow the escape of fluid through the interstices. At the same time the disturbed circulation causes degenerative changes in the endothelial cells through disturbed nourishment. This also may allow the fluid to filter through the capillary walls. In addition, other factors may be present, such as changes in osmotic pressure due to differences in concentration of salts, principally sodium chloride and also the colloid substances. If an increased amount of colloid material and sodium chloride should be present in the tissues, edema would result. Or if there should be a decreased amount of colloid and salt in the blood, the result would be the same.

In renal conditions the pressure effects on the endothelial cells are not present and other factors are probably more important. Toxic substances circulating in the blood may affect the capillary endothelial cells altering the permeability of the capillary walls and allowing fluid to escape into the tissues. The changes in the colloid and sodium chloride concentration are also very important in this type of case. The presence of hydremia as a cause of edema has not been very well established. I do not believe that we can say that it plays any part whatsoever. The question suggests itself as to why there should be more sodium chloride and colloid present in the tissues of these cases than in the normal individual. The explanation may be that changes in the endothelial cells, whether due to some toxin or to pressure, may allow these substances to escape into the tissues and there raise the osmotic pressure, with the result that fluids will pass from the blood into the tissues.

I think that Dr. Fahr feels that the colloids play a far more important part in the causation of edema than the salts. You remember Epstein's work on certain types of nephritis. He felt that the escape of large amounts of albumin through the urine lowered the colloid concentration in the blood and thereby caused a relative increase of the osmotic pressure in the tissues. He therefore advised a high protein diet in these cases so as to increase the colloid concentration in the blood and in that way reverse the osmotic flow.

DR. LAJOIE: I greatly enjoyed hearing this discussion. I feel that I have learned a whole lot and that there is much more to learn. Fordyce gives his patients adrenalin chloride by mouth while giving salvarsan. I believe they have no reaction from

the salvarsan while doing that. Richards has noticed that adrenalin injected in very small amounts will produce contraction of the efferent and afferent vessels of the frog's kidney.

The meeting adjourned.

FLOYD GRAVE, M.D.
Secretary.

BOOK NOTICES

MEDICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month, March, 1925. Boston Number, Vol. 8, No. 5. Per clinic year (July, 1924 to May, 1925), paper, \$12.00; cloth, \$16.00. Philadelphia and London: W. B. Saunders Company.

The topics discussed by this group of clinicians are, for the most part, those dealing with unusual, overlooked, or mistaken aspects and manifestations of rather common conditions and disorders, interesting and instructive, although not readily classifiable for review.

Christian brings out the symptomatic similarities between pernicious anemia and polycythemia, analyzes these common clinical points, and differentiates between them and from other conditions giving similar circulatory signs and symptoms.

Minot outlines a case of splenomegaly and generalized lymphadenopathy due to chronic sinus infection, including a very succinct survey of the disorders of the lymphatic system.

The article by Bachman is a very well worked out differentiation of splenomegaly in children.

Reginald Fitz illustrates by four cases the usual diagnostic methods for the evaluation of glycosuria.

Murphy, in five cases, discusses the differential diagnosis of diabetic coma,—almost a companion article to that of Fitz.

Jackson deals with the question of albuminuria and other abnormal urinary findings in almost the same manner as Fitz does that of Glycosuria, the obligation for a careful study being to avoid a mistaken diagnosis and consequent subjection of the patient to unnecessary and possibly harmful dietary restrictions, especially in the young.

Berglund, by the review of previously published experimental work of himself and others on uric acid metabolism in gout, wishes to hypothecate on "unsensitivity" of the kidney to uric acid and that the low endogenous uric acid in gout indicates an increased destruction of uric acid, as explanation for the many clinically paradoxical aspects of this strange disease,—an explanation a little at variance with the usual conception, but seemingly well worked out on both human and animal subjects, and, withal, plausible.

Perhaps the most timely subject for us in this territory is that dealing with goiter, and Sturgis presents four cases of exophthalmic goiter to point out that, first, a patient with exophthalmic goiter may recover even permanently with rest alone; second, that the disease tends to progress by crises and remissions, if untreated; third, that Roentgen ray or iodine may abort a crisis either permanently

(Continued on page 302)

THE JOURNAL-LANCET

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JUNE 15, 1925

THE MEETING OF THE NATIONAL TUBERCULOSIS ASSOCIATION

Very properly, this twenty-first anniversary which the National Tuberculosis Association is celebrating in Minneapolis, June 15 to 20, gives us occasion to pause and consider what this organization has accomplished and what type of men and women have given their talents to its upbuilding.

We cannot fail to be impressed with the persistence with which its membership has pressed on in the face of the utmost discouragements, making such great progress and winning such splendid fights. To us this twenty-first meeting seems to wear something of the halo of a great victory that is so close it begins to shed a glow upon the workers in laboratories, in offices, and in the field.

Minneapolis, and the entire state, has the most cordial feeling of welcome and the most sincere sense of benefiting, in having so distinguished a group of leaders in tuberculosis research in our midst on the occasion of the first time in its history it has chosen a city in the Northwest for a meeting.

Let us pause here to consider some of the notable men in the field of medicine who are here, and also some of the laymen who have built bulwarks that have halted the advance of the disease, while they have found means to broadcast

information against this common foe of rich and poor alike—of humanity everywhere.

Dr. Allen K. Krause, Director of the Kenneth Dows Tuberculosis Research Laboratories of Johns Hopkins University not only has been a leader in research in the laboratory, but his authority as a writer on the subject is well known through two publications, to which he has frequently contributed—the *Journal of the Outdoor Life* and *The American Review of Tuberculosis*, of which latter publication he is the managing editor.

We think this meeting in Minneapolis of great importance as we contemplate that it brings to the physicians of the city, the state, and the Northwest contact with such men as Dr. Krause; Dr. Edward Archibald, Chief of the Department of Surgery of McGill University, Montreal; Dr. Gerald B. Webb, of Colorado Springs; Dr. J. A. Britton, Medical Director of the International Harvester Co., Chicago; Dr. Louis I. Dublin, of New York City (Metropolitan Life Insurance Co.); Dr. Linsly R. Williams, Managing Director of the National Tuberculosis Association; Dr. Charles J. Hatfield, President of the National Tuberculosis Association; Dr. Haven Emerson of New York City; Dr. William J. French, Medical Director of the Child Health Demonstration, Fargo, N. D.; and Dr. D. A. Stewart, Medical Superintendent of Manitoba Sanatorium, Ninette, Manitoba.

What is new in tuberculosis treatment and progress toward cure is brought up to date for us, in "Studies on the Gold Therapy of Tuberculosis," by Dr. H. C. Sweany, Dr. H. L. McClusky, Lillian Eichelberger, and Dr. Michael Wasick, of Chicago, Ill.; "Important Studies on the Chemical Composition of the Tubercle Bacillus," by Dr. T. B. Johnson and Dr. R. Coghill, of New Haven, Conn.; while "Studies on the Chemical Composition of Tuberculin" are brought forward by Dr. E. R. Long, and Dr. F. B. Seibert, of Chicago.

As Dr. H. E. Dearholt, of Milwaukee, President of the Mississippi Valley Conference on Tuberculosis, was heard recently to say, "And what may come out of this meeting to give a still greater forward impulse to our campaign certainly nobody can calculate in advance."

We believe it can be said of the work of the National Tuberculosis Association—and particularly the accomplishments reviewed at this its "Coming of Age" meeting—the statement chiseled in stone over the portals of the Municipal Sanitarium of Chicago: "Conceived in boundless

love of humanity and made possible by years of toil."

The words are a tribute to a former president of the National Tuberculosis Association, Dr. Theodore B. Sachs, of Chicago, and are true of the membership of the Association as a whole. Indomitable courage and great optimism coupled with persistence, so characteristic of individuals who have found themselves tuberculous and have fought the way to victory, have built up not only the National Tuberculosis Association but all it represents in sanatoria, tuberculosis clinics, open-air schools, preventoria, specially trained tuberculosis nurses, and the forward march in laboratory research work.

Looking back on the past 21 years, the Association may well look forward to the next 21 years, and, gauging future progress by past accomplishment, be hopeful that such spirit as has already been shown may produce almost miraculous results, as it expands to greater power.

A SHORT COURSE ON TUBERCULOSIS BY DISTINGUISHED MEN

Immediately following the National Tuberculosis Association meeting in Minneapolis, it has been announced, there will be a Tuberculosis Short Course for Physicians, conducted at the University of Minnesota, under the general direction of Dr. Allen K. Krause, Director of the Kenneth Dows Tuberculosis Research Laboratories of Johns Hopkins University.

This announcement, together with the further information that Dr. Gerald Bertram Webb, founder of the Colorado School of Tuberculosis, will be co-lecturer with Dr. Krause in the course, assuredly promises the most authoritative presentation of the trend of tuberculosis research available anywhere in the world to-day.

These two men of brilliant achievements in this field have won international reputation through the dedication of their lives to intensively fighting humanity's battle against this disease. Both men are in the prime of life, yet they already have behind them a contribution of inestimable value in the scientific work to which both have so magnificently and zealously devoted their abilities.

Physicians of the Northwest have an opportunity in this short course for a vital contact that it would be a pity to miss. It is assured that physicians who are already specializing in tuberculosis practice, private or institutional, will only need to hear of this Institute to set aside every

possible hindrance to attending and getting the utmost benefit from it.

It is not exaggerating to say that it is an opportunity in a lifetime to physicians in Minnesota and vicinity.

The clinical sessions of the Institute are to be held at Glen Lake Sanatorium, and fortunate, indeed, is Minneapolis in having this institution, which is the last word in modern equipment, available for concrete demonstration of data and achievement in the treatment of the tuberculous.

The local committee of the Hennepin County Tuberculosis Association which has been taking care of inquiries and giving advance information on the Institute, has had numerous queries from physicians in general practice who are desirous of taking this course. It is infinitely to the credit of the medical profession that it sees to it that so valuable an asset as this Institute becomes a part of every physician's education and experience.

THE INTER-STATE POST GRADUATE CLINIC TOUR

This tour, which was undertaken by the members of the Inter-State Post Graduate Assembly of America, started for Europe via Montreal and took a special steamer for a clinical trip abroad, and it is quite evident that they landed in England and eventually reached London. It is quite evident, too, that they created more or less of a sensation, if the London telegrams are taken seriously. The headlines show that the British find the U. S. physicians a noisy lot; that the doctors smoke "seven-inch" cigars to keep on the rolls; they talk at the top of their voices; they have strong determined faces like Tom Mix, or financiers, on the screen, only more so. This is the statement given by an article in the *London News*; and it is further said that the American doctors gathered in their Chandos Street quarters made more noise than a tornado; that the medical men were completely equipped with cigars, horn-rimmed glasses, and wives, and that they call each other "boy." It is quite easy to assume that after they have seen Sir Arbuthnot Lane operate on an intestinal kink they will probably arise en masse and shout "at a boy!"

If the writer could come back at the *London News* and call its attention to the fact that a large number of the prominent medical men of the U. S. were on an educational tour and were received with this kind of "bunkum" he would say that the London reporter was worse than anything we have in the U. S. This is a fine

reception to give to this class of men, physicians and surgeons, and we do not believe a word of it. For the men in London, whether newspaper men or physicians, are dignified and gentlemanly, and even though they may have different opinions from ours they do not express them in such a vulgar way. Many of the men who are on this tour are professors of medicine or surgery in the leading medical schools of America, and they have gone to see and to learn from their colleagues in London and many other cities in England, Scotland, and Wales, together with a prospective tour through the principal cities of Europe. It must be a very serious business for these men to leave their office and their practice and be taken through Europe in a flying trip guided by that inexhaustible leader, Dr. Peck. Then, too, Dr. Charles Mayo is with them, and that ought to give sufficient dignity to the occasion to make it a representative American institution.

Reports have come more recently concerning the social and medical side of the visit which are much more encouraging and much more to the point. These men are being entertained at clinics and garden parties, and one or two prominent men have already been made honorary members of the Assembly. It is quite likely that the man who first wired over to this country his flippant description of the American doctors will be promptly called to account.

THE UNIVERSITY OF MINNESOTA MEDICAL SCHOOL DRIVE

According to the daily press there is to be a concerted effort to solicit funds for the University Medical Department, in order, as Dean Lyon puts it, to make it the Vienna of America. It is necessary to raise \$2,350,000.00 to meet the terms of the General Educational Board of the Rockefeller Foundation, which has been hung up on account of the report of the hospital committee appointed by Mayor Leach to investigate the General Hospital situation. It is planned that all alumni, and evidently all physicians and nurses, and the public, as well, in all parts of the state will be called upon to help raise this sum. The campaign will be launched under the direction of the Endowment & Building Fund Committee with Dr. Richard Olding Beard as chairman. The argument will be presented that medical science has grown very rapidly in the past few years and that medical and nursing education has become not only a prolonged but an expensive attainment. It is recognized also that the Legislature is not very liberal or generous in

their assigning funds to the University and, seemingly, particularly to the development of the Medical Department, hence the necessity of going outside to the public for support.

It has been very well said that the people do not begin to pay the whole bill for the benefits which nursing and medical education and research confer upon them, and it will take a very strong argument and a very persuasive man to make some people understand just what this means. A solicitor may almost land a contributor when a member of some common cult can, within a few minutes, with a few disparaging remarks and misinformation convert him into giving nothing at all. That will probably be one of the stumbling-blocks that the Committee will encounter. These cults are contributing nothing to research or to the protection of the public against disease, nor are they interested in public health or the creation of a new generation of people. If they conform to the rule which must be on its way, that everyone who is practicing the healing art must be taught the fundamentals of medicine, then they will fall in line and so will the people. Then, too, the financial situation of the whole country and the new slogan that has been gotten out by financiers and business men that this is a "hand-to-mouth" proposition we are up against for the next few years, will have its effect; dealers are stocking only with a limited supply of goods, not buying liberally as they used to, and having on hand only what they think they can sell or turn over within a short time. The banks are filled with money, and money is cheap to borrow, but the general business situation is slow, and, although a great many business firms are doing a good deal of business, they are not making any money. In spite of this we hope that the Committee, which is composed of doctors scattered throughout the state who will act as a "drive committee" for the beginning of this fund, will not be disappointed in their endeavors nor discouraged by their rebuffs. This drive must go through if the Medical School at the University is going to advance.

THE POSITION OF SECRETARY OF A STATE MEDICAL ASSOCIATION

We know of no position in which a physician can be of greater service to his profession and to the public than that of secretary of a state medical association, provided he meets the needs and the opportunities of such position. It would be difficult, indeed, to enumerate such duties and opportunities, but it is not so difficult to point

out some of the requirements of the office, which will suggest some of the disqualifications which some secretaries possess in eminent degree.

An efficient secretary of a State Association should be a man naturally and whole-heartedly devoted to the welfare of humanity and to the advancement of the medical profession in its efforts to lessen the physical handicaps of disease and sickness, which react upon the spiritual welfare of men, women, and children.

He must be possessed of an exalted opinion of the work being done, as well as to be done, by medical men; and he must have the courage to protest against whatever retards this work.

He must be a leader in his profession because of his personality, heaven given to some extent and acquired even to a great extent.

He must not be afraid of hard work, nor a seeker after immediate reward for such work.

He must have vision.

The above are the indispensables. Though it seems almost paradoxical to say so, they are not within the reach of every man and they are not beyond the reach of every man.

A secretary possessing these qualifications in large measure retired from years of service in this line when Dr. R. D. Alway resigned the secretaryship of the South Dakota State Medical Association at the Association's annual meeting last month. He had served the Association for sixteen years as secretary-treasurer and one year as president; and he served faithfully, efficiently, unostentatiously.

Dr. Alway resigned because of the pressure of his private work, and because of the opportunity to turn the work over to one who could give more time to it and be paid somewhat adequately for such service.

Dr. Alway nominated as his successor Dr. J. F. D. Cook, of Langford, who had just been appointed President of the State Board of Health, and can thus correlate the two offices to general public interest.

Dr. Cook is said to be unusually well qualified to meet the demands and the opportunities of the two offices, and we wish him great success. By virtue of his office as secretary of the State Association Dr. Cook becomes an associate editor of THE JOURNAL-LANCET.

CORRESPONDENCE

THE VISITING NURSE ASSOCIATION

TO THE EDITOR:

In discussing the work of the Visiting Nurse Association with various doctors during the past few

months I have been surprised to find how many of them are not in touch with some phases of our work. As publicity chairman of the V. N. A., I feel very much to blame for this state of affairs, although I am sure you will agree with me that it is difficult to reach effectively the many physicians in this city. However, I do want to tell you, briefly, a few of the things we are doing.

In the first place I want to stress the point that no visiting nurse makes more than one visit unless a doctor has been seen. Many physicians think that our nurses work without a doctor's supervision. Such is not the case at all. Our staff are all graduates of first-class training schools, their education as nurses frequently supplemented by training along some special line in the profession. In employing a visiting nurse you will find exactly the same professional relation between doctor and nurse that you would see in any home or hospital. She is there to obey the doctor's orders to the letter and to give the best and most conscientious bedside care.

This year our maternity service is city-wide. While I realize that many mothers prefer to go to hospitals, still there are women who find it impossible to leave their homes. In such cases our service should be of great value to any doctor. Our nurse is on call any moment of the twenty-four hours, ready to go anywhere within the city limits.

In the past year we have taken up two new and most necessary branches of nursing, namely, the contagion nursing and physiotherapy. Our staff has been perfected in the technic of contagious nursing at the General Hospital and are ready to care for scarlet fever, smallpox, diphtheria, influenza, and erysipelas. Our physiotherapist is trained by Granger at Harvard and can give the physician the most expert help in the cases in which he needs her.

I had intended to be brief, but my subject has been too much for me! To supplement this note I enclose our new folder of which we are very proud. It will give you the information for which I have not the space. You may notice that in addition to this free service, we have a cost service and one at a little more than cost, enabling us to reach everyone. The last class of visit we have supplied for those who wish to employ the visiting nurse and who are able and would prefer to pay more than the actual cost of the visit.

We know that we cannot get along without the physician and their co-operation. Please feel that nurses are just as necessary to physicians as physicians are to nurses.

Sincerely yours,
Minneapolis, June 4, 1925. ALICE FAHR.

A CITIZEN'S LETTER TO A TEACHER

Miss Hiltja Vander Bie,
Principal, Clinton School,
Minneapolis, Minnesota.

Dear Miss Vander Bie:

I shook hands with you in the Court room last Thursday, and offered you my congratulations on the victory you had just won. I now make bold to write you, regarding the unpleasant affair.

Your friends—and you have many, many of them—feel that is a grave misfortune, an outrage, that

you should have been haled into court, to answer for an act which occurred properly in the performance of your duties as principal of one of our schools. Not only your friends are of this view, but fair-minded and thoughtful citizens generally are of this way of thinking.

You have, doubtless, worried a great deal over the case, but you have had, and have, the sympathy and support of all true friends of yourself personally and of our school system. The applause you heard in the court room Wednesday afternoon, and Thursday when acquittal was pronounced, must, I am sure, have convinced you that the overwhelming majority of those who were interested in the trial were on your side.

The case never should have been brought to court at all. But you have now the satisfaction of knowing that you triumphed fully and beautifully over those who challenged your honor and your fitness to serve as guardian of the intellectual and moral welfare of the children of this community.

The teacher's office is one of the most sacred offices one can hold. It cannot be too highly honored. The work of the teacher is fundamental. Culture, intellectual and social progress, the welfare of humanity in all respects, derive their sustenance from the work of the teacher. The teacher should, therefore, be honored in full measure for the noble service she renders to mankind. But the teacher's position is a trying one. She has many occasions for annoyance, arising from the conduct of some of her charges. And it sometimes happens that thoughtless parents add to her troubles by taking up against her the cause of their ill-behaved children. Of this, your recent experience was a mean and poignant example.

But it is over with, and you won. You have nothing to fear from it now. It has not detracted from you in any manner. Your prestige stands undiminished. The State has exonerated you—placed the seal of its approval upon your course. You have dispersed your enemies. Therefore, let your victorious colors unfurl and wave joyously in the atmosphere of the community's legal, moral and intellectual respect.

I honor every school teacher, and I feel that, though a stranger to you, I may, at this time, be pardoned for writing you this note, to express my hearty concurrence in your perfect vindication.

Your very truly,

May 23, 1925.

We commented editorially on this case in our last issue.—THE JOURNAL-LANCET.

(Continued from page 297)

or temporarily, and lastly, that even after a thyroidectomy there may be a recurrence of all the critical signs and symptoms. He raises some interesting doubts concerning our present methods of management and knowledge of this disease.

In a survey of one thousand basal metabolic rate determinations, Ohler and Ullian stress the need for very careful clinical interpretation, the value, if properly interpreted as a differential test, and the significance of low rates.

According to Blumgart, very carefully taken venous pressures are of prognostic and therapeutic aid in the management of cardiac cases.

Peabody goes rather thoroughly into the diagnosis by physical signs of pulmonary emphysema and the physiologic explanation of the symptoms arising in a patient affected with this malady.

Ford concerns himself with the differential diagnosis of pulmonary actinomycosis.

Talbot and, later, Blake describe the syndrome, recently so widely prevalent, of acute respiratory infection with gastro-intestinal symptoms. Blake also in the same Clinic goes over the management of visceroptosis and a case of streptococcic septicaemia treated with gentian-violet and mercurochrome.

The multifarious clinical symptoms and Roentgen abnormalities occasioned by such a simple thing as a redundant colon are well brought out by White, together with a conservative handling of such a situation.

Frothingham neither defines his terms nor classifies his subject (rheumatism), hence dissipating all interest in his article.

Hearn adds nothing to the subject of angina pectoris.

Hill presents several pediatric dietary topics on which the reviewer is not qualified to pass judgment.

The articles on exophthalmic goiter (Sturgis) and uric acid (Berglund) are very much worth while. They stimulate. Christian and Minot instruct, likewise do Fitz, Murphy, and Jackson, on easily mistaken and overlooked diagnostic pitfalls.

The other articles are of the routine "by the piece" order, those of Frothingham and Hearn being decidedly mediocre. —JAMES B. CAREY, M.D.

DIET IN HEALTH AND DISEASE. By Julius Friedenwald, M.D., Professor of Gastro-enterology in the University of Maryland, School of Medicine, Baltimore, and John Ruhrah, M.D., Professor of Diseases of Children in the University of Maryland, School of Medicine, Baltimore. Sixth edition. Philadelphia & London: W. B. Saunders Company, Publishers, 1925.

The sixth edition of this work includes many additions and changes, as in the sections on infant feeding, diseases of the stomach and intestines, hypertension, nephritis, vitamins and deficiency diseases, post-operative diets, and diabetes. Tables of food values by Locke have also been added.

This text is practical and fairly complete and offers valuable aid to the practitioner in a field which has an ever increasing importance, both in preventive medicine and in the treatment of disease.

—C. A. MCKINLAY, M.D.

NEWS ITEMS

Dr. R. W. Adams, of Barron, Wis., has moved to Montevideo (Minn.).

Dr. E. C. Gager, of St. Paul, has returned from a year's visit in Vienna.

Drs. H. L. and Mabel S. Ulrich, of Minneapolis, have returned from a trip to Europe.

Dr. Harry T. Frost has located in Wadena, and will do eye, ear, nose, and throat work.

Dr. E. C. Rosenow, of Rochester, received the honorary degree of Doctor of Laws from Park College, Missouri.

Dr. Charles M. Robilliard, of Faribault, was appointed county physician of Rice County, to succeed the late Dr. Theissen.

Dr. Alex E. Brown, of Stillwater, has joined the Mayo Clinic as a permanent member of the staff in the diagnostic service.

The Royal Spanish Academy of Medicine conferred a degree on Dr. C. H. Mayo, of Rochester, Wednesday, May 27, at a meeting in Madrid.

The Wright County Medical Society met in Delano last month. A business session was followed by the exhibition of films and talks on tumors.

Dr. Edgard O. B. Freligh, of Stillwater, died on May 31, at the age of 68. Dr. Freligh was a graduate of McGill, and had practiced in Stillwater since 1887.

The admission of patients to the Minneapolis General Hospital last year numbered over ten thousand. The total number of cases treated in the out-patient Clinic was 62,021.

Dr. Wendell P. Phillips' unanimous election last month to the presidency of the A. M. A. was the first unanimous election to that office in the history of the Association.

The Montana State Association of Registered Nurses met at Helena last week in annual sessions. The attendance was large, and the work done was largely in the interest of the public.

At the meeting of the American Association of Genito-Urinary Surgeons held in Washington the first week in May, Dr. W. F. Braasch, of Rochester, was elected president for this year.

By the orthopedic clinics now being conducted in Minnesota by the Minnesota Public Health Association many crippled children will be found and perhaps rescued from permanent disability.

Miss Carrie N. Hall, R. N., of the Peter Bent Brigham Hospital, of Boston, was elected president of the National League of Nursing Education at its annual meeting in Minneapolis, last month.

Dr. C. O. Rosendahl, Professor of Botany, University of Minnesota, gave a Mayo Foundation lecture in Rochester on May 21 on "The Geographical Distribution of Hay-Fever Plants in Minnesota."

The campaign to raise \$2,350,000 for the Medical School of the University of Minnesota is being pushed vigorously by a committee headed by Dr. R. O. Beard, who has had so large a part in the development of the School.

Dr. R. D. Carman, of Rochester, sailed for Europe after attending the meeting of the American Medical Association. He will travel through Germany and France and will attend the meeting of the International Congress of Radiology in London the first of July.

Dr. Kenneth A. Phelps, of Minneapolis, will attend a meeting of the English-speaking ophthalmologists of the world who meet in London in July, and also the British Medical Association, which meets the following week in Bath.

Dr. Verne C. Hunt, of Rochester, has returned from attending medical meetings in the West. He read papers before the Arkansas Medical Society, the California State Medical Association, the western branch of the American Urological Association, and the San Diego County Medical Society.

The Lymanhurst Medical Staff will give a banquet in honor of the well-known tuberculosis specialists: Drs. Krause, Jacobs, and Steward, at the Minneapolis Club on June 20. Invitations are limited to Minnesota physicians and distinguished physicians attending the Tuberculosis Association.

Two special courses of study for physicians will be conducted by the Medical School of the University of Minnesota extending from June 19 to August 1, and from August 3 to September 5. These courses are in anatomy, bacteriology, pathology, pharmacology, physiology, preventive medicine and public health, medicine, obstetrics and gynecology, ophthalmology and otolaryngology, pediatrics, surgery, and roentgenology.

The third annual meeting of the Great Northern Railway Surgeons Association will be held at the Glacier National Park, Montana, on June 25 and 26. Dr. R. C. Webb, of Minneapolis, is secretary of the Association, and most of the papers on the program are by Minnesota, North Dakota, and Montana men. The principal guest on the program outside this territory is Dr. Fordyce B. St. John, Associate Professor of Surgery, Columbia University of New York City.

Minneapolis Offices for Rent

Very desirable space to sublet. Inquire 812 Besse Building, Minneapolis.

Specialist Wanted

With a general practitioner and dentist in city of 30,000. Rent reasonable. Address 225, care of this office.

Static Machine Wanted

Please state number of plates, name of maker, and price, and what accessories are available. Address Dr. J. C. R. Charest, Marshall, Minn.

Young Interest Wanted

In a well-established clinic in a South Dakota city. Must be very competent. Excellent future for one who can qualify. Address 226, care of this office.

Locum Tenens Wanted

A good physician is wanted to take care of a practice in North Dakota for several weeks beginning at once. Must be able to drive an auto. Address 223, care of this office.

Practice for Sale

In a good Minnesota town of over 1,000 population. A good man can make money from the start and build up a lucrative practice at once. Country is rich and competition not strong. Address 228, care of this office.

**Offices in North Minneapolis for Rent
A Fine Opening**

A suite of plain offices at 1901 Washington Ave. North, in connection with a dentist established at that location for 18 years, are offered at nominal rent. For information telephone Dr. H. G. Ramstead (Tel. Hyland 0500).

A Physician's Office Equipment for Sale

Allison operating table; cases and obstetrical instruments; set of dental forceps; Eureka nebulizer; Macey desk; Globe-Wernicke book cases; office table. Address 232, care of this office.

Practice and Office Equipment, etc. for Sale

Due to the recent sudden death of a physician in a fine Minnesota town of 12,000, close to the Twin Cities, his surgical and office equipment, books, etc.,

are offered for sale; also a 5-passenger auto. Splendid hospital. An exceptional location for a German Catholic doctor. Address 233, care of this office.

Physician Wanted

Dr. Biornstad wants young, aggressive M.D. at his Clinic. Must be interested in physiotherapy and have surgical inclinations. Scandinavian preferred. Excellent prospects and future for right man. Address Dr. Biornstad's Clinic, 831 Second Avenue South, Minneapolis, Minn.

Practice for Sale

General practice in southern Minnesota village; good dairy farming community; 3 tributary towns without physician; cash business last year \$9,000. Residence designed as small hospital; separate office building. Good man will make money from start. Address 276, care of this office.

Assistant Physician Wanted

To do general practice, mining contract work, Minnesota. Small hospital. Five other assistants. Must be graduate of Class A college and have had hospital experience. Initial salary \$275.00. Early increase to right man. Give full information in first letter, with photo. Address 230, care of this office.

Location Wanted

By a graduate of the University of Minnesota, B.S., 1919; M.B., 1921; M.D., 1922. Mason, married, one child. Has been practicing in a city of 35,000, but desires location in Minneapolis as assistant in busy general practice or to an obstetrician or in a good town within about fifty miles of Minneapolis, preferably south or West. Address 207 care of this office.

PHYSICIANS LICENSED AT THE APRIL (1925) EXAMINATION TO PRACTICE IN THE STATE OF MINNESOTA

UPON EXAMINATION

| Name | School and Date of Graduation | Address |
|---------------------------|--------------------------------------|---------------------------------------|
| Allison, Ernest Fridolf | St. Louis U. Sch. of Med. M.D., 1924 | Minneapolis, St. Barnabas Hospital |
| Bakkila, Henry Elmer | U. of Minn., M.B., 1924 | St. Mary's Hospital, Duluth |
| Dungay, Neil Stanley | U. of Minn., M.B., 1925 | Northfield, Minn. |
| Fischer, Mario McCaughin | U. of Minn., M.B., 1924 | St. Mary's Hospital, Duluth |
| Gay, James Gaston | Johns Hopkins, M.D., 1923 | Care of Mayo Clinic, Rochester |
| Lund, Arthur Edward | Rush, 4 yr. Cert. Med., 1924 | Care of St. Luke's Hospital, St. Paul |
| Morehead, Oliver J. | U. of Minn., M.B., 1925 | Care of Gen. Hosp., Minneapolis |
| Palmer, Reuben N. | U. of Minn., M.B., 1925 | Chisago City, Minn. |
| Rasmussen, Carl Christian | Northwestern, 4 yr. Cert. Med., 1924 | Care of Swedish Hosp., Minneapolis |
| Smith, Newton Dean | U. of Buffalo, M.D., 1923 | Care of Mayo Clinic, Rochester |
| Watson, Cecil James | U. of Minn., M.B., 1925 | U. of Minn., Dept. of Path. |

THROUGH RECIPROACITY

| | | |
|------------------------------|-------------------------------------|-----------------------------------|
| Anderson, Edward Waldemar | U. of Iowa, M.D., 1923 | Rochester, Minn. |
| Brosseau, Jesse Edward | P. & S., Chicago, M.D., 1906 | Frankfort, S. D. |
| Caylor, Harold Delos | Rush, M.D., 1921 | Rochester, Minn. |
| Flancher, Leon Harry | Marquette, M.D., 1910 | Lake Park, Minn. |
| Gorder, Arne Christian | Rush, M.D., 1924 | Rochester, Minn. |
| Hamrick, Robert Arnold | Johns Hopkins, M.D., 1923 | Rochester, Minn. |
| Hunt, India | Woman's Med. Coll., Pa., M.D., 1921 | Rochester, Minn. |
| Kaasa, Lawrence Jens | U. of Iowa, M.D., 1910 | Albert Lea, Minn. |
| Kearney, Chas. A. | U. of Iowa, M.D., 1898 | 1105 28th St. W., Minneapolis |
| Kirchner, Augustus | U. of Michigan, M.D., 1920 | Rochester, Minn. |
| McKeithen, Archibald Murdock | Johns Hopkins, M.D., 1920 | Rochester, Minn. |
| Montgomery, Hamilton | Harvard, M.D., 1922 | Rochester, Minn. |
| Nickl, Allen A. C. | Rush, M.D., 1924 | Rochester, Minn. |
| Pinger, Frank Wm | U. of Calif., M.D., 1916 | 4206 Harriet Ave. S., Minneapolis |
| Schmitt, Oscar Joseph | St. Louis U., M.D., 1920 | Caledonia, Minn. |
| Shafter, Royce Roemer | U. of Michigan, M.D., 1923 | Rochester, Minn. |

THE JOURNAL LANCET

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THE PRENATAL AND POSTNATAL CARE OF THE MOTHER AND CHILD

By A. N. BESSESEN, JR., M.D.,

AND

DANIEL H. BESSESEN, M.D.

MINNEAPOLIS, MINNESOTA

As a rule, the symptom which leads the woman first to believe herself pregnant is the cessation of menstruation. Nine or more out of ten times a delay of menstruation means pregnancy. However, there are other causes than pregnancy for the cessation of menstruation so that a physician should avoid the expression of opinion simply from such a history. Breast changes appear from six to eight weeks after conception with tingling of the gland substance, a change in color of the areola around the nipples, and the formation of small elevations,—the Montgomery's follicles. Vomiting with nausea occurring, especially in the morning, usually presents during the second to the fourth month. This may become pernicious in which case the special treatment is needed which will be mentioned later. Life is felt at the sixteenth to the eighteenth week. This is a definite indication of pregnancy, especially if felt by the obstetrician. At the end of the fifth or the beginning of the sixth month, it is possible to make out the fetal heart. If the opportunity is especially good it may be possible to hear the fetal heart before this period of gestation.

As ascertained by Louis Dublin, only two women out of 1,000 die of childbirth after receiving prenatal care, as compared with seven out of 1,000 when no such care is given before

childbirth. Only 13 babies instead of 40 out of a 1,000 die before they are one month old, and only 12 instead of 45 per 1,000 are still-born. This indicates not only the advantages of prenatal care, but the need for it. The figures presented for the United States are not very good as compared with other countries. The maternal death rate is as high as in any other civilized country in the world, and the infant mortality is 78 per 1,000, as compared with 45 per 1,000 in New Zealand, which is the lowest. Some countries have as high an infant mortality as 300 per 1,000. These estimates, put out by the Minnesota State Board of Health, lead one to realize the need for better care of the mother before and shortly after childbirth. The Minnesota Board of Health is doing much to reduce our infant and maternal mortality, which, as among states, stands comparatively rather favorably.

As soon as the mother knows she is pregnant, she should consult her physician for much depends upon the early recognition of pathological conditions as to the subsequent welfare of the mother and child. In the first examination, the physician should be thorough, doing the complete physical examination, taking measurements of the pelvis, and analyzing the urine for kidney disease. Especially should the blood pressure be

observed. This is the first indication, as a rule, of later toxemia, and its established level in the early months of pregnancy determines later, as a high blood pressure, what might otherwise be considered normal. By this careful examination at the first appearance one may early recognize such vitiating constitutional diseases as tuberculosis, diabetes, syphilis, anemias, hyperthyroidism, cardiac or renal injuries, or deformed pelvis.

Among the early complications of pregnancy, the most important are abortion and vomiting of pregnancy. Abortion is believed to be caused, aside from the general diseases mentioned in the last paragraph, by ovarian deficiency. When abortion threatens, a careful examination must be made to determine its etiology. In this discussion we do not consider criminal or induced abortions. Bell of Liverpool has shown the relation of the corpus luteum to pregnancy, especially in the first six weeks, and states that the destruction of this organ during that interval will terminate pregnancy. When due to a lack of ovarian secretion, the administration of that substance by mouth, or better intramuscularly or intravenously, will relieve the condition. The addition of morphine to quiet the patient and the use of atropin to stop the contractions of the uterus are necessary in the first few days of threatened cases. After this, close observance, quiet, and ovarian tablets maintain gestation. Vomiting of pregnancy, which may become pernicious, is believed to be due to this same cause, — the lack of ovarian secretion. It is best relieved by the administration of ovarian substance, especially the corpus luteum. In severe cases sodium bromide in large doses, complete rest in bed, and, where acidosis is present, the intravenous injections of large doses of glucose, and subcutaneous insulin are sometimes necessary. These attacks may last for a month or six weeks at the outside. Once they are under control, the patient may usually proceed with her customary routine work, barring heavy exertions.

Later complications are hydatiform mole, eclampsia, placenta previa and malpositions. Hydatiform usually presents a uterus larger than the normal for that corresponding stage of gestation, and there is a peculiar type of motion, if motion is present, which is unlike the movement of the normal fetus. Of course, no fetal heart is audible. Eclampsia shows an elevation of blood pressure as the first indication of its approach, and then the urine demonstrates albumin. Swelling of the extremities and face appear soon afterward. This condition occurs most commonly during the last trimester, and is associated

with fair frequency with large abdomen, twins, polyhydramnios, and other elements causing pressure on the liver and eliminating apparatus. Placenta previa is usually first evidenced by a painless bleeding from the vagina. It is more common in the last trimester, though it may occur sooner. It is to be met with packing and careful emptying of the uterus. Malpositions are not uncommon, but are to be checked at the time of delivery as a rule. The gross malpositions of the fetal body may sometimes be corrected if seen during the last trimester. Such correction as external version, must be done with great care during the last six weeks of gestation.

The solution of these problems lies, for the most part, in prenatal care. The proper observation of the mother, the accurate diagnosis which comes with repeated examinations, performed once a month throughout gestation, with more frequency, if necessary, give the mother the greatest assurance that modern medicine can offer for a successful puerperium and a healthy child.

The care of the mother during gestation resolves itself into the regulation of the personal hygiene, care of the diet, bowels, bladder, teeth, skin, heart, lungs, and kidneys.

Personal hygiene is best observed by the use of good food, fresh air, sunshine, warm clothing, and rest. Regularity of hours, exercises, meals, and body functions is at any time of great value in establishing normal metabolism and elimination, but especially is it so during gestation.

The only dietary advice given the average case during pregnancy is to avoid the use of meat or heavy protein nutrition during the last trimester. These foodstuffs place more work on the kidney, and in the presence of occasional interference with elimination they constitute a definite injury to the kidney. The work of Newburgh shows that nephritis may be caused by protein diet alone. The task of the kidneys must be made as easy as possible and the best method of doing so is to leave off the ingestion of nitrogenous foods during the last three months of pregnancy. Of course, no dietary indiscretion should be indulged at any time during pregnancy. The promiscuous or incautious eating of any one form of food may lead to upsets of the general alimentary tract or of any organ associated with it. There are certain conditions in which the diet must be especially prepared as in nephritics, diabetics, etc.

The bowels should at all times be regulated to function each day. Constipation may be prevented in large part by the eating of large quan-

tities of coarse foods and drinking of large quantities of water or fluids. In some patients these procedures are inadvisable, but in the usual run of cases these methods may be used. In addition, special exercises or massages, to stimulate the abdominal and intestinal musculature, are beneficial. When catharsis is necessary, preference is given to enemata, and after these such remedies by mouth as castor oil, licorice powder, cascara, Hinkle's pills, Epsom salts, mineral and vegetable oils, etc. Of the utmost importance is regularity in attendance at the toilet. The patient should attend the toilet by the clock if there is no natural summons to evacuate the intestinal canal. Every twelve hours the patient should make an effort to empty the rectum. Thus, if the patient arises at 7:00 A. M., attendance at the toilet at that time and again at 7:00 P. M. each day will promote a regularity of this function which in time becomes a matter of course and of little inconvenience to the patient. There should be no hesitancy on the part of the mother at any time when the need of this function presents, to excuse herself and attend to it at once. For some strange reason the performance of this process cannot be delayed without the loss of the stimulus which leads to its consummation.

The bladder and kidney functions are a frequent source of distress to the mother both before and after delivery. For this reason, careful attention to the correct elimination of nitrogenous waste products will keep the mother more comfortable during this period. The pressure of the enlarging uterus will, in early months of pregnancy, lead to a slight frequency of urination because of the inability of the bladder to contain such a large amount of urine as previously. Later the pressure of the uterus on the ureters, kidneys, and bladder may lead to a susceptibility of infection of the urinary tract. At delivery the use of forceps or manipulation may injure the bladder and again expose the urinary tract to infection. To avoid the possibility of infection the drinking of fairly large quantities of fluids (from $1\frac{1}{2}$ to 2 quarts a day) is the best preventive. The changing of the urinary reaction at times will also reduce the danger of this possibility. The presence of infection of the kidneys before delivery will also increase the danger of eclampsia which is dependent on this system.

The mother's teeth show a tendency to decay during gestation. This is believed to be due to the increased demand made on the mother by the growing child for a greater calcium requirement. To supply this the eating of calcium foods and

the application of oral hygiene are best. Foods of special value in this respect are the vegetables and grains. The administration of calcium lactate, a teaspoonful a day of the saturated solution, may be given over a fairly long period without danger.

Mothers are advised as to the proper care of the skin since the integument is a part of the respiratory and excretory systems. The skin should be clean at all times. Too frequent bathing, however, is as much to be avoided as insufficient cleansing. Also a too hot bath is as injudicious as is the too cold bath. During pregnancy the action of the temperature on the contractions of the uterus is considered in the individual case. The sitz bath is less to be desired than the shower. Especially during the last six weeks is a sitz bath advised against because of the danger of infection. The clothing with which the body is protected must be loose fitting, especially about the abdomen and breasts, and should be of such texture as to give warmth without excluding sufficient exchange of air.

Pressure of the uterus on the diaphragm, especially when there is present gall-bladder disease or other gastric distress may cause the mother much cardiac discomfort. The administration of sodium bicarbonate in any case with pain in the stomach usually leads to relief of pain and formation of less gas. A good mixture to give for this relief is one of cascara and milk of magnesia. Unless there is a definite organic or functional lesion of the heart, these are the only discomforts which arise in the ordinary case.

The usual care of the lungs in preventing infection is all that is required as a rule. In the presence of tuberculosis, however, the mother does better during gestation and, after the delivery of the child, her condition may become rapidly worse. The case must be treated accordingly and this circumstance anticipated. This is believed to be due to a change of the opsonic index of the mother in some way influenced or brought about by the presence and then absence of the fetus.

In most cases of hospital attendance the necessities of delivery have been most carefully considered beforehand. No accidents happen, as a rule, which are not quickly met. In home delivery cases, on the other hand, the problems which are met vary from perfect cleanliness and excellent lighting and sterilizing facilities to the extremes of filth and dirt, lamp lighting with kerosene lamps, and no place for sterilizing either hands or instruments. For these reasons it is well in home cases to carry a kit in which are

sterile drapes and instruments which are at least clean, if not sterile. Usually, if these materials are carried in a kit which is lined with a special basin for sterilizing the instruments, one is equipped with all the necessaries for any case, with as sterile a field as can be furnished in a hospital. Unfortunately, emergency cases requiring special means for resuscitation of a "white" baby are not as handy as could be desired, but even in these cases one can find the means of applying hot and cold water, if the patient has been forewarned. For this purpose, a large dishpan filled with steaming water in readiness for this emergency is some consolation for an obstetrician in a makeshift delivery.

The materials required by the mother under these circumstances are clothing for the baby; olive oil which may be heated and used to wash the baby daily for the first ten days; and a roll of cotton, from which strips of narrow width may be cut and sprinkled with boric-acid powder for protective pads for the mother's lochial drainage.

Much has been written about painless childbirth, though at present no uniform opinion is held among the medical profession concerning this much-to-be-desired boon to pregnant women. The objections offered to any form of anesthesia, partial anesthesia, or narcosis during this time deal mainly with the length of labor and the dangers of mortality of the mother or child. Seminarcois with morphin and scopolamin, nitrous-oxid-oxygen-interval anesthesia, and the injection of ether, quinine, alcohol, and olive oil by rectum with magnesium sulphate intramuscularly, are among the best advances made in this direction. The use of these drugs should not be undertaken without thorough knowledge of the dangers likely. One lacking in experience or not cognizant of the dangers to both mother and child should hesitate about making use of them since it is the use of these drugs by inexperienced men which causes the whole profession to look askance on not only these methods, but any other which may be presented later. Progress in obstetric anesthesia must depend upon slow sure-footed investigation, and hasty innovation by ignorant men will destroy what little advance has already been made.

In the puerperal state, the most frequent complications are lacerations, breast disturbances, thrombophlebitis, and puerperal infection. Such derangements as attend the general diseases mentioned in the early part of this paper can hardly be considered except under separate heading. Lacerations of the pelvic floor should be care-

fully repaired at the time of injury, shortly after labor. Lacerations of the cervix cannot always be repaired at this time, because the injury to these tissues destroys the normal anatomic relations, and also the tissues are so friable as to tear apart. In case Dürrhsen incisions are made into the cervix, these should be repaired before the woman leaves the delivery table. Careful observance of these lacerations will later give no relaxation of the pelvic floor with the attendant rectal and vesical sagging. If the breasts are carefully massaged three times a day for six to eight weeks before delivery with cocoa butter or some similar substance, it prevents any cracking or soreness of the nipple when the child begins to suckle. Suckling of an active baby on a nipple which has not been so treated will often cause it to crack. When such an incident occurs, the application of balsam of Peru between feedings which may be washed off with boric acid solution and then water before feeding, gives considerable relief besides softening the nipple thus preventing further cracking. Breast abscesses are most likely to occur when the child does not completely empty the breast at feeding. The child should be taught to nurse one breast completely before it is applied to the other. If the breast has not been completely emptied, it should be expressed. When a breast begins to show infection, application of ice, with strapping by adhesive tape should abort abscess formation. When abscess presents the lacteals fill with pus, forming each an individual abscess pocket, and each of these must be drained before healing will take place. Thrombophlebitis will respond most readily if the limb is elevated on pillows and surrounded by ice-bags. This application must be constant and the treatment applied as soon as the condition is recognized if hasty convalescence is to be hoped for. Puerperal sepsis is a condition which, fortunately, is seldom encountered in the practice of obstetrics as seen to-day. Its most frequent occurrence is with criminal abortions and needs hardly to be considered here.

Beginning two weeks after delivery and continuing for six weeks thereafter, the use of the knee-chest position for five minutes night and morning will bring the uterus into its normal position during insolution.

The first year of the child's life is probably the most important of its entire span. During its intra-uterine life the child has had the privilege of taking what it needed from the mother and has done so regardless of the effect on the mother. It has taken its calcium phosphate, its

bone construction which may have left its mark on the mother in decayed teeth and general run-down condition. As soon as the child has started on its own career, however, in its helpless state, it is dependent entirely upon the intelligence and good sense of its mother or attendant, and must suffer or thrive in accordance with this care. This first year postnatal may be considered the foundation and the proportionate strength of this foundation will determine the health and strength of the youth and manhood to the maximum of that individual's capacity. During the first six months the child has doubled its birth weight; and in the next six months the child has trebled its birth weight. The importance of care and guarding the tissues and organs against injury during this period of rapid growth is self-evident, and indiscretions during this period on the part of the mother will cause the child to suffer in stature and from chronic diseases. The physician should therefore carefully instruct each mother in the proper management of the infant.

Too much stress cannot be laid upon preventive medicine. Under preventive medicine must come paramount, breast-feeding, vaccinating, and toxin antitoxin. Circumcision must also be considered. The greatest factor in reduction of infant mortality and prevention of disease during the first year of life is breast-feeding. We need only to look over the records to show the great difference between this method of feeding and bottle-feeding. Nearly four times as many bottle-fed babies die from intestinal diseases as breast-fed. Similarly the resistance of the child to all the diseases is greatly lowered by artificial feeding. The reason for this is the perfect digestibility of mother's milk, the constant similarity of its ingredients, the nearly impossible infection of the source of milk, and the high vitamin and immune-activity content. It is impossible to secure any artificial feeding which can even nearly approach these beneficial qualities. In certain unusual circumstances where every opportunity is obtained for proper preparation, care, and supervision, artificial feeding approaches most nearly the value of mother's milk, but in the average home where the many duties of the mother handicap and hinder her and especially in the poorer families where housing conditions and sanitation and environment are so detrimental this cannot be accomplished.

In placing the child on breast-feeding we have not given that child a guarantee of life, but we have given the child its best opportunity for life. The difficulties of convincing the mother of the importance of regular feeding, proper amounts,

etc., are very many. Due to old prejudices the talk of grand-mothers and friends, and the idea that previously children grew up strong and healthy without all this care in feeding, it is difficult to make the mother understand its importance. If they can only be made to see the decrease in infant mortality under careful regime, they are more apt to follow the instructions of their physician. There are very few women who cannot breast-feed their babies. Certain diseases, such as tuberculosis, necessitate artificial feeding, and occasionally the mother may not have sufficient milk for them; but in most cases this is either lack of interest on the mother's part or ignorance in the proper stimulation of the breasts. In the average case of the healthy infant, the four-hour feeding has proven most successful. This allows the stomach to empty, which takes from two to three hours, and then allows it to rest before it is again called to duty. If the child from the beginning has been fed exactly upon the four-hour time, being awakened for feeding if necessary, it will cause very little disturbance and give the family the least worry, crying nearly at or slightly before the feeding time. But the individual case should be decided by the conditions present. It is well to tell the mother in cases of diarrhea to stop all feeding, to give the baby small amounts of water or slightly sweetened weak tea, and notify the physician immediately so that the cause may be determined. The early recognition and treatment may save weeks of worry both to the family and to the physician. The weight of the child is a very good index in most cases as to the condition of the child. Too rapid growth or a failure to gain is not desirable. During the first year of life the child should be weighed by the physician, preferably at least once a month. At this time questions that have been troubling the mother, and certain changes in diet and care of the child can be discussed. In this way the child has the best opportunity to develop healthy ways normally.

The one thing that bothers both father and mother most is the crying of the child. The physician should instruct the mother as to the causes. The following are probably the most common: discomfort (either something is pricking or pressing, or the clothing is too tight); the child may be too lightly clothed, as shown by cold, bluish hands and pinched expression; it may be too warm, as shown by perspiration; the child may have gas on its stomach (the feeding should always be interrupted several times during the first ten minutes, the infant laid across the shoulder and patted gently to aid in the elimina-

tion of the gas); the child may be getting too much to eat, as is shown in spitting, vomiting before meals, and large stools in which curds frequently appear; the child may be underfed, as shown by small stools and failure to gain weight. The child may be thirsty, and it is surprising to realize the number of mothers who fail to grasp the child's need for water. The question of how would you like to live for three or four weeks without a drink of water will impress this upon the mother, and she will be careful to see that the child gets sufficient water. When the child cries between feedings this will frequently satisfy it, and it will drop quietly off to sleep again. If the baby continues to cry after all these possibilities have been considered, the child should be taken to its physician. Much of this worry will have been alleviated by the previously mentioned monthly visit to the physician.

The mother should be instructed to watch closely for pulmonary conditions and to take care of them immediately. These are commonly ushered in by coughing, sneezing, running nose, and loss of appetite. This is a common cause of infant death, and frequent colds may lay a basis for later pulmonary conditions, such as tuberculosis or chronic bronchitis.

The importance of prevention of disease rather than the cure of the condition after it has occurred with the possibility of death should be considered with the mother, as vaccination for smallpox. Many mothers believe that a nursing baby cannot contract smallpox. This fallacy should be corrected. She should understand about toxin antitoxin protection against diphtheria which should be given between the sixth and the eighth months when the immunity obtained from the mother has worn off. In breast-fed babies there is little possibility of diphtheria before the sixth month. These injections given in three doses at intervals of one week probably confer in most cases a life-long immunity against diphtheria. The mother should understand that this is not a cure of the disease, and in no way

replaces the antitoxin. Very little effect is noticed on the child by these injections. Reactions in small children are almost nil, and severe reactions never occur. Complete immunity is reached in from two to six months following injections. It is, therefore, important to begin treatment at six to eight months of age, so as to protect the child during its most susceptible period of life. Circumcision in the child soon after birth is of little discomfort to it and may in later years spare the child much grief and inconvenience. The treatment of whooping cough should be emphasized because of the high mortality which this disease carries in young children, and its after-results are bad, even when cure is obtained. Under proper treatment this disease may be greatly shortened by the use of chlorine gas and inoculations of pertussis vaccine. Too frequently the child is left to suffer paroxysms of coughing in which it becomes cyanotic, nearly black in the face, and the strain upon the entire body can be judged from this one symptom alone.

In the second or third month the child should be placed on a teaspoonful dose of orange juice, and at the fourth to the sixth month a teaspoonful dose daily of cod liver oil is added to the diet. These two substances are high in vitamine content and will be of great assistance in building up a strong body and preventing deficiency diseases, such as rickets and scurvy, of which in mild forms in these northern climates there is a high percentage. Additions are made to the child's diet under supervision of the physician, gradually, beginning at six months and weaning should be complete at nine months.

In summarizing this paper, the most outstanding feature seems to be the need for prenatal and postnatal care of the mother and child. This can be rendered by repeated consultation of the physician by the mother at intervals of a month or more frequently if necessary during pregnancy and the first year of life of the child.

There has been presented here a brief review of the chief complications which occur during this period of life.

THE INTERRELATIONSHIP OF THYROTOXICOSIS AND TRAUMATIC NEUROSES*

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The greatness of this railway organization of which the Claim Department is of very great importance, and of which we, as surgeons, form an integral part and are responsible for the end-results in accident cases, is sufficient reason for this title having been chosen.

With the various means of transportation,—railroads, interurban lines, electric street cars, steamships, aëroplanes, and automobiles, many of which are common carriers,—and the diversified manufacturing industries connected with the operation of the same requiring the use of complicated machinery, there is an alarming increase in the number of accidents to passengers and employees. The "Safety First" movement, which is being carried on in all parts of the country, is evidence of this.

The term "thyrotoxicosis" is used to describe a condition known as *hyperthyroidism*. The "neuroses" under consideration are those following the so-called psychic shock, and not those in which organic changes have taken place in the cerebrum or spinal cord, nor those where the large nerve trunks have been involved.

The symptoms of toxic goiter and "traumatic neuroses" are so closely allied that it is often-times impossible to distinguish the one from the other. There is, however, a certain syndrome peculiar to each disease which enables the surgeon to differentiate, in most cases, the goiter having toxic symptoms from "traumatic neuroses" if carefully analyzed.

In the World War many entered service in good health and since dismissal have developed a symptom complex to which the term "shell-shock" has been applied, that corresponds in every detail with the class of cases known as "traumatic neuroses." Physicians in the employ of the Government to care for the men with disabilities due to service origin in the U. S. Bureau of the War Risk Insurance, and later the U. S. Veteran's Bureau, can testify to a large number of claimants asking for compensation on account of exophthalmic goiter. This diagnosis having been made, the applicant has consulted for relief of his symptoms.

To differentiate between a goiter giving toxic

symptoms and a neurosis in one having a goiter who in addition to this has received a physical injury, is sometimes very difficult. Trauma as an etiologic factor in hyperthyroidism is acceded by many; others do not consider it as such.

All goiters can be classified under three headings, although the literature gives many more. First, colloid; second, hyperplastic with adenoma; third, exophthalmic.

The colloid never becomes toxic, and the second variety rarely shows toxicity before the age of 25; so it is only the third class, the exophthalmic, where trauma is liable to be a factor in precipitating hyperthyroidism. It must not be forgotten that the second variety do become toxic after mid-life, but most frequently between the ages of 40 and 50; this may be helpful in making a diagnosis.

McCarrison, after discussing psychic influences as factors of thyroid disease, says: "The shock of trauma will be found to be a frequent factor in lighting up latent thyroid instability and in precipitating the onset of thyroïdal disorder."

Bram says: "There is a remarkably clear indication that trauma, shock, or fright is capable of bringing on Graves' disease in persons previously possessing perfect health," and he mentions cases coming under his own observation in proof of it. He further says: "In this connection it may be remarked that soldiers under unaccustomed physical or emotional strain are particularly susceptible to thyroid hyperactivity. The recent European war has engendered thousands of such instances, many of which have been erroneously termed 'shell-shock.'"

Leniez says: "Exophthalmic goiter sometimes arises as a result of a traumatism. Certain observations establish with clarity the relation of cause and effect between a cephalic shock and the development of the Basedow syndrome."

The author reports three cases showing clearly the rôle played by cerebral traumatism in development of exophthalmic goiter. The first of these was a soldier without other pathologic past than malaria. After falling from his horse and striking his head, the patient remained in bed for several days for the slight symptoms of *commotio cerebri* and then gradually returned to his duties. Two months after the accident the officer com-

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plained of a nervous condition. Without real exophthalmia, there was a strange look about him. On examination there was a very marked increase in volume of the right lobe of the thyroid, a slight beating of the carotids, a tachycardia giving a pulse of 104, tremor of the fingers, rapid loss of flesh, and an unaccustomed nervousness. Later the condition was slightly improved, but the patient remained affected with a form of exophthalmic goiter which appeared a short time after a cranial traumatism.

A physical or moral shock is capable of producing paroxysms in a goitrous patient. The facts reported here prove that all cases of exophthalmic goiter do not recognize for cause primary local lesions of the thyroid body.

Drysdale says: "Basedow's disease has become quite a commonplace litigation problem. The French school and not a few German investigators interpret the condition as a neurosis,—a disease of the sympathetic nervous system. It was claimed that by stimulating the sympathetic a definite exophthalmos with increased heart action (tachycardia), as well as an engorgement of the thyroid gland, was evoked. Lanstrom reversed these conclusions by clearly showing that the stimulation of the sympathetic was a secondary element, and that the first cause dwelt in the thyroid gland itself.

The question of the importance of locality and race has often been raised and there can be no doubt that these factors do exercise considerable influence upon the occurrence of the disease. A familial type of the disorder has been observed.

The disease develops insidiously in most cases with general psychoneurotic complaints. On the other hand, the onset may be rapid, and the classic syndrome has been known to appear in the midst of apparently good health after prolonged emotional or mental strains. It is also well to remember that the malady may exist in a pronounced form without much, if any, enlargement of the thyroid.

This author reports four cases in detail. The first, that of a young man whose previous health, insofar as it could be ascertained, had been good, but who, directly following inconsequential physical injuries in a railway collision, became afflicted with exophthalmic goiter. No other person in this wreck developed the disease, yet others were exposed to the same strain and shock. It must, therefore, be assumed that something in the constitution of the individual made him particularly susceptible, and that, if it had not been for this predisposition, he would not have become chronically afflicted. The fact that prior to the acci-

dent he was industrious and apparently well is the principal reason why the railway company awarded him \$5,000.

The second case was that of a young woman who sustained major injuries accompanied by profound shock and concussion. When she suddenly and unexpectedly saw the rapidly moving train bearing down on the automobile in which she was riding, with no avenue of escape and with the thought of her helpless child on her lap, the commotion and strain to which the delicate nervous and mental organisms were subjected must have been tremendous. In this instance we are dealing with a young woman constitutionally nervous and emotional, and therefore poorly fortified against shock and bodily abuse. It is small wonder that the disease, which had previously existed in a mild state, now came to the surface. The case is now in litigation.

The third case was a neurasthenic woman in whom an enlarged thyroid existed for years. Prior to the accident, which was rather a minor affair, she enjoyed good health and was able to earn a comfortable living. Following the injury many functional complaints arose and these have continued up to the present, although subject to remissions. One of the patient's sisters has an enlarged diffuse thyroid, which is apparently inactive. This patient's complaints are the expression of shock, which her sensitive nervous mechanism could not combat and which has excited to activity a pre-existing exophthalmic goiter. This case has not yet become a litigation affair but the patient feels that she should be indemnified for the distress suffered and the disability incurred.

The symptoms in the fourth case were claimed to have resulted from a fall on the sidewalk, but not a single sign of contusion was found. In this patient the enlarged thyroid was tense in consistency, and this was interpreted as a chronic condition. Furthermore, a clear and trustworthy history of the health prior to the accident was not available. Considerable doubt complicated the situation, and the jury found for the defendant. On the other hand, if it be true that he was an industrious and healthy workman prior to his fall, the fear and fright of a huge building collapsing upon him, as he described it, might have been the means of precipitating symptoms which formerly existed in a latent state. The defendant's attorney intimated that probably this was the case, and rather than prolong the litigation they made him a modest settlement of \$300.

An analysis of seventeen cases of Basedow's

disease alleged to have been caused by trauma, shows that the condition must have for its development suitable soil. There must be an inherent predisposition to the disease. The degree of physical violence has little, if any, significance, and whatever harm is done in this respect comes from shock and emotional storms acting through an unstable nervous and psychic constitution. Trauma, therefore, becomes only a determining factor.

Injury to the thyroid gland has been the exciting cause in rare instances; shock of operation on other parts of the body has also been followed by typical evidences of hyperthyroidism.

Concerning the pathogenesis of thyrotoxicosis: N. W. Janney, after a brief survey of the older theories of Graves' disease and a review of the hyperthyroidism theory from various viewpoints, presents facts and arguments in favor of dysfunction or dysthyroidism. Among the causes of thyroid hyperplasia, mention is made of "decreased function because of trauma, infection, and other pathological processes either in the thyroid or in the organism in general." In explanation of the nature of the toxic thyroid secretion he sets forth the "hormone hypothesis" as deserving further investigation.

Until recently thyrotoxicosis was thought to be dependent upon the pouring out into the blood stream the secretion of the over-active gland which was rich in the inorganic iodine, and it was this stimulation of the vascular and nervous system that accounted for the many changes occurring in the bodies of those having hyperthyroidism.

In cases of exophthalmos with the usual syndrome,—extreme nervousness, tremor, irritability, profuse sweating, loss of weight, abdominal pain, tachycardia, basal metabolism increased,—the administration of iodine in the form of Lugol's solution, 3 to 5 minims, t. i. d., has been followed with almost magical results. The nervousness, tremor, and irritability is improved, abdominal pain vanishes, tachycardia controlled, metabolism is lessened.

Another form, the goiter of adolescence when uncomplicated with adenoma, is amenable to treatment with iodine. In cases where no effect is noticed when administered by mouth the intravenous injection of the synthetic product thyroxin obtained from the normal gland as worked out by Kendall, of the Mayo Clinic, will cure.

A type of goiter in which iodine is harmful is the adenomatous goiter showing toxic symptoms resembling those of exophthalmos though less severe. This goiter does not usually become

toxic until after mid-life. It has been observed in these cases when given to patients over twenty years of age that its use may cause hyperthyroidism. The colloid goiter with adenomatous nodules may be benefited by the use of iodine, the colloid substance absorbed, leaving the nodules. These can be removed at a later period by a very simple operation, shelling out of the gland the adenomas. It will not be necessary in these cases to remove any portion of the glandular tissue.

TRAUMATIC NEUROSES

Sir William Brodie, in 1837, was the first to describe certain symptoms manifested in persons who had received injuries, and he considered them to be hysterical in type. In 1866 Erichsen, after making a serious study of neuroses following railway accidents, thought them to be due to concussion of the spine and gave the name of "railway spine." He believed the condition due to material alterations in the spinal cord.

This terminology was accepted for many years, notwithstanding the opposition of such men as Page of England, Charcot of France, Oppenheim of Germany, and Walter and Putnam of the United States, who clearly demonstrated that the symptoms of "railway spine" were those of psychoneuroses. Some of the physicians present can recall how frequently this "railway spine" was made the basis of litigation in those seeking compensation for injuries. There is not a single part of the human body that at some time has not been said to have suffered from certain unexplained symptoms due to concussion of the spine. This form of neurosis is said to occur most frequently in neurotics, and the individual is spoken of as a "psychopathic inferior."

The Rehabilitation and Compensation Act has become a law in thirty-seven states. This statement was made by Dr. Albee at the recent meeting of the Clinical Congress of the American College of Surgeons. Another speaker said that all but four states of the union had enacted the Rehabilitation and Compensation Law, and many of the states include medical, as well as surgical, rehabilitation. Dr. Albee defined rehabilitation as meaning the restoration of the individual to as near a normal condition as that existing prior to the sickness or accident.

In order to accomplish this end every means known to the healing art must be brought into requisition, namely, relief of pain, rest, prevention of infection, the use of proper mechanical supports in dislocations and fractures, massage, hydro, electro, and psycho-therapy, before the injured person is pronounced permanently disabled in any of the bodily functions.

The surgeon must be earnest and conscientious in his efforts to prevent infection when dealing with abraded, lacerated, or incised wounds, and especially diligent in the treatment of fractures, simple, comminuted, or compound. It is the disastrous results from infection whether introduced locally or carried in the blood stream that are responsible for the changes in the tissues which interfere with the complete restoration of function.

The surgeon may need to call to his assistance the internist and, by good team-work, be able to restore the individual to a normal condition.

In cases where the normal function cannot be restored, good results can often be obtained by vocational education, and in this way place the individual in a position where he or she can earn a good livelihood and not be dependent. We must not overlook the economic side under the Compensation Act, the employer being held responsible for the injury of the employee, whether engaged as a common carrier, manufacturer, or in civil pursuit.

It is not possible in the scope of this paper to describe all of the neuroses incident to injury. Among the injured will be found those who have goiter, and following trauma symptoms develop resembling hyperthyroidism. A careful study will elicit a disturbance of the nervous mechanism differing from that found in toxic goiter and belonging to the "traumatic neuroses."

Where injuries necessitate a long period of rest, and confinement in a reclining position, definite changes occur in the physical and mental makeup of the individual which are classified as "neuroses."

A man receives an injury to the head, a fracture of a long bone, a crushing injury to the chest, an incised or lacerated wound; the process of repair is rapid and to all appearances the patient had made an uninterrupted recovery. The surgeon is prone to flatter himself on his skillful handling of the case. In a few months he is confronted by this same individual who tells him he is not well, that he tires easily, has shortness of breath on exertion, perspires profusely, his heart palpitates, food distresses him, has pains through the abdomen, does not sleep well, and when he arises in the morning is not rested. With these symptoms an examination of the patient reveals an enlargement of the thyroid gland, and it is in these cases that it may tax the surgeon to his utmost ability to differentiate the toxic goiter from a traumatic neurosis.

If added to the symptoms just enumerated there are a loss of weight, weakness in the lower ex-

trimities, especially in the weight-bearing muscles, noticed in efforts to climb stairs, often spoken of as "knees give out," extreme nervousness, irritability, inability to remain quiet or to rest in one position for any length of time, flushing of the face, redness of the skin over the trunk of the body, heart action accelerated (120 to 160 per minute), in placing the hand over the cardia the impulse of the apex beat greatly increased, the tachycardia persistent, a tremor of the fingers, and the basal metabolic rate increased, the case is one of hyperthyroidism.

Plummer has observed that the tremor of the fingers in a simple neurosis and that of hyperthyroidism can often be differentiated as follows: Have the body erect, arms thrown forward and extended at full length, the fingers of both hands spread widely apart, then if the tip of the index finger of the examiner is applied gently to the tip of the extended fingers the tremor will be transmitted in case of hyperthyroidism.

John B. Deaver says, "Oh! what a wonderful thing is that index finger; so delicate that it has an eye at its tip capable of seeing what is beneath it." In this case the eye in that index finger discerns the disturbance in the mechanism of the nervous system which causes the tremor due to absorption of toxins developed in the thyroid gland.

A. Wimmer, of Copenhagen, says that traumatic neurosis is the physical and mental manifestation of an emotional shock. "The emotional shock may have been so severe as to induce temporary amnesia, and the causal shock may not be remembered." He explains that this condition of traumatic neurosis is one of great dread to accident insurance companies and requires impartial analysis of symptoms and causes and proper treatment as a pathologic condition.

Dr. Joseph Catton gives a very exhaustive paper on psychotherapy of post-traumatic neuroses. He describes conditions made up of hysterical or neurasthenic, or psycho-asthenic or hypochondriacal symptoms, either alone or in varying combination, the symptoms appearing to have resulted from physical injuries and not necessarily accompanied by any demonstrable organic disease to which they might be with certainty ascribed.

He states that post-traumatic neuroses develop in certain persons who meet with bodily injury, more especially where the cranium and vertebral column has been traumatized, and a common carrier, a corporation, or an industrial organization may be liable for compensation and litigation expenses for the accident and resultant disordered psychology.

He divides physicians into two schools: the psychologic and the organic. The physician of the former school discovers no sign of organic disease but merely a psychic trauma. Instances of non-organic effects were seen among soldiers in the field. Those subject to exposure and exhaustion, heavy responsibility, moral shock, of higher social level, and with higher ethical standards were more prone to be affected by neurosis. Officers were more often affected than the men. Those exposed to the unceasing noise of, and dread of injury from, shell-fire, though not struck by shrapnel, often developed a more or less mild form of neurosis. And frequently the less the physical damage, the more pronounced the psychoneurosis. Similar neuroses also follow psychic and not physical injuries, as experienced in fright from earthquakes, lightning, floods, etc.

The organic school claims that the psychologic factors do not explain the condition although no organic disease can be found ante mortem. In accidents which have resulted fatally when no organic neurologic disease has been found before death, the post-mortem has shown minute hemorrhages in cerebrum, cord, and meninges with subsequent softening.

Engel, in an article on the so-called traumatic neuroses, sums up as follows: "These cases are hysterical manifestations following injuries; 75 per cent of the cases are purely hysterical and without any serious injuries." After injuries any hindrance to the recovery may bring on the trouble in the different phases, and one hindrance is the delay in settlement of suits for damages brought by the injured person.

Catton says that "lump-sum" treatment is sufficient in these cases. Dercum, in thirty years' experience, reported 447 cases, and said that not one case after settlement had reported for treatment. Naegli checked up 138 cases and found after settlement no impairment of earning power. Brown found 95 per cent of claimants cured after settlement. All observers have found litigation feature harmful and should be disposed of.

In closing, the following two cases may be of interest:

CASE 1.—A young man, aged 26, healthy and robust, locomotive fireman, fell off the tender of a moving engine, striking his head on the rail and causing a scalp wound on the right side. There was no symptom of skull fracture nor other injuries excepting some slight skin abrasions. He did not lose consciousness and gave a detailed description as to the cause of the accident. The case was dismissed in three weeks. Several months afterwards a settlement not having been made, litigation was commenced and damages placed at \$25,000. In the

complaint it was stated that in consequence of the injury the claimant was permanently disabled, and had a partial paralysis of the left side. An examination was asked for by counsel and resulted in the following findings: Complete hemi-anesthesia of left side of body, including scalp and face. Pupil of left eye dilated, loss of hearing in left ear, special senses of smell and taste perverted. Muscles, normal.

In arriving at the above findings the claimant was subjected to the various tests, some of which were severe. For the skin test the electric needle and heat and cold were used. The heat was said by claimant to be cold, and vice versa. The pupil of the eye was sluggish in reacting to light. The sclera insensitive to touch. The claimant was blindfolded, and the following tests were given: A bottle containing strong ammonia was held beneath the left nostril and claimant asked to inhale, which he did without any apparent distress. The right nostril being held tightly shut. When the bottle was held beneath the right nostril, and he was asked to inhale he would draw away at once. Acids applied to the left side of tongue were pronounced to be sweet, and sweets applied as tasting sour. There was no paralysis of facial or lingual muscles. The use of the electric current did not show any reaction of degenerative changes in the muscles. Measurements of the right and left extremities showed slight differences which were attributed to non-use.

The court asked the expert witness if he considered the injury permanent. He replied in the negative. He was then questioned as to his reasons, and he stated that he had never seen a case like it, but a French writer had an article in a magazine just published describing a similar case, and said it was hysteria. The jury giving the claimant the benefit of the doubt awarded him \$9,500 damages. A few months later the claimant was engaged in active work, although he did not return to his former occupation.

CASE 2.—A male, aged 40, who fell twelve feet off a bridge, and struck on his right side and hip. Examination at the time of injury did not show any abrasion of the skin nor fracture of bone. There was a contusion of the tissues over the right shoulder, lumbar region, and hip. He claimed that his back was hurt and that he was unable to walk, and he remained in bed for eight weeks. At the end of that time he commenced to get around with the aid of crutches. In turning from side to side or making an effort to rise up in bed, his facial expression was that of one suffering great physical pain. Litigation was commenced, and the claim made that the injury sustained at the time of the fall produced a spinal concussion resulting in locomotor ataxia. A careful examination just previous to the trial did not show any permanent disability. During the trial the man was carried to and from the court room on a stretcher, his counsel making the statement to the court that this was necessary on account of the claimant being unable to walk even with the aid of crutches without great pain. He was awarded \$3,500 damages. Six weeks after the award was given, the man, a farmer, was out in the field following the plow.

IN POETRY

A new disease to trouble men
Has come to light through Erichsen.
Who had heard before his time
Of such complaint as "railway spine?"
It was the purpose of the Lord
To save from harm the spinal cord.
Protection for the cord was made
Before a railway track was laid.

Enclosed within a solid case,
It seemed secure for all the race;
A bony process on each side,
No evil from it could betide;
An osseous column from behind
In close proximity we find;
In front a solid fort we see,
The bodies of the vertebræ.
To make the cord still more secure,
From shock and violence insure,
The spine was made of many bones,
With cartilage between the bones.
A great success this would have been,

But for John Eric Erichsen.
But ever since he wrote his book
The spinal cord is getting shook,
And scarce a term of court goes by
That does not have a case to try.
The slightest bruise, the merest jar,
If gotten on a railway car,
Is sure to end in course of time
In a concussion of the spine. . .

There seems to be an inclination
In men to rob a corporation.
So common is this thing of late
That stealing seems legitimate.
The damage by the jury set,
Attorneys half the boodle get.
No ante or post mortem sign,
Can diagnose a "railway spine."
The microscope is sought in vain
The dubious symptoms to explain;
Subjective signs, if signs at all—
An open door for fraud for all.
Away with fairness, truth and skill,
While men malingering at their will.

BLOOD TRANSFUSION, A CLINICAL STUDY*

BY MINAS JOANNIDES, M.D.

MINNEAPOLIS, MINNESOTA

No one questions the advisability of blood transfusion in conditions where it is indicated. There is a difference of opinion, however, with reference to the use of a given method of blood transfusion. This difference arises from the fact that reactions occur in from 15 to 40 per cent of blood transfusions. These reactions may be mild or very severe and, in some instances, may result in a fatality. Preliminary biologic examinations of the blood to determine its compatibility have reduced the frequency of post-transfusion reactions considerably. One still encounters, however, various degrees of reactions in spite of careful laboratory examinations of the blood. Without a doubt, the cause of these reactions is to be found in the changes that occurred in the blood after it was removed from the donor and was mixed with the recipient's own blood. No one as yet knows definitely what is the real cause of these reactions. Possibly for this reason from time to time the various methods of transfusion have been attacked as the contributing or as the causative factors in post-transfusion reactions. We must keep looking for the cause of the reactions, not only in the method used, although this is an important factor, but also in the changes that occur in the blood after

it leaves the donor's vein and after it is introduced into the recipient. The fact that the coagulation time of the blood in the recipient is definitely decreased after a citrated blood transfusion is a strong evidence that important changes occur in the blood after it is introduced into the recipient.

Coagulation is one of the chief properties of the blood. This property has been the primary technical difficulty that is encountered during the transfer of the blood from one individual to another. Various methods have been devised to prevent coagulation of the blood while this transfer is being made. Among the chemicals used to produce incoagulability of the blood, sodium citrate proved to be the safest and most efficient. Such drugs as oxalates and hirudin have been tried and discarded a long time ago. According to some authors chemical anticoagulants are not desirable since in their experience they cause more frequent reactions. They use, therefore, unmodified blood and devised various methods for transfusing it. Thus, Kimpton and Brown use tubes that are coated with paraffine. Lindeman uses a syringe-cannula method by means of which the blood is injected into the recipient as soon as it is removed from the donor. Unger uses a three-way stop cock for his transfusions. J. S. Horsley prefers to connect the artery of the

*From the Department of Surgery, University of Minnesota.

donor to the vein of the recipient by means of a cannula. All these workers consider only the possibility of changes in the blood during the transfer, and have, heretofore, paid very little, if any, attention to changes in the blood stream of the recipient after the transfer. Whether or not these changes are an important factor in the production of post-transfusion reactions will be learned after more extended experimental studies of this phase of the subject. A glance at the literature will show that, regardless of which method was used, the percentage of reactions varies from 15 per cent to 40 per cent. Very few fatalities have been reported that may be attributed directly to the blood transfusion. In most of these cases, the difficulty may be traced to incompatibility of the blood because the preliminary biologic reactions have been improperly carried out. Such being the case, there is no reason why citrated blood should not be used for transfusion. Citrated blood transfusion is very simple in its technic. It requires no special operating-room precautions. It can be performed by only one person if necessary. If need be it can be performed in the patient's own room. No incision is necessary in order to reach the patient's vein. Sodium citrate disappears from the blood stream within a very short time after its injection, so that even if toxic doses are injected symptoms will disappear very promptly. In a series of experiments carried out in our laboratory it was found that the amount of sodium citrate used to produce incoagulability is not sufficient for an average transfusion to produce toxic symptoms in the recipient. The toxic symptoms that are produced by the sodium citrate, *per se*, are entirely different from the picture noticed in post-transfusion reactions.

An analysis of 62 transfusions was made to determine the percentage of methods used and reactions after each transfusion. These transfusions were performed on 32 patients at St. Mary's Hospital. Of these 59 transfusions, or 95.1 per cent, were with citrated blood. The other 3 were performed with the Kimpton-Brown

technic. Of the 59 transfusions 37 per cent developed a rise of temperature, 6.8 per cent being a rise to a point less than 100 degrees Fahrenheit. There were no chills in 84.7 per cent and no fever in 63 per cent of the 59 transfusions. At a first glance one would think the percentage of reactions is quite high. If one considers the percentages reported in the literature with larger series of cases, he will notice that these figures are not very different from those previously reported. There was no death in this series that could be directly attributed to the transfusion. The following types of patients were transfused.

| | |
|--------------------------------------|----------|
| Inanition due to pylorospasm..... | 1 case |
| Anemia, unclassified | 2 cases |
| Anemia, secondary | 8 cases |
| Anemia, pernicious | 10 cases |
| Leukemia, myelogenous | 1 case |
| "Hemorrhagic diathesis" | 1 case |
| Septicemia, streptococcic | 1 case |
| Jaundice | 3 cases |
| Arthritis, septic | 1 case |
| Endocarditis, malignant | 1 case |
| Gas gangrene | 1 case |
| Osteomyelitis | 1 case |
| Anorexia nervosa with decompensation | 1 case |

These transfusions were performed by different men, and, therefore, the conditions under which the transfusions were done were not exactly alike. Even though there are ample facilities in this hospital for the use of unmodified blood technic, still as the figures show citrated-blood transfusion is very popular among the visiting men of this hospital.

The following conclusions are justifiable from our analysis of these few cases:

1. Compatibility tests are absolutely essential before a transfusion is performed.
2. Blood transfusion is a useful and frequently a life-saving measure.
3. Citrated-blood transfusion has not been the cause of a fatality in this series.
4. The percentage of post-transfusion reactions is no different from that reported by others with a larger series of cases.

EXTRA-UTERINE PREGNANCY, WITH REPORTS OF CASES*

BY G. H. LOWTHIAN, M.D.

MILBANK, SOUTH DAKOTA

I have nothing new or startling to offer you this evening on the subject of extra-uterine pregnancy, and shall not try to discuss any type except the tubal. None of us know nearly enough about it, and yet it is much more frequent than is generally thought. I shall try not to tire you with any long exposition of symptoms, diagnosis, and treatment, but shall try to give some of my experiences, difficulties, and mistakes in diagnosis and treatment.

The typical text-book case is rarely seen, and many gynecologists and obstetricians tell us that it is easy to diagnose. Sometimes!

There are two cardinal points earliest to appear, which should put us on our guard. These are pain and hemorrhage. The patient may first have pain, slight or severe, without any premonitory signs, then the hemorrhage, or there may have been a slight flow, serous or blood-tinged, for several days before pain appears. The location of pain is low in the abdomen or pelvis and is cramp-like in character, and is sometimes very severe, varying much according to location of conception and nervous temperament of the woman. Unless these first attacks of pain and hemorrhage are severe enough to cause grave concern, these cases are rarely seen by the family physician until the patient has become worried on account of the frequent attacks of cramps or because the flow has not stopped or the woman has become prostrated and exsanguinated from the hemorrhage, external or internal, more often internal, and not suspected by the patient because of the external flow. In from one to three weeks, depending upon the severity of the attacks of pain and the amount of flow, the physician is called, finds the woman in bed, or, frequently, in the kitchen attempting to do her housework,—pale anemic, weak, with varying degree of prostration, slight temperature (99° to 100°), and rapid pulse, much out of proportion to the temperature. He elicits the history of repeated attacks of pain, slight flow, etc., and finds the abdomen slightly distended and dull below, the upper abdomen tympanitic or slightly so. His internal examination reveals a tough picture of soft cervix and a uterus not particularly enlarged, possibly slightly so, fairly firm, and a soft, boggy, tender mass in one or both sides of the pelvis and in the cul-de-sac. Having gone so far there is

one thing more you can do to satisfy yourself, if you have the time and the condition of patient will permit. Examine the lochia or use a dull curette carefully for a moment on the inner surface of the uterus and examine the specimen under the microscopic; if you find decidua you know positively that you have extra-uterine pregnancy, for the uterus produces a growth of decidua in extra-uterine pregnancy, just as if the conception had taken place within its own body.

You think how easy, how impossible to make a mistake. 1. How could anyone make a mistake? 2. As there is nothing like it? All right. The following case will illustrate:

Mrs.—, aged 41; weight, 115 lbs.; mother of four children, youngest nine years of age. Menstrual history, normal, regular and without pain. Family history, negative. Personal history, hard worker and active. Confinements, all normal; no illness except that seven years ago she had an extra-uterine pregnancy. Right side operated on and tube removed. Recovery, complete. About two weeks before I was called in consultation she was taken with sharp cramp-like pain in left side and pelvis, began to flow, and the flowing continued for two weeks, part of the time quite copiously. Cramp-like pains intermittent, and flow more copious following pain. Temperature, 99.5° and pulse 110. Woman pale and weak. Abdomen somewhat distended and dull.

Internal examination: Uterus, not enlarged; cervix, soft; left side full, soft, boggy and tender; could make out distended and tender tube.

Diagnosis: Extra-uterine pregnancy. Advised operation at once, which was accepted. Will not go into details of operation, but tell what was found. A large, soft cyst of the ovary with the fimbriated extremity of the tube spread out and firmly adherent to the wall of the cyst; the ovary and cyst twisted one-half around on itself. Yes, a mistake in diagnosis, but justifiable only because the treatment was the same in either case. You wonder why I did not use the curet and examine for decidua. Because the attending physician had curetted only a few days before so that would have been useless.

CASE 2.—Referred by Dr. Flett. Mrs. A., aged 28, married eight years, three children.

Family history, negative; menstrual history, regular and normal without pain and lasting four days. I first saw this patient on January 3, 1921. She had a history of pain and severe cramps and flowing for the past three weeks. She was pale, anemic, very weak; temperature, 100° ; pulse, 120. Upper abdomen slightly distended and tympanitic. Lower abdomen distended and dull. Internal examination showed soft cervix, uterus very slightly enlarged, and a soft boggy mass in left side. At this examination there was no very great tenderness. I was not certain as to the result of examination, and as the patient was resting comfortably I left her with

*Presented before the Twelfth District Medical Society at Webster, S. D., January 14, 1925.

the nurse until the next morning. At that time we found her in an attack of quite severe cramping pains. By examination at this time I was able to map out through the mass the outline of a tender swollen tube with very tender enlargement in the outer third.

There was no question as to diagnosis. As the patient's husband was not present, I was unable to get consent for operation until the following day, January 5. At this time we operated through a semicircular cross-incision just above the pubes, and separated the recti muscles in median line, opening the peritoneum. The pelvis was found full of fresh and clotted blood, which was removed before we could locate the tube and bleeding point. The pregnancy was in the outer third of the left tube, which was removed in whole and wound closed.

This patient went on the table with a pulse of 140 and temperature of 99°. Operation lasted twenty-five minutes. The patient was put to bed on warm blankets and given proctoclysis of normal saline, and she made an uneventful recovery, the wound closing by first intention, and she was able to leave the hospital and go to her home on the eighteenth day.

Now, the very interesting part of this which is rather unusual comes in the examination of the pregnant tube, which was found to contain twins at about the sixth or seventh week of growth. Unfortunately, I am unable to show you this specimen as the nurse misunderstood when I told her to save it, and the following morning when I inquired about it I was told it had been burned up. There was considerable internal commotion at that time, and I think that several of the nurses thought there had been an external explosion.

CASE 3.—Referred by Dr. Flett. May 9, 1921, Mrs. N., aged 31, mother of two children, youngest five years.

Menstrual history: Always regular until two weeks ago; began flowing slightly and flow continued until this time. Sharp cramping pains in left side, low down. Examination reveals abdomen slightly distended and dull. Internal examination reveals soft mass and left side tender to touch, not able to make out tube. Uterus slightly enlarged and not tender.

Operation May 10. Abdomen opened as in the former case and pelvis found full of clotted blood, very dark. Tube was adherent to ovary, which was partly cystic and degenerated and adherent to sigmoid. This was freed from the healthy ovarian tissue and sigmoid, and removed with tube. The wound was closed and the patient put to bed and given proctoclysis of normal saline. Time of operation, 30 minutes. Very stormy convalescence, and she left the hospital on the sixteenth day following operation. Wound closed by first intention. Never saw as much gas in any patient as was manufactured by the woman in this case. It caused considerable distress which was not relieved until the patient was up on the fourteenth day.

The interesting thing about this was that pregnancy had taken place on the wall of the ovary and had been sealed in by the fimbriated extremity of the tube, thus forming the sac.

CASE 4.—September 9, 1921. Mrs. S., aged 36. This woman has three children. No unusual sickness before this time. Miscarried three years ago; no trouble at that time. About September 1 started with pain and flow. Had chill September 8; temperature, 103°; tenderness over lower abdomen and left side.

Examination: Uterus enlarged; cervix soft, lateral tear on left side to internal os; shreds of membrane in os. Discharge is foul and ichorous. Enlargement on left side, somewhat elongated and tender, and thought at this time to be an infected tube.

As this patient was twelve miles in the country it was thought best not to leave her at this time in that condition, so she was given a little anesthetic and with a dull curette and finger the mass was removed from the uterus, with parts of decomposed fetus and afterbirth. The patient did well until February 17, when severe pains came on with considerable hemorrhage, and she discharged twin fetuses. Attending physician brought her to hospital where I saw her the following day. There was severe pain at intervals, but the flow gradually lessened. Examination at this time again revealed a tender mass on the left side, but somewhat smaller than upon first examination. I confess to being stumped. I hardly knew what to think, as she had had a miscarriage ten days before, discharging membranes and fetus and then ten days following this another miscarriage, relieving herself of twins. I know that we did not have a double pregnancy in the uterus, or apparently it was not a bicornate affair at the time of clearing up the first miscarriage. We just sat tight for a day or two, when finally we could make out the mass in the left side more clearly and not so tender and a distinct elongation or contraction close to the left horn of the uterus, and the diagnosis was then clear. She had an accessory horn of the uterus attached where the tube should have been attached and the tube at the outer end of the horn. Consequently this woman had become pregnant in this accessory horn with the twin pregnancy and pregnant in the body of the uterus probably at about the same time. This could easily have been mistaken and was very much like, in many respects, to an extra-uterine pregnancy and was one thing that bothered me for a considerable period of time. There had been no discharge of afterbirth following the miscarriage of twins.

We kept her in the hospital as long as she would stay, she having pains at intervals, and finally we allowed her to go home. Some eight weeks later we received a call to visit her at her home, when we found that she had had earlier, in the morning, some severe pain with very little flow; and upon examination we found this afterbirth in the external os. There was no infection and no odor. The woman has since done finely and gone the way of all good (?) patients, leaving between two days, and also leaving the doctor unpaid, as you all probably have experienced.

A TRIBUTE TO RICHARD OLDING BEARD, M.D.*

BY GEORGE DOUGLAS HEAD, M.D.

MINNEAPOLIS, MINNESOTA

It is a rare privilege to express on this occasion my appreciation of my old teacher in physiology, your guest of honor this evening. You honor yourselves in thus honoring him. More than thirty years have passed since, as a student, I sat upon the benches and listened to his lectures. I wish to assure you that the teachings of Michael Foster, the noted English physiologist, were well driven into our heads.

It was my good fortune to serve for twenty years in the younger coterie of medical teachers in our faculty under the inspiration and counsel of a rare group of men,—pioneers in medical education,—of whom I might mention Perry H. Millard, first dean of the Medical School, Parks Ritchie, the second dean, Alexander Stone, Charles Wheaton, James Dunn, James E. Moore, Frank Wesbrook, Amos W. Abbott, Thomas G. Lee, John W. Bell, and last, but by no means of less influence, Richard Olding Beard.

The life work of every man must be judged only after time has tempered the decision of his fellows. Not only the work actually accomplished, but the motives which have prompted the service, should play a part in the estimate. Gifts of service without the hope of material reward are the highest attributes of character. The University of Minnesota has been fortunate in having upon its faculty a body of teachers trained in such traditions. The strength of the institution to-day rests upon this foundation laid through sacrifices which only those who have served can well know. Your guest to-night is a veteran teacher in this school. It is only just to him that you young men and young women should have some knowledge of the service which he has rendered.

Richard Olding Beard began the practice of medicine in Minneapolis in November, 1882. He has told me that during the first year his income was greater writing book reviews (an old time occupation of his) than in the practice of his profession.

He was offered the chair of physiology in the Minnesota College Hospital in the year 1884, and delivered his first course of lectures in the old Winslow House, the present site of the International Stock Food Company Building. A bit of history relative to his acceptance of the

chair of physiology in the Minnesota College Hospital recently came to my attention and may be of interest to you. In the year 1884 the State Medical Association was held in St. Paul. At that meeting Dr. Beard was invited to discuss a paper read upon a physiological subject. The day following this discussion, he was called upon by Dr. George French, of Minneapolis, who at that time was one of the foremost figures in the councils of the Minnesota College Hospital, and was offered the chair of physiology. On the same day, Dr. Alexander Stone, of St. Paul, called upon Dr. Beard and urged him to accept a position as Professor of Physiology in the St. Paul Medical School. Forceful indeed must have been the impression which this young physician made upon these astute students of human nature in this early pioneer period in this state. It was most fortunate for the institution that his name was added to the teaching faculty at that time.

Later the Minnesota College Hospital was removed to a building especially built for the purpose at the corner of Sixth Street South and Ninth Avenue. Here Dr. Beard continued during the next four years as the lecturer in physiology, and in 1888 when, under the leadership of Dean Millard, the Minneapolis and St. Paul Medical Colleges were unified under the University of Minnesota, he was appointed to the chair of physiology in a faculty numbering thirty-two men. He is the last remaining member of that original group in active educational service. About this time he was elected secretary of the faculty and, barring an interval of about four years, has filled that position throughout the life of the school.

In 1914, at the time of the reorganization of the Medical School, Dr. Beard gave up the directorship of the department of physiology and became Assistant Dean and Secretary of the Faculty and Associate Professor of Physiology. It was at that time that he became most actively interested in the administration of the medical department, which office has continued to occupy his strength and time during these later years. He was one of that small group of men who cherished for years the expectation of the time when medical education in Minnesota would be unified in the State University. That expecta-

*Address before the Students' Six O'Clock Medical Club.

tion was fulfilled in 1908 when the last remaining private college was merged with the University school. In celebration of this occasion, Dr. Beard delivered the principal address, entitled "The Unification of Medical Teaching in Minnesota."

He proposed and planned the organization of the first university school of nursing established in 1909, and at the joint session of the National Nurses' Association he delivered one of the principal addresses of that meeting on "The University Education of the Nurse." Since that year fourteen other schools for nursing in higher institutions of learning have been organized under the plan worked out at the University of Minnesota.

It was under Dr. Beard's supervision that the new Millard Hall was planned, built, and equipped. He was a member of the legislative committee which helped to secure an appropriation from the legislature for the building and equipment of Millard Hall and the Institute of Anatomy and the completion and equipment of Elliot Memorial Hospital. While the special committee was presenting to the state legislature the equipment needs of Millard Hall and Elliot Memorial Hospital, an interesting incident occurred which I wish to relate. The legislative committee required that long itemized lists should be prepared of the equipment needed for these two institutions. These price lists the committee laboriously examined item by item. Among the specific items enumerated was one for a number of dozen salt cellars at two dollars a dozen, and another for an electrocardiograph, the sum standing opposite this item being eighteen hundred dollars. Of course the committee expected considerable opposition to the allowance for the electrocardiograph, but, much to our astonishment, when the conference was held, the wise legislators discussed very learnedly the cost of the salt cellars at two dollars a dozen, but not a man batted an eye or questioned in the slightest degree the eighteen hundred dollars for the electrocardiograph.

Now that Dr. Beard is to retire from active work, he has been made chairman of a large committee of the faculty and alumni members for the promotion of endowment and building funds for the Medical School and the School of Nursing. This important work will be in good hands.

These all too brief statements are merely the outlines of the picture of this faithful servant of the University. The final portrait will be painted when the colors, lights, and shadows

come in time to be added. The strength of Dr. Beard's life work rests upon the sacrifices he has made in the interests of medical education. His time and energy have been generously given. His intellectual powers have at all times been engaged in plans for the betterment of teaching in this school. With him these long years of service have been a labor of love. He exemplifies to my mind one of the most conspicuous examples of steadfast, faithful devotion to the traditions and ideals of a teacher of medicine.

There is a fine old custom among the peasants in the Tyrolean Alps which always greatly impressed me. As one tramps along the mountain roads and meets up with a native peasant of the Tyrol the man touches his little feathered hat and greets you with the salutation "Gruss Gott" (God greet you). It is a fine greeting. Dear Dr. Beard, we are all pilgrims trudging the mountain road of scientific medicine. As one of your old pupils and as a member of a generation of students long passed, I wish to-night to join hands with this company of young men and women, indebted to you for much in their medical training which time only will reveal, in expressing to you our appreciation of your long service to the Medical School. As we pass we touch our hats to you and hail you "Godspeed."

BOOK NOTICES

CONCEALED TUBERCULOSIS; OR, "THE TIRED SICKNESS." A Clinical Study upon the Exhaustion Type of Hidden Tuberculosis Infection. By George Douglas Head, B.S., M.D. Cloth. Price, \$2 net. Pp. 137, with illustrations. Philadelphia: P. Blakiston's Son & Co., 1924.

Head has written at intervals on the subject of "Concealed Tuberculosis." It is apparent that he is thoroughly convinced that many so-called neurasthenics, as well as patients suffering from other states of lowered vitality, are actually tuberculous. His thesis is that these individuals have a high degree of resistance against tuberculosis, otherwise they would show some of the ordinary symptoms, as cough, chills, sweats and fever, or local signs. The location of the infectious process, he contends, is often impossible to discover, but a reaction can be relied upon for a diagnosis by means of the subcutaneous test.

The author, during a long experience, has used the subcutaneous injection of old tuberculin in selected cases for diagnostic purposes. He has seen no ill effects from its use. Intelligently given in properly chosen individuals it is, in his opinion, a reliable means of recognition of concealed tuberculous infection.

The division of the present work is an exceedingly practical one. As his preliminary explanation of the subject to be discussed he describes with great care

the clinical picture of the cases coming under the group name of "The Tired Sickness." The second division of the work deals with the technic of physical examination and elimination of complicating conditions. In this part of the work the author exhibits the fruits of a long and very careful experience. As a discussion of differential diagnosis of tuberculous infection in mild form it may be considered a classic. Of no less value, perhaps, is the author's consideration of the essentials of treatment.

In the last division are grouped together illustrative cases. This part takes up half of the 128 pages, besides the index.

Head has not contented himself with mere analysis of cases showing analogous features, as is so often done, but each case he presents is described in such detail that the reader cannot escape having a clear picture. No attempt has been made to sacrifice clarity of description at any point for any of the lesser arts of writing. Nevertheless, his style is lucid, and one does not hesitate to read the book through.

There is possibly one fault to be named against this monograph. It is quite conceivable that a less skillful clinician than Dr. Head might take his conclusions too hastily, not bearing in mind to exclude other conditions than tuberculosis. In other words, there is danger that "The Tired Sickness" may form another "refuge of the distressed diagnostician" unless great care is exercised systematically to exclude other conditions which cause lowered vitality, and also to demonstrate the presence, though concealed, of tuberculosis.

The book is to be commended as a clear and consistent discussion of a medical problem which merits the most careful attention.

—J. G. CROSS, M.D.

MEDICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month. January, 1925. Mayo Clinic Number, Vol. 8, No. 4. Per clinic year (July 1924 to May 1925). Paper, \$12.00; cloth, \$16.00. Philadelphia and London: W. B. Saunders Company.

It is usual for the mass publications emanating from Rochester, Minnesota, to show very careful editing, and this volume is a pleasure to read from that standpoint alone. The articles are arranged systematically. In glancing over the table of contents, one can easily pick out an individual article or a group of articles by title with the assurance that he will find in it what is implied.

The four articles on peptic ulcer, by Hartman, Eusterman, McVicar, and Robertson, constitute a symposium on the subject, including, the pre-operative management of an actively inflamed ulcer; the evidence for healing, both under treatment and spontaneously; comments on carcinomatous change in gastric ulcer; the alkalosis often encountered in the generally applied medical treatment with its management when present; and a very complete anatomical and historical study of duodenal ulcer as to incidence, behavior, and effects. Robertson's article also has what apparently is a very complete historical bibliography. To complete the gastrointestinal group of subjects, Vinson has an article on carcinoma of the esophagus which seems to be at variance, at times extreme, with the views of Chevalier Jackson in a current issue of the *Medical Sciences*; especially as to malignancy and metastasis,

early diagnostic points, value of esophagoscopy, and use of bougie, all of which indicates need for further study of this condition.

Then follows a group of articles on renal conditions, Keith citing cases of nephritis conforming to Vollhard and Fahr's now generally accepted classification, in which mention is made of the use of calcium and ammonium chloride to control cases of intractable edema. Bumpus advocates the use of mercurochrome intravenously in cases of infection resistant to ordinary urologic therapeutics. Braasch gives the routine differential diagnostic procedures made familiar to all by numerous similar articles.

Gynecology is represented by Lemon and Mahle in an article setting forth a differential diagnostic study of groin tumor formation based upon two cases of ectopic adenomyoma of that region; and by Randall in a timely discussion of the technic and interpretation of tubal inflation (Ruben's test) useful in cases of sterility, where all other examinations have been futile in assigning a cause for the complaint.

William Plummer propagandizes his brother's views on the use of iodine and desiccated thyroid in endemic colloid goiter and Lugol's solution in exophthalmic goiter, the rationale of the former being on the hypothesis of an overactive, but actually hypofunctionating, gland which needs iodine to prevent the deposit of colloid, and of the latter that the exophthalmic gland needs iodine to prevent the formation of an excessive amount of incomplete thyroxin.

The brilliant and apparently curative effects of splenectomy in hemorrhagic purpura are shown by Giffin in four cases, stressing at the same time the necessity for very accurate diagnosis. Adams has two cases of the very unusual combination of pernicious anemia and diabetes in both of which cases insulin was ineffective in controlling the diabetes, due, he says to the inability to oxidize with a deficient blood.

Boothby and Willius find that cardiac cases average a somewhat higher than normal basal metabolic rate, but conclude that this is not to be explained upon an intrinsically cardiac basis, but upon the fact that true standard basal conditions do not exist, either on account of dyspnea or anxiety. Willius analyzes a carefully observed case of coronary obstruction and myocardial infarction clinically and electrocardiographically. Brown offers a differential study of thromboangitis obliterans, Raynaud's disease and erythromelalgia, with suggestions for treatment.

On the subject of syphilis, O'Leary recommends liver function tests in diagnosis and guide to further treatment of cases of post-arsphenamine jaundice, and duodenal lavage (technic of Wilhelm) as curative; and Goebmann philosophizes on the immunology, infectivity, and curability of syphilis without coming to any very practically valuable conclusions.

A somewhat isolated article is that of Prangen, a plea for the early care of cross-eyed children and setting forth many cogent reasons therefor.

Four articles deal with pulmonary subjects: a statistical survey of one hundred fifty-eight mediastinal tumors by Gaarde; a detailed account of mediastinal lipoma by Lemon, who claims it to be the only case diagnosed without surgical exploration antemortem; non-tuberculous suppurative conditions (mainly ab-

sees and bronchiectasis) by Conner and, finally, that admittedly inconsequential, non-symptomatic condition of miliary calcification (pulmonary) by Sutherland, who scraped together thirty-eight cases out of some sixty thousand lung roentgenograms.

Another more or less isolated article is that of Hench on chronic multiple infectious arthritis; justifiable on such a verbose subject, by his citation of cases which show the protean manifestations of this disease which make it a veritable diagnostic exercise, anemia, gastric, renal, cardiac, and metabolic factors presenting themselves for evaluation and common sense interpretation.

The group on neurologic subjects is the largest of the volume, and, to one not a neurologist, the most interesting. Gipner finds the optic nerve affected, albeit not characteristically, in some manner in 50 per cent of cases of multiple sclerosis and that early. A case of achondroplasia developed chronic anterior poliomyelitis, raising the question, in Comfort's mind at least, of a possible biologic relationship, inasmuch as the same embryonically impaired growth resulting in the one (skeletal tissue) might also extend to the other (muscular tissue). Parker,—one whose papers are, fortunately, becoming more numerous in the literature,—presents vertigo. It is a relief to find a medical writer who apparently enjoys writing, and writes well; most seem content with classification, tabulation, listing, compilation, and summarizing, forgetting that they are to be read, often by a tired, rather sleepy practitioner whose interest in the particular subject may not be any too lively. Parker's material is instructive and attractively given. The same things may be said, in less degree, of Woltman. He courageously relegates to the ash heap all headaches designated as "anemic, diabetic, uric acid, toxic, pelvic, reflex, sympathetic," and such like and insists on a really studious endeavor at an etiologic diagnosis of that almost universal complaint. Rivers and Bueerman close the neurologic group by suggesting that certain cases of transient, paroxysmal cardiospasm may be on an epileptiform basis, similar to laryngeal epilepsy.

Radiotherapy is presented by Bowing and Bliss and Desjardins, the latter announcing rather startling results in chondrosarcoma of scapula and ilium; carcinoma of testicle, with metastasis; carcinoma of thyroid with metastasis to skull; and Hodgkin's disease, with wide distribution of lymphomatous tissue.

What purports to be the first case of Bacillus of Morgan No. 1 septicaemia is related by Mograph and Jackson, with a detailed description of the organism.

Rowntree closes the volume with a discussion of the investigation of hepatic function, favoring in such study the phenoltetrachlorophthalein test as used by Rosenthal, the Van der Bergh serum,—bilirubin tests, McLean's fructose tolerance, and the hemokonia test of Brulé.

It will be seen from this review, which has purposefully been made rather detailed, that this volume covers almost the entire field of internal medicine, at least in a phasic sense and, for that reason, merits a careful perusal.

—J. B. CAREY, M.D.

OPERATIVE SURGERY. Covering the operative technique involved in the operations of general and special surgery. By Warren Stone Bickham,

M.D., F.A.C.S., former surgeon in charge of General Surgery, Manhattan State Hospital, New York; former visiting surgeon to Charity and to Touro Hospitals, New Orleans. In six octavo volumes totaling approximately 5,400 pages with 6,378 illustrations, mostly original, and separate desk index volume. Volume V containing 880 pages with 1,118 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth \$10.00 per volume. Sold by subscription only. Index volume free.

This volume is particularly good for it takes each operative step individually and describes it very clearly in the text. The same operation is illustrated step by step with very excellent drawings.

The book is purely one on operative technique and as a result contains practically nothing in the way of diagnosis.

The reviewer spent a great deal of time in going over its pages and thoroughly enjoyed the pictorial demonstration of instruments and operative technique. The work on the genito-urinary tract is as carefully handled as is the work on the colon and rectum.

This book compares favorably with any operative surgery that it has been my pleasure to read.

—STANLEY R. MAXEINER, M.D.

IMPOTENCY, STERILITY AND ARTIFICIAL IMPREGNATION.

By Frank P. Davis, Ph.B., M.D. Second edition, revised and enlarged. St. Louis: C. V. Mosby Company.

The author elaborates on the causes of impotency. In some cases there exists a vicious cycle in that failure begets impotency and the thought of impotency begets failure. Anxiety neuroses, fear of pregnancy, etc., in the male as well as in the female, may produce temporary impotency.

Among the physical causes responsible for impotency the following are enumerated: calculi of the prepuce, elongated foreskin, short frenum, adhesions of the penis to the scrotum, bifurcated urethra, and varicocele. Chronic cases of gonorrhoea are frequently impotent. Adiposity and corpulency are frequent predisposing causes. Premature ejaculations are also frequent factors.

Davis claims that there is a period each month in the sexual life of a man in which his sexual activity is lowered corresponding to the menstrual period in the female. He also claims that there is a male menopause between the ages of 50 and 55. This period lasts from eight months to four years. The subject experiences a condition of anxiety and unrest. He does not seem to be able to accomplish his desires. He feels generally weak, and a tendency to weep becomes manifest. Other symptoms are mental depression, failure of memory, attention, and impairment of sexual desire and power.

Davis claims that women are more sensual than men. Among the causes of prostitution he agrees with Merriek that two-thirds choose their own "profession" more or less deliberately. The other third are directly due to men.

His estimates of the sterility among males and females are quite interesting. Twenty per cent of females and 15 per cent of males he considers as conservative estimates of sterility. Where the mates are too similar in temperament sterility may ensue; whereas, if the same persons were differently mated there would be a productive union.

—W. A. SAWATZKY, M.D.

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued Serially, one every other month.) Vol 4, No. 4. This number of the Clinics is devoted to various phases of the work of the Cleveland Clinic. 248 pp. with 118 illustrations. Per clinic year (February, 1924 to December, 1924.) Paper, \$12.00; cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

It is with some surprise that one finds only two discussions of hyperthyroidism in the Cleveland Clinic Number of the Surgical Clinics of North America. Dr. Crile discusses the surgical mortality in hyperthyroidism, tracing the steps in the evolution of his present management of this condition, and giving the reasons for each procedure. In another discussion, Dr. O. P. Kimball advocates the use of a rather small daily dose of iodine, together with a large daily dose of bromide for a short period of time as a diagnostic measure in differentiating between hyperthyroidism and other conditions causing instability of the sympathetic nervous system. Two case reports are given from series of over 100 cases.

T. E. Jones reports two cases diagnosed as Vincent's angina and treated for that by different men before making a biopsy and obtaining the pathological diagnosis of sarcoma. Symptomatic cures were obtained with radium, but the morale of the clinic is that the presence of Vincent's organisms in throat, even with ulceration, does not establish the diagnosis.

An illustrated clinical discussion of carcinoma of the larynx by Crile and Dinsmore is based on records of eight patients free from recurrence for from one to twenty years after laryngectomy. It is stated that intrinsic cancer is completely curable by laryngectomy and that sometimes intrinsic and extrinsic cancer is curable by more extensive resection. Emphasis is placed on the value of performing the operation in stages, and on the importance of the most painstaking post-operative care.

The same surgeons present a review of ten cases of esophageal diverticulum. They emphasize the importance of performing the operation in two stages. Some interesting roentgenograms are reproduced.

Lower and Belcher have two articles on the diagnosis of genito-urinary diseases. A number of pyclograms are shown and some interesting problems are discussed. The differentiation between gall-stones and renal stones in one case is a good example. This same case, among others, is cited in a clinic by Nicols on the application of the x-ray in the diagnosis of gall-bladder diseases.

John Tucker's case of splenic anemia almost completely cured by splenectomy in spite of the most disheartening obstacles and mishaps should be a source of encouragement to any physician or surgeon.

As this number of Surgical Clinics aims to present the various activities of the Cleveland Clinic, it includes matter that is not strictly surgical, but is none the less interesting and instructive. Mi-

graine, lipodystrophy, protein sensitization, endocarditis, and diabetes are among the subjects discussed.

T. H. SWEETSER, M.D.

THE PRACTICAL MEDICINE SERIES comprising eight volumes on the Year's Progress in Medicine and Surgery, under the general editorial charge of Charles L. Mix, A.M., M.D., Volume 11, "General Surgery" edited by Albert J. Ochsner, M.D., F.R.M.S., LL.D., F.A.C.S., F.R.C.S. Jr. (Hon.), Major, M.R.C., U. S. Army, President American College of Surgeons, Surgeon-in-chief of Augustana and St. Mary's of Nazareth Hospitals, Professor of Surgery in the Medical Department of the State University of Illinois. Series 1924, Chicago; The Year Book Publishers.

The above volume is a review of the year's papers on "General Surgery" by Professor Ochsner and has been made especially interesting by his brief editorials at the end of many of the articles.

The book begins with a general discussion of anesthesia and analgesia and carefully considers all of the types of anesthesia. Diathermy and radioactivity, the diathermy knife, the use of radium and deep x-ray therapy combined with surgery to combat cancer, surgical pathology, wound healing with its pathological intervention, the value of post-operative blood pressure readings, the care of burns, surgical diabetes, the closed method of pleural cavity drainage and theories relating to the cause of cancer and its incidence in certain races, are discussed at length.

Osteomyelitis and its treatment, bone grafting and transplanting, nerve injuries, and several articles on ramisection and other types of sympathectomy, fracture of the skull, abscess of the brain, alcoholic injections for the relief of trifacial neuralgia, thyroid surgery and tumors of the breast, give one a clear picture of the work along these lines during the past year. The old custom of pouring ether into the infected peritoneal cavity is also revived in these pages.

Abdominal section for tubercular peritonitis, technic of stomach and duodenal surgery, gastropexy, removal of foreign bodies from the stomach, perforated ulcers, surgery of the spleen and small intestine, volvulus in general—especially of the small intestine, surgery of the liver and gall-bladder are all discussed in a very interesting manner. There is also a very instructive article showing how frequently the ascaris or round worm complicates such conditions as biliary tract disease, appendicitis and bowel obstruction.

Pott's disease, tumors of the sacrum and cord, fractures of the upper arm and elbow joint, also of the pelvis and hip, and injuries to the knee joint are some of the subjects discussed on bone and joint diseases.

This book as the other books of the "Practical Medicine Series" gives one a definite idea of the subjects that hold the interest of the physician and surgeon at this time.

—CLAUDE C. KENNEDY, M.D.

THE JOURNAL-LANCET

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CONVENTION DAYS IN MINNEAPOLIS

Minneapolis has been full of doctors lately, all kinds of doctors: doctors of medicine, doctors of chemistry, doctors of pathology, and doctors who belong to the League for the Hard of Hearing. However, the last named organization and that of the chemical men are composed of others than M.D.'s.: there are professors of chemistry, experts in physics and laymen.

The Tuberculosis Convention which met here was a tremendous thing, very widespread and informative, and fortunately Minneapolis had something to show them. It had one of the largest county sanitariums for the housing of tuberculous people, the Glen Lake Sanatorium,—its magnificent new buildings, and its corps of physicians; and the clinic which they could present to the visitors, whether social workers or doctors, opened the visitors' eyes. They could see much and learn much, and they will go away with a very much better impression of the care of the tuberculous in Minneapolis than they have had before. It is well known, of course, that the patients there have the benefit of the radio, consequently they are not cut off from the rest of the world. They have an enormous playground, sunroom, sunlight parlors, and other devices to treat the patients by chemical rays. Doubtless many of the visitors were surprised to see the freedom with which the children paraded around with nothing but a Masonic-like apron on for a

costume. They play and laugh, eat, and sleep like other children; they gain in weight and strength, and their disease becomes arrested. Their skins are tanned like that of Indians because they have gone back to Nature for a cure. Another important feature was the Lymanhurst Hospital, a part of the General Hospital of Minneapolis, in which tuberculous children are given an opportunity of acquiring an education and at the same time to be trained and controlled by physicians and experts. As has been said before, it is one of the first hospitals of its kind in the country and it doubtless will offer an incentive to other cities or other states to organize similar institutions. The Child's Guidance Clinic is located there at the present time, and a large corps of special men interested in the different lines of work in attendance and give their services just as they do on the General Hospital Staff.

The meeting of the American Scientists at the University was given over largely to the study of colloids (which, roughly, means a likeness to glue). The medical dictionary gives several definitions of "colloid," the first being "a non-dialyzable organic substance." A second definition is "a substance formed by colloid degeneration of epithelium." "4. In chemistry, amorphous and noncrystalline." There is, too, a form of cancer which is related to the colloids, in which there is a peculiar disintegration of substance which is more or less jelly-like, or, more properly speaking, in the nature of glue. This subject, however, seems to have been of special interest, because scientists came from many parts of the world in order to discuss it. If the editor knew anything about it he would like to discuss it, too, but he simply calls attention to the fact that there is such a substance, and it seems to have the widest possible interest to the human anatomy.

The convention which happened to be on while this was being written was that of the American Federation of Organizations for the Hard of Hearing, which met at the Nicollet Hotel and which was organized by Dr. L. Wendell Phillips, president-elect of the American Medical Association. Dr. Phillips has served on the Board of Trustees of the A. M. A. for seven years and has untiringly journeyed from New York to Chicago once a month during that time. From this, and from his personal qualifications as a scientist and a gentleman, he deserves the honor of being president of the A. M. A. He is responsible, as has been said before, for the organization of this American Federation of Organ-

izations for the Hard of Hearing. Dr. Gordon Berry, of Worcester, Mass., is president of the Association. Dr. Roy Gilpatrick, of Boston, who is a nationally known physician and surgeon and who is totally deaf, spoke on "The Practical Value of Speech Reading." Many other leading men and women who are interested in this department of health were in Minneapolis to participate in the three-day session.

A number of appliances for the benefit of the hard of hearing were on exhibition at the Nicollet Hotel, and they are said to be strange and marvelous, and among them some which are practically useless. About 300 men and women were in attendance.

FOR A REVIVIFIED TUBERCULOSIS CAMPAIGN IN MINNESOTA

The tuberculosis campaign in Minnesota and neighboring states was given a tremendous impetus during the week of the National Tuberculosis Association, which held its twenty-first annual meeting in Minneapolis.

This session was one of the largest gatherings in the history of the Association. The nine hundred and thirty delegates from all parts of the country were most enthusiastic regarding the program and also the entertainment that was arranged for the comfort and pleasure of our visitors.

The American Sanatorium Association held its twentieth spring meeting at the Glen Lake Sanatorium (Hennepin County) on the day preceding the first session of the Tuberculosis Association. At the session at Glen Lake there were discussed heliotherapy, artificial pneumothorax, and thoracoplasty. Dr. H. B. Chadwick, of Massachusetts, a well-known authority on childhood tuberculosis, read a very interesting paper on hilum tuberculosis and proposed a classification of this disease in children which classification was recommended to the National Association for adoption. This is a very important addition to the classification now in general use. Following luncheon at the sanatorium the large company of sanatorium workers inspected the institution and later motored to the Lafayette Club on Lake Minnetonka for dinner and an evening of relaxation.

At the National Association sessions the interest of physicians was centered particularly in the programs of the clinical and pathological sections. Considerable time was given to the discussion of the surgical aspect in the treatment of pulmonary tuberculosis. Dr. Edward Archi-

bald of McGill University, one of the leaders in chest surgery, occupied a prominent place in this discussion.

A paper of especial interest dwelt upon the parallelism in the treatment of cardiac disease and of tuberculosis, emphasizing the great importance of prolonged rest treatment for both types of cases.

Reports were submitted on studies that had been made at the Municipal Sanatorium, Chicago, on *sanocrysin*—the far-famed new "gold cure." So far as these studies proved there is no possible benefit to be derived from this treatment.

In a symposium on "The tubercle bacillus and its life on the animal body," the chairman of the special committee on research of the Association presented a report which was most inspiring. During the past three or four years intensive studies have been carried on relating to the reactions of the body cells to the tubercle bacillus and its products; much progress has been made and future studies bid fair to open up hidden truths which may ultimately spell "cure." The Sociological and Nursing Sections also contained much that was of interest.

Altogether this meeting was a great success and has left in its wake in this community a renewed interest and a strengthening of the spirit to carry on in the fight against this disease.

RICHARD OLDING BEARD

For many years it has been a tradition that school and college teachers were men who stood well in their high-school and college courses, but were incapacitated by lack of some undefined acquirements to succeed in business, that is, as usually estimated, in money-making. The tradition had foundation in the fact that such men early turned away from the marts of trade; but we no longer respect the tradition by giving it credence, for we now know better. Money-making is simply a by-product of a certain order of ability, which demonstrates itself in many other forms of success of far higher value. The splendid group of men composing, for instance, the faculty of the Medical School of the University of Minnesota, full-time or part-time teachers, are not on that faculty because of a lack of certain acquirements or certain capacities: they are there because of a definite lure, a passion for service; and, as Dr. Head says in his "Tribute to Dr. Richard Olding Beard," published on another page, these "gifts of service without the hope of material reward are the highest attributes of character."

THE JOURNAL-LANCET is glad to record the fact that other and greater than "material reward" has been given to Dr. Beard for his "gifts of service" to the Medical School of the University of Minnesota, upon his retirement because of age limit, from the faculty on which he was the only remaining active member who had been one of the original founders of the School.

The recognition of Dr. Beard's work was sincere and hearty, and came from the Regents, the Administrative Board, the faculty of the Medical School, the alumni, the School of Nursing, and present students.

At the annual banquet, June 15, 1925 of the general alumni, at which Dr. Beard and Professor Nachtrieb (Department of Biology) were honor guests, Dr. Earle R. Hare gave a comprehensive review of the work of Dr. Beard, and then presented him, on behalf of the general alumni, with a fine English kit bag, and, on behalf of the medical alumni, with a beautiful gold watch, inscribed "Richard Olding Beard, M.D., Emeritus Professor, June 15, 1925, from his grateful students."

The faculty and a group of alumni gave Dr. and Mrs. Beard a testimonial dinner, on June 12, 1925, at the Minneapolis Club, at which President Coffman of the University presided. Speeches were made by Mr. Fred B. Snyder, president of the Board of Regents; Dean E. P. Lyon, chairman of the Administrative Board; Dr. O. N. Meland, president of the Medical Alumni Association; Dr. S. Marx White, chief of the Department of Medicine; and Miss Marion L. Vannier, director of the School of Nursing. Dr. J. C. Litzenberg, chief of the Department of Obstetrics, concluded the addresses and presented Dr. Beard with an illuminated parchment scroll entitled and reading as follows:

AN APPRECIATION

Of the Distinguished Service of:

RICHARD OLDING BEARD: As a founder of the Medical School and of the first University School of Nursing, as a teacher, and as an executive officer, he has exerted an enduring influence upon medical education:

For thirty-seven years his enthusiasm, vision, and devotion to ideals have made him a leader:

On his retirement from active teaching he carries with him the gratitude and affection of the officers of the University, the faculty, the alumni, and the students.

FRED B. SNYDER,
President of the Board of Regents,
LOTUS D. COFFMAN,
President of the University,

ELIAS P. LYON,
Dean of the Medical School,
ORVILLE N. MELAND,
President of the Minnesota Medical
Alumni Association,
MARION L. VANNIER,
Director of the School of Nursing.

Dr. Beard replied to these addresses, not in a review of what the Medical School has done in the past, with which he has had so much to do, but in a forward look at the work the School is going to do in the near future. President Coffman responded in expression of his appreciation of Dr. Beard's hopeful prophesy and of his past "gifts of service."

The Medical Six O'Clock Club gave a banquet in honor of Dr. Beard, at which the principal address, made by Dr. George Douglas Head, will be found on another page.

While Dr. Beard retires after forty years of active teaching service, he has been elected, by the Board of Regents, Emeritus Professor of Physiology; and he has had very active and important work put into his hands as chairman and general secretary of a Committee of the Medical School on Endowment and Building Funds. The other members of this committee are Dean E. P. Lyon (ex officio), Dr. Angus Morrison (treasurer), Dr. Henry Wireman Cook (recording secretary), Dr. S. Marx White, Dr. A. R. Colvin (St. Paul), Dr. A. C. Strachauer, Dr. F. R. Huxley (Faribault), Dr. Wallace Cole, (St. Paul), Dr. F. C. Rodda, Miss Marion L. Vannier, Mrs. E. S. Marriette, Dr. E. L. Tuohy, (Duluth), Dr. H. M. Workman, (Tracy), Dr. Thos. S. Roberts, and Dr. L. B. Baldwin.

THE JOURNAL-LANCET extends to Dr. Beard its best wishes for continued happiness and usefulness in his life and for the large success of the committee whose work he is to direct.

NEWS ITEMS

Dr. Merton Field, of Northfield, will soon move to Chippewa Falls, Wis.

Dr. F. M. Smersh, of Owatonna, was elected Steele County physician last month.

Dr. H. P. Linner, of Minneapolis, is making a three-months' tour of Europe, visiting the hospitals.

The Union Hospital of New Ulm will build an addition to its hospital building increasing its capacity by 18 beds, at a cost of about \$30,000.

Dr. Gerald R. Maloney, of Belle Plaine, has retired from practice after 50 years service as "country doctor," all of the time in Belle Plaine.

The ninth annual meeting of the South Dakota Association of Graduate Nurses was held at Watertown, S. D., last month, and was largely attended.

The number of smallpox cases in Minneapolis reached a minimum in June. Scarlet fever is more prevalent than last summer at this time, but is milder.

Dr. Charles S. Donaldson, of Minneapolis, a recent graduate of the Medical School of the University of Minnesota, will begin practice this month at Becker.

At the State Clinic held in Grand Rapids (Minn.) last month, fifty-three crippled children were examined by Dr. A. E. Flagstad, of the Phalen Park Hospital.

Dr. J. H. Rindlaub, President of the North Dakota State Medical Association, has re-appointed the men who served on the Committees of the Association the previous year.

Dr. Henry G. Fish, a pioneer physician of Cass County, N. D., who organized the Red River Medical Society in 1879, died last month in St. Petersburg, Florida, at the age of 75.

Dr. H. J. Rowe, formerly secretary of the North Dakota State Medical Association, but now retired from practice, has charge of Dr. Fergusson's practice at Kulm, N. D., during the latter's vacation.

Dr. Henry L. Williams, of Minneapolis, has resigned as medical chief of the U. S. Veterans' Bureau in Minneapolis. Dr. Williams is widely known for his football activities with the University of Minnesota.

The Northwestern Hospital of Brainerd has been sold to the Protestant Churches Hospital Association of that city, which is composed of practically all the Protestant churches of the city and nearby territory.

The Wabasha County Medical Society will meet at Plainview on July 9. Papers will be presented by the president, Dr. H. E. Bowers, Lake City; Dr. E. A. Myerding, St. Paul; and Dr. W. C. MacCarty, Mayo Clinic.

It will be of interest to many of our readers to learn that the Fidelity and Casualty Company of New York will no longer insure physicians,

dentists, or hospitals, presumably because it is unprofitable business in their experience.

At the last meeting of the Southwestern Minnesota Medical Society, Dr. William J. Taylor, of Pipestone, who is the only surviving charter member of the Society, was made a life member and was presented a fountain pen. Dr. Taylor is 79 years of age.

Dr. Karsten A. L. Zetlitz, formerly of Sioux Falls, S. D., died last month at the age of 63. Dr. Zetlitz was a graduate of the University of Christiania, and had practiced in Sioux Falls since 1902. He went to California over a year ago because of failing health.

Minneapolis was a veritable mecca for physicians and nurses and other health workers during the past few days; and all the men and all the women in charge of the entertainments and scientific programs of the several meetings gained for themselves enthusiastic praise. A general notice of their meetings appears in our editorial columns.

A layman, who was a friend of Dr. Godfrey Vivian, a pioneer physician of Alexandria, has erected a granite marker over the doctor's grave, which has remained unmarked for 28 years. Dr. Vivian was a physician and surgeon who practiced at Alexandria from 1868 to 1888, when he went to California, returning to Alexandria in 1896, and dying there in 1897.

About 150 physicians and surgeons from Minnesota, North Dakota, South Dakota, Nebraska, Iowa, Kansas, Missouri, Illinois, Michigan, and Wisconsin, constituting the Sixth and Seventh Corps Areas, of the U. S. Medical Reserve Corps, will be at Fort Snelling July 5 to the 19 for the annual meeting for medical training. Many of them will be accompanied by their wives.

Dr. Robinson Bosworth, of St. Paul, who has been an active antituberculosis worker in Minnesota for the past twelve years as executive secretary of the Advisory Committee of State Sanatoria for Consumptives, was given a complimentary dinner at the Minneapolis Club by almost 100 of his associates. Dr. E. L. Tuohy, of Duluth, was toastmaster. Dr. Bosworth goes to Rockford, Ill., to take a position in a sanatorium.

The Montana Academy of Oto-Ophthalmology will meet in Lewistown, July 7, 1925, the day preceding the Montana State Medical meeting. The guests of honor will be Dr. George W. Swift,

of Seattle, Wash., and Dr. Harry Woodruff, of Chicago, Ill. Papers will also be given by local Montana oto-ophthalmologists. This is the fourth semi-annual meeting of the society. Dr. Charles Coulter, of Helena, is President and Dr. L. G. Dunlap, of Anaconda, Secretary-treasurer.

PROGRAM OF THE MONTANA STATE
MEDICAL ASSOCIATION

Lewistown, July 8 and 9, 1925.

Address of Welcome. Mayor John Briscoe. Response for Association. Dr. A. Karsted, Butte.

1. Why a Child Welfare Division in State Board of Health. Dr. F. S. Bradley, Helena.
 2. Tularemia. Dr. W. F. Cogswell, Helena.
 3. Recent Results in the Study of the Tick Virus of Rocky Mountain Spotted Fever. Dr. R. R. Parker, Hamilton.
 4. The Use of Air in the Diagnosis of Intracranial Lesions. Dr. Geo. W. Swift, Seattle.
 5. The Treatment of Frontal Sinusitis. Dr. J. G. Parsons, Lewistown.
 6. Mental Symptoms of Goiter. Dr. R. B. Tracy, Butte.
 7. Thymic Enlargement. Dr. E. A. Weldon, Lewistown.
 8. Diagnosis and Treatment of Exophthalmic Goiter. Dr. H. S. Plummer, Rochester, Minn.
 9. Thyroid Surgery. Dr. J. de J. Pemberton, Rochester, Minn.
 10. Postoperative Peritoneal Adhesions. Dr. T. C. Witherspoon, Butte.
 11. The Hunter Operation in the Treatment of Little's Disease. Dr. H. E. Coe, Seattle.
 12. Recent Work on Cancer. Dr. M. J. Scott, Butte.
- The President's Address. Dr. Geo. McGrath, Hamilton.

Dr. W. C. Woodward, of Chicago, Secretary of the Bureau of Medicolegal Activities, will be present.

Dr. A. R. Mitchell, of Lincoln, Neb., Trustee of the A. M. A., will be a guest of the Association.

Dr. Henry Schmitz, professor of Gynecology, Loyola University, Chicago, will deliver an address.

It is hoped that Dr. Frances of U. S. P. H. S., Washington, D. C., and Dr. Eugene Kelley, State Health Officer of Massachusetts, will be able to be present.

Specialist Wanted

With a general practitioner and dentist in city of 30,000. Rent reasonable. Address 225, care of this office.

Minneapolis Office Space for Rent

In 630 Syndicate Building on Nicollet Ave. side. Either oculist and aurist or pediatrician. Three other doctors in suite.

Physician Wanted

A young man for an Iowa village; hospital facilities. Nothing to buy. State particulars in first letter. Address 234, care of this office.

Minneapolis Office for Rent

Space in Yeates Building. Single or double room suitable for dentist, eye, ear, nose and throat man, or other practitioner. Telephone, Main 4090.

Young Interest Wanted

In a well-established clinic in a South Dakota city. Must be very competent. Excellent future for one who can qualify. Address 226, care of this office.

Wanted

Substitute work or an assistantship by an experienced physician, a Canadian graduate, who has practiced a good deal in the States. Address 247, care of this office.

Substitute Work Wanted between July 15 and September 1.

By a Minnesota graduate (1924) now engaged in medical college work (Department of Bacteriology). Address 243, care of this office.

A Physician's Office Equipment for Sale

Allison operating table; cases and obstetrical instruments; set of dental forceps; Eureka nebulizer; Macey desk; Globe-Wernicke book cases; office table. Address 232, care of this office.

Hospital for Sale

A small private hospital in a splendid location in Minnesota is offered for sale because of the illness of the owner who has done major surgery for ten years. Address 244, care of this office.

Laboratory and X-ray Technician wants Position

Applicant is an undergraduate nurse with hospital experience of one year in a high-grade small hospital. Will give faithful service. Best of references. Age, 27. Address 241, care of this office.

Locum Tenens Wanted

For one month beginning August 1st or earlier. Contract practice; work light; cool climate. \$200, furnished house and extras. Address C. C. Smith, M.D., South Agnew Location, North Hibbing, Minn.

Substitute Work Wanted

Due to just having burned out, I would like locum tenens work. Graduate of University of Illinois, class of 1911; registered in North Dakota. Available at once. Address 242, care of this office.

Practice for Sale in South Dakota

A \$7,000 unopposed practice in a town of 600. Large territory. Price of equipment and introductions, \$1,000; terms; accredited schools; fine churches; good roads; near hospital. Address 235, care of this office.

Practice for Sale

In a good Minnesota town of over 1,000 population. A good man can make money from the start and build up a lucrative practice at once. Country is rich and competition not strong. Address 228, care of this office.

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By a thoroughly capable physician, able to do first-class surgery and x-ray work. Graduate of Class A school and can furnish the best of references. Protestant and Mason, married. Address 240, care of this office.

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Complete drug store with building in Northern Minnesota town. Large territory; no competition. Excellent place for physician who is a registered druggist. Reason for selling, poor health. Address 239, care of this office.

Location Wanted

By a University of Minnesota graduate (1923) with two years general practice and six months experience in physiotherapy. Prefer association with general practitioner, surgeon, or clinic, but will consider purchase of a desirable practice. Address 245, care of this office.

Physician Wanted

Dr. Bjornstad wants young, aggressive M.D. at his Clinic. Must be interested in physiotherapy and have surgical inclinations. Scandinavian preferred. Excellent prospects and future for right man. Address Dr. Bjornstad's Clinic, 831 Second Avenue South, Minneapolis, Minn.

Assistant Physician Wanted

To do general practice, mining contract work, Minnesota. Small hospital. Five other assistants. Must be graduate of Class A college and have had hospital experience. Initial salary \$275.00. Early increase to right man. Give full information in first letter, with photo. Address 230, care of this office.

Practice and Office Equipment, etc. for Sale

Due to the recent sudden death of a physician in a fine Minnesota town of 12,000, close to the Twin Cities, his surgical and office equipment, books, etc., are offered for sale; also a 5-passenger auto. Splendid hospital. An exceptional location for a German Catholic doctor. Address 233, care of this office.

Physician's Office in Fine Location in Minneapolis

Over drug store, corner of Penn Ave. and Fiftieth St. at end of the Oak and Harriet car line. Location unsurpassed. District growing rapidly. Dentist across the hall. Nearest physician nearly one mile. Rent, \$35 a month with heat. Inquire at Rood's Pharmacy, 2300 West 50th St. (telephone Walnut 2413), or telephone to owner, Hyland 3129.

For Sale

Late Type 120 Kilovolt Acme International X-ray Generator complete with Filament Control for 220 Volt Alternating Current. Also Acme International Combined Radiographic Fluoroscopic Table for both horizontal and vertical fluoroscopy. Two Coolidge Tubes. Complete Dark Room Equipment. Also have some office equipment to sell. Splendid buy for someone who is just installing an x-ray department. Address 238, care of this office.

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SUBACUTE COMBINED DEGENERATION OF THE SPINAL CORD WITHOUT PERNICIOUS ANEMIA:—REPORT OF TWO CASES WITH AUTOPSY FINDINGS*

By L. B. DICKEY, M.D.,

AND

J. C. MCKINLEY, M.D.

MINNEAPOLIS, MINNESOTA

The occurrence of subacute combined degeneration of the spinal cord without pernicious anemia is frequently observed clinically, but published reports with autopsy findings are extremely rare.

The term "pernicious anemia" properly refers only to the blood, bone marrow, liver, and spleen findings of the condition, but is commonly employed to include the neurological lesions of subacute combined degeneration. In this report the terms will be kept separate and restricted to the more limited usage.

CASE 1 (N 356).—The patient, a seamstress, aged 59, was admitted to the University Hospital February 1, 1922, complaining of a sensation of numbness of the extremities and lower part of the trunk of two years duration. Tingling developed in the ventral aspects of the fingers about a year later. The paresthesias increased slowly in intensity and she gradually acquired difficulty in walking and performing finer movements. She had had a sore mouth at different times since the beginning of her illness.

She had chills and fever while residing in Illinois between the ages of fifteen and eighteen. She also had a severe infection of intestinal worms while in the Phillipines three years previously to her admission to the hospital. She was treated for these and apparently cured.

*From the Division of Nervous and Mental Diseases, University of Minnesota Medical School.

The physical examination was essentially negative except for the following findings: The mucosa of the tongue appeared atrophic. The deep reflexes were all somewhat reduced. The abdominal reflexes were sluggish and slightly more active on the right. The Babinski, Chaddock, and Oppenheim phenomena were positive bilaterally. The patient was somewhat awkward in picking up small objects. Vibration sense was absent below the level of the sixth thoracic segment. There was no anesthesia, but the responses to the superficial sensations were somewhat variable. The blood pressure was 98/66.

Laboratory findings: Vital capacity 1400 c.c. Catheterized specimen of urine showed many pus cells. One specimen showed a small amount of albumin. Urinary urobilin, 400 units; urobilinogen, absent. The blood picture at various times is tabulated below:

| Date | Hb% | R.B.C. | W.B.C. | Color index |
|---------|-----|-----------|--------|-------------|
| 2/ 2/22 | 80 | 4,200,000 | | 0.86 |
| 2/ 9/22 | 80 | 3,900,000 | 8,700 | 0.9 |
| 3/14/22 | 65 | 4,000,000 | 8,400 | 0.78 |

1. In computing the color index the fractions were arrived at by dividing the percentage of hemoglobin by the number of red blood cells over the normal red blood cell count of the adult female. For the latter figure 4,500,000 was taken arbitrarily.

In computing the percentage of hemoglobin, a von Fleischel hemoglobinometer was used. In order to standardize this instrument a series of hemoglobin estimations from supposedly normal people was computed. Under this method it was found that 80 per cent was approximately normal, and for a certain more shallow cup that was sometimes used, 80 per cent of this, or about 64 per cent, was normal. Each reading taken at the University Hospital was therefore corrected once or twice according to the cup used, and the percentage hemoglobins and subsequent color indices given in this paper are the result.

| | | | | |
|----------------------|----|-----------|-------|------|
| 4/22/22 | 82 | 4,100,000 | 8,300 | 0.9 |
| 5/ 9/22 | 83 | 3,900,000 | 8,500 | 0.93 |
| 5/20/22 | 80 | 3,760,000 | 7,600 | 0.96 |
| 6/28/22 (Gen. Hosp.) | 66 | 3,600,000 | 3,800 | 0.82 |

The differential white count was within normal limits at all times. There was slight anisocytosis at times with very little poikilocytosis. Platelets numbered 100,000. Coagulation time, 3 minutes. Bleeding time, 2 minutes. Hemolysis of the red blood cells in hypotonic salt solutions began at 0.48 per cent and was complete at 0.32 per cent. The stomach contents showed no free hydrochloric acid; lactic acid was present. The duodenal contents showed urobilin 886 units, urobilinogen 2331 units.² No parasites or ova were found in twelve examinations of the feces over a period of five months. The Wassermann reaction of the blood and spinal fluid was negative; the cell count, the globulin and colloidal gold reactions of the spinal fluid were normal.

shaft of the left femur was yellow in color. Microscopically it showed no hyperplasia. (Fig. 1.) The spinal cord showed degeneration in the posterior and lateral columns. The cord lesions were typical in all respects of the classical pathological picture of subacute combined degeneration. (Fig. 2.)

CASE 2 (N 358).—The patient was a woman, aged 69. She was first seen by a physician in December, 1920. At that time she complained of indefinite gastric distress and vomiting after eating, and headaches. The headaches were migrainous in type and had been present for about 45 years. Blood examination in December, 1920: hemoglobin 60 per cent, erythrocytes 3,400,000, color index 0.79, leucocytes 6,000, polymorphonuclears 58 per cent, lymphocytes 37 per cent. In January, 1921: hemoglobin 85 per cent, erythrocytes 4,000,000, color index 0.96. At this time there was no free hydrochloric acid in the gastric contents on repeated Ewald test meals and the total acidity was always under 11. By



Fig. 1

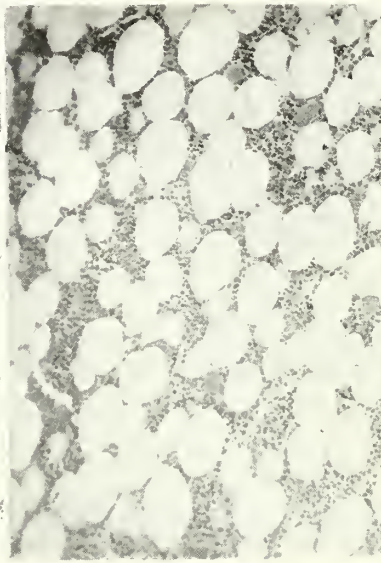


Fig. 3

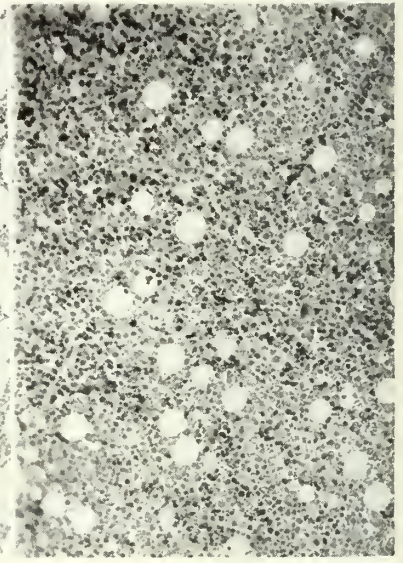


Fig. 5

Fig. 1. Bone marrow from the center of the shaft of the femur in Case 1. Hematoxylin and eosin, X 100.
 Fig. 3. Bone marrow from the center of the shaft of the femur in Case 2. Hematoxylin and eosin, X 100.
 Fig. 5. Bone marrow from the center of the shaft of the femur from a case of pernicious anemia, X 100.

The course of the disease was progressively downward. The patient was transferred to the Minneapolis General Hospital May 24, 1922, and died July 4, 1922.

At autopsy the findings were subacute combined degeneration of the spinal cord, terminal bronchopneumonia, acute and chronic cystitis with bilateral hydronephrosis and pyelonephritis, and old right sided fibrous pleuritis.

Microscopic sections confirmed the gross diagnoses. Sections of the spleen, liver, and kidney were stained for hemosiderin with negative results. A portion of the bone marrow removed from the

June, 1921, the patient was improving some in regard to the gastric distress and she had gained in weight. She now complained of some paresthesias. Vibration sense and position sense were normal. The blood pressure was 130/80. The patient was seen again in June, 1922. She had gradually developed spasticity of the skeletal muscles and spasms of intense pain in the extremities. She had been passing her urine involuntarily during the previous month. The eyegrounds were normal. Vibration sense was lost in the upper but present in the lower extremities. Babinski's phenomenon was present bilaterally. The blood Wassermann was negative. The spinal fluid was negative. The urine was negative and contained no urobilinogen. Hemoglobin 62 per cent. Red blood cells 3,700,000. Color index 0.75. Leucocytes 5,200; differential,—polymorphonuclear leucocytes 58 per cent, lymphocytes 41

2. These estimations were arrived at according to the method described by Schneider, J. P.: "The splenic pathology of pernicious anemia and allied conditions: A duodenal method of estimating hemolysis." *Arch. Int. Med.*, 17:32, January, 1916.

per cent. There were no morphologic changes in the red blood cells. The patient died July 16, 1922.³

At autopsy the diagnoses were subacute combined degeneration of the spinal cord, early hyperplasia of the bone marrow, general arteriosclerosis. The head was not examined. Microscopic sections of the various organs merely confirmed the gross diagnoses.

The spleen, liver, and kidneys were stained for microscopic hemosiderin with negative results. Grossly the bone marrow of the central part of the shaft of the femur showed red patches alternating with yellow ones. The bone marrow floated in water, indicating a large percentage of fat. Microscopically the bone marrow showed islets of red marrow among the fat cells,—a beginning hyperplasia. (Fig. 3.)

Sections of the spinal cord showed degeneration of the posterior and lateral columns. (Fig. 4.)

DISCUSSION

Collier⁴ refers to cases in which the blood picture of pernicious anemia is absent throughout the entire course of the disease but does not report the post-mortem findings in these cases.

when the blood picture rapidly became that of a severe pernicious anemia. A possibility such as this, must be kept in mind in reporting cases in which the symptoms of anemia are thought to be absent. But the best proofs of the existence of pernicious anemia are probably the post-mortem findings in the liver, kidneys, spleen, and bone marrow.

The present paper reports two cases of subacute combined degeneration of the spinal cord, with clinical and pathologic findings.

In Case 1 there were no evidences clinically or pathologically of pernicious anemia. There was a moderate degree of secondary anemia shortly before death, explainable on the basis of the chronic suppurative processes, cystitis, and pyelonephritis. A laboratory finding of some significance was the presence of 2,331 units of urobilinogen in the duodenal contents. Urobilinogen, according to Schneider⁷ is never found in the duodenal contents normally. It is found



Fig. 2

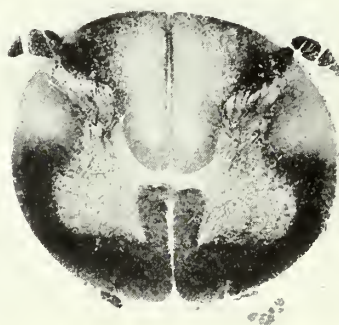


Fig. 4

Fig. 2. Weigert section of the thoracic cord from Case 1, showing the typical degeneration in the posterior and lateral columns, X 10.

Fig. 4. Weigert section of the upper lumbar cord from Case 2, X 10.

Russell, Batten, and Collier⁵ report seven cases of subacute combined degeneration of the cord in which the clinical diagnosis was confirmed by autopsy. One would expect evidences of hemolysis in some of these cases, as hemoglobin estimations as low as 20 per cent were reported with high color indices. In none of these cases were the writers able to obtain a reaction for free iron in the liver.

Bramwell⁶ reports a case in which there were no signs of any anemia until shortly before death,

in rather high amounts in pernicious anemia and also in chronic infections. Because of the absence of other signs of pernicious anemia in this case, and the presence of chronic infection, the latter seems a better explanation of the presence of the pigment than the former.

Case 2 showed no symptoms or signs of pernicious anemia clinically. Post-mortem examination of the bone marrow showed a very early hyperplasia of the cellular elements, indicative of pernicious anemia, with no other findings of the condition. The bone marrow hyperplasia was decidedly less than that shown in Fig. 5, which represents the bone marrow from a case of outspoken pernicious anemia.

This case evidently represents an intermediate

3. During the latter part of this patient's illness she was under the care of Dr. H. L. Ulrich, of Minneapolis. We are indebted to him for the clinical data.

4. Collier, J.: "Subacute combined degeneration." Oxford Medicine, 6:356, Oxford University Press, London, 1921.

5. Russell, J. S. R., Batten, F. E., and Collier, J.: "Subacute combined degeneration of the spinal cord." Brain, 25:39, 1900.

6. Bramwell, B.: "Remarks on a case of subacute combined degeneration of the spinal cord simulating disseminated sclerosis, with rapid development of pernicious anemia shortly before death." Brit. M. J., 1:1396, 1910.

7. Schneider, J. P.: "A study of the bile pigments in pernicious anemia." J. A. M. A., 74:1759, 1920.

stage in which the patient was just beginning to develop pernicious anemia at the time of exodus, though the subacute combined degeneration was far advanced. No other cases demonstrating this transitional period pathologically are on record as far as we can determine; hence this case has a very special significance in proving pathologically that subacute combined degeneration and pernicious anemia are different manifestations of the same disease.

Both cases show that individuals may die from causes incidental to the lesions of subacute combined degeneration before the development of pernicious anemia. In Case 2 there was no demonstrable immediate cause of death at autopsy. In Case 1 the lethal complications were terminal bronchopneumonia, cystitis, hydronephritis, and pyelonephritis. Complications of this sort are the usual terminal events in many neurologic conditions, as is well known.

THE GROOVED RAIL AND THE OPEN HIGHWAY*

By E. P. LYON, M.D.

Dean of the School of Medicine, University of Minnesota

MINNEAPOLIS, MINNESOTA

This is a paper on ideals of medical education.

At one extreme is the ideal of standardized curriculum. The all-knowing Dean and Faculty select from the mass of medical knowledge that which is best for the prospective practitioner. They arrange this material in definitely formulated courses. The student, definitely and specifically prepared, starts in at the beginning and progresses systematically to the end. His hours and his days and his months and his years are definitely arranged for him. He gets marks, passes subjects, completes departments, piles up credits. When he gets so many credits, like so many soap wrappers, he exchanges them for a parchment medal which is worth money in the markets of the world. This is the grooved rail idea of education.

At the other extreme is complete individualization. Here is a place called a university. Here are laboratories, hospitals, and a library. Here are men interested in various phases of medical science. Here are competent physicians engaged in the various types of practice. Here are men who love to teach. Here are men engaged in research.

Into this strange community comes the neophyte. He studies when he will, what he will, where he will, with or without whom he will. The published motto is "Come on in. The water is fine." The secret motto of the initiated is "*Sauve qui peut.*" If the water proves to be very cold, if the neophyte drowns or at the very least gets his shirt sleeves tied and chewed up—it is his lookout. This—with a violent change of metaphor—is the ideal of the open highway.

Now it may be said at once that neither ideal has ever completely and exclusively dominated education, although the traditional fixed curriculum of American Medical Colleges comes so close to the first ideal that only the most daring and original students have ever exerted any initiative or individuality in their education. The crowd moves forward on the grooved rail. It dissects this morning. It does a standard set of physiologic experiments this afternoon. Tomorrow it will hear a carefully arranged lecture on diabetes. At three o'clock there will be a systematic clinic. Next Monday there will be a quiz. In two weeks there will be an examination. Lock step! Shoulder spoons! March! Halt! Present spoons! Take your victuals to the count of four! Regurgitate all together at the proper command! "Ah! You vomited just what the professor fed you. Splendid! Your grade is 'A!'"

That has been and, to a large extent, is American medical education.

Contrast this with the method pursued by the "Honors student" at Cambridge or Oxford. He is under the guidance of a tutor or fellow. Once or twice a week the student goes to the tutor's room, and the tutor "smokes at him." They discuss the reading and work of the week. Perhaps the student presents a short paper. The tutor criticises the paper and recommends other books and further work. The student goes off on his own. There are lectures, but he may attend or not as he chooses. He picks his food and eats it,—cooked or raw, served on a plate or hand to mouth,—as he likes. The school term is comparatively short. In the long vacations the student "reads;" that is, he pursues his own educa-

*Presented by invitation before the Medical Staff of the Lymanhurst School for Tuberculous Children, May, 26, 1925.

tion. He grows by what he feeds upon, but his food is not handed to him in a spoon like a dose of medicine. At the end of his required residence or when he feels ready, his diet, digestion, and metabolism are tested by comprehensive examinations conducted by men who have not been his teachers.

Now, it must be confessed that even in the freest conditions of German or British universities, so far as I can gather from Billroth and Flexner, medical education is not so unhampered as I have pictured the education of the honors student in arts or science at the two old English universities. Of course there is a common objective in medicine and a certain common foundation which may not be too widely departed from. Therefore there is a tendency to standard laboratory exercises and to the standard course of clinical lectures and demonstrations. This is emphasized by the large number of students that must be handled. Nevertheless there is more flexibility than in our schools, and in some way the worthwhile men find more scope for their natural faculties. Flexner says that the better medical students at Cambridge remain in the preclinical school for a year or two beyond the minimum time, particularly to major in physiology. Far less is made of sequence than with us. The course examination is unknown. The student goes up for his examinations, any time after the prescribed minimum residence, when he feels himself ready. Less is made of class membership, systematic alignment, and formal graduation than in our country.

In America, as I have said, we have been—indeed still are—much nearer the other or grooved rail ideal. The reasons are fairly plain. The schools began as proprietary institutions. The teachers were primarily practitioners. If they kept scheduled hours of didactic instruction, they did well and all that was expected. They had no time to guide or stimulate individual students. Then came the period of standardization of the last twenty years. Outside agencies stepped in and classified medical colleges at A, B, C, and D. They told us that, to be class "A," we must require so much of such and such for admission; we must have so many fulltime men; we must have such equipment, so many beds; we must have this number of autopsies, cause that number of babies to be born in the presence of students; we must teach so many hours of anatomy, and so many of "electrotherapeutics;" we must require 80 per cent attendance; we must teach so many weeks in the year.

All this was excellent within limits. It tended

to raise the standard of poor schools. The competition for unprepared students had to stop. Fake schools were driven out of business because their diplomas ceased to be recognized.

Of late bad effects of standardization have been increasingly apparent. The requirements of definite hours in specific subjects have tended to get into state laws and into state board regulations, thus hampering freedom of educational experiment. We may no longer legally vivisect the curriculum, or at best can only cut off a tail here or an ear there. The course examination and the advancement of students in droves from class to class at regular intervals tend to a piecemeal view of education by the students, as so many milestones not to be regarded after they are passed or so many hurdles not to be remembered when once they are jumped. Worst of all, there has been almost no incentive for the good man to get out of the beaten path and display his powers in a new direction on trails of his own blazing.

I believe the time has come when the over-standardization of medical education has become a menace and when methods for opening up the curriculum and permitting greater freedom constitute the real problem of medical education. In particular the student side of the problem demands our most careful attention. The American student has become so accustomed to following a fixed course of study that he really does not know how to do anything else. He displays astonishingly little power to direct himself. He sits on the benches at the appointed hour like a receptive sponge. He takes his lectures as gospel and hugs his notes to his bosom as the only bible of his salvation. If he reads at all it is little else than his text-books. He does not rejoice in our excellent library and spend his hours there in search of the authorities. Rather he deprecates the passing of the Millard Hall reading room with its shelves of handy compends.

I have heard a tale of a medical student who attended classes religiously for three years. One day as he was crossing the river he accidentally dropped all his notes into the stream. "My God," he exclaimed in anguish, "there goes my whole medical education."

Our biggest task is to arouse in the medical student the desire and the will to educate himself.

Now, bad as this condition is in America—and I think it is pretty bad—we at Minnesota have never been the worst offenders, but rather have been pioneers in a reform movement. For eleven years we have had a definite elective system for

a part of our curriculum, and some good has certainly resulted from making the student responsible and therefore thoughtful concerning at least a part of his education.

For six years we had the student internship system and this was self-education in large degree. In fact the argument against it, which finally led to its overthrow by the Administrative Board, was that it was too little supervised. Personally I think the rejection of the student internship was a mistake, and that it should have been retained at least in certain hospitals as an alternative to the longer clerkships which have been substituted for it. I am afraid our recent move was in the direction of more standardization and less individual student initiative.

We have also been fortunate at Minnesota in the close integration of the Graduate School with medical education. The broad views of Dean Ford are in contrast with the narrow outlook of graduate-school administrators in many other institutions. Under our liberal system of combined credits not a few medical students have stopped for a few quarters in their regular medical course to get a master's degree in one of the preclinical sciences. A few have taken the Ph.D. Just now the outlook is extremely good. We have splendid groups of such students in almost every laboratory. The quarter system helps, and also the stipends for fellows and assistants. We have recently voted that a student who prepares an original paper may receive extra honor point credit.

A year ago the Administrative Board adopted regulations under which superior men might be released from the curriculum practically wholly,

and pursue studies on their own initiative under an advisor. Unfortunately this has not proven popular. I think the students are afraid of the comprehensive examinations provided, under this scheme, at the end of the course. At any rate only two students have indicated their intention of getting their medical degrees under this plan.

I do not feel that further advantage will be gained by legislation, although I should like to see some of the didactic work done away with and perhaps some of the science courses shortened. I think our great problem is to create in the students the desire to do something different from the crowd, and the will to educate themselves.

This paper presented at this time is a plea to the body of young medical men on the Lymanhurst Staff to interest themselves in iconoclasm. I want you to break down the idols in the temple of Medical Education. I want each of you to get hold of one or two students and interest them in your hobbies or hobbies of their own. Teach them how to cut lectures without having heart disease. Teach them to swallow and digest without stimulation of the vomiting center. Teach them, when a subject is not covered adequately or understandingly, to seek adequacy and understanding for themselves. Teach them that they are not high school boys to be taught by rote; not athletes doing a prescribed set of gymnastics—at least not that alone.

Teach them to use the library. Teach them that their education should go on, whether school keeps or not. By doing these things you will be helping in a real way the cause of better medical education.

THE RESEARCH SPIRIT IN MEDICINE*

By C. M. JACKSON, M.S., M.D., LL.D.

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In political science we recognize two distinct groups of citizens. First we have the conservatives, who emphasize the value of our present institutions, who fear the dangers of new and untried measures, and are, on the whole, quite inclined to "let well enough alone." Opposed to these conservatives we have the progressives, who emphasize the defects of our present system and magnify the advantages to be gained by improvements. Public welfare depends upon a proper balance between these two opposing ten-

dencies. The conservatives act as a brake, checking hasty and perhaps ill-considered action urged by the progressives; while the progressives serve as a desirable stimulus to prevent stagnation. Either extreme is dangerous. The extreme conservative, or reactionary, who is strongly opposed to any except retrogressive changes, is undesirable. So is the extreme progressive, the radical, who is quite certain that anything would be better than present conditions. These extreme cases are comparatively rare, however, and in general every individual is a mixture of progressive and conservative. Most progressives

*Presented by invitation before the Medical Staff of the Lymanhurst School for Tuberculous Children, May 26, 1925.

are conservative up to a certain point and on some subjects, while few conservatives will deny the feasibility of improvements, at least in some respects.

Somewhat similar principles apply to other fields of human interest, such as the physical and biological sciences, and even in medicine. You are all familiar with the conservative type of practitioner, who is very slow to adopt new doctrines or improved methods of practice. Sometimes you will find even the reactionary type, who strongly opposes all medical progress and yearns for the good old days when medicine (as he thinks) was much better than to-day. On the other hand, we have the progressive physicians, who are never satisfied, always striving for improvement. And occasionally, it must be admitted, we see also the radical, who too eagerly grasps at every novelty, neglecting the old and well-established measures.

In medicine, too, it is clear that welfare depends upon a proper balance between these two opposing forces. We must "prove all things" and at the same time "hold fast to that which is good." But how shall we proceed in order to make the maximum progress consistent with safety? As it seems to me, no special effort is necessary in most cases to preserve the proper amount of conservatism. Human nature contains a great deal of inertia. Most of us easily fall into fixed habits. Especially with advancing age we find it harder and harder to welcome new ideas and different modes of procedure. In medical practice it seems especially easy to get into ruts, from which escape is difficult. It is therefore the progressive phase of medicine which is mostly in need of encouragement and support. Improvement is always an uphill job, requiring effort, with an expenditure of energy. In the broad sense, this progressive phase is due to what may be called the research spirit in medicine.

Medicine of to-day is a very broad and complicated field, and the research spirit should be correspondingly stimulated and cultivated in many and diverse ways. In the first place, we recognize that medicine as a science rests ultimately upon the more fundamental sciences of physics, chemistry, and biology. Advances in medicine are becoming more and more dependent upon a deeper and wider knowledge in these subjects. The basic laws of matter and of energy and of life are identical in man and animals, in organic and inorganic nature. The *x*-rays and radium, for example, were discovered by research in pure physics. And think what tremen-

dous value they have yielded for medicine during the past quarter century! So by all means let us encourage further research in the natural sciences upon which medicine depends.

In the next place, we have the so-called pre-clinical sciences, such as anatomy, physiology, and pathology. They consider more particularly those phases of biology, physics, and chemistry which are found represented in the human body. Through these preclinical sciences we strive to comprehend the human individual as an organic mechanism. We study his structure and activities under normal and abnormal conditions. Each one of these preclinical sciences has achieved much of substantial value, but not one of them is finished. Rather have they made merely a good beginning. In each of them active research with encouraging results gives promise of a brilliant future. Progress in these basic medical sciences is essential. It provides a scientific basis for therapy and for preventive medicine.

Finally we come to clinical medicine, which deals with the individual sick, with the phenomena as they appear at the bedside, rather than in the laboratory. Here the underlying sciences are applied for the relief and prevention of human suffering. Just as the preclinical sciences must depend largely upon the still more fundamental sciences for progress, so the clinician must rely mainly upon improvements in the preclinical sciences in order more effectively to prevent or cure disease. This is so well recognized that it is unnecessary to cite examples.

What is perhaps not quite so self-evident is that clinical medicine is, or ought to be, not merely an art, but also a science. To interpret the phenomena of disease, and to establish remedial measures upon a rational basis is as truly scientific, and fully as difficult, as to solve the problems in any other branch of science. It requires first the patient and careful observation of symptoms. Then come their classification and arrangement under general laws, which are subject to continual revision in the light of advancing knowledge. Through clinical investigation, medicine is gradually, slowly but surely, passing from an empirical art to a well-established science.

But medical research is not merely a matter to be carried on by the relatively few clinical investigators in research institutes or medical schools. It is something to which every practitioner can and should contribute. It has often been noted, but is usually forgotten, that in a broad, but very real, sense, medical practice *is* medical research. Every case properly handled is a scientific problem. Accurate observation and

logical reasoning are required to make the diagnosis, to establish the prognosis, to determine the treatment. Every therapeutic measure is, to some extent, an experiment to support the diagnostic hypothesis. And the results provide accumulated experience which make possible a continued improvement, a better judgment, a more scientific practice.

Thus every progressive practitioner, consciously or unconsciously, is a medical investigator for the discovery of more accurate knowledge of disease and more efficient methods of therapy. Every medical discovery, even though rooted far back in preclinical or fundamental science, must ultimately be tested and tried out under the conditions of actual medical practice before it becomes fully established in its relation to the pre-existing body of medical knowledge. The final test is the application to the problems of the medical practitioner. This application is scientific research in some degree. A progressive practitioner is therefore an investigator, even if he never published a single line, or communicated the results of his experience for the enlightenment of the medical profession. Happily, however, the latter is rarely the case.

The great body of medical knowledge thus grows and becomes perfected, not only through the profound and fundamental work of those whom we usually recognize as scientific investigators, but also through the formal and informal co-operation of the numerous medical practitioners. This co-operation proceeds through discussions at chance meetings, at lunch-time, and the like, when experiences are exchanged and knowledge unconsciously absorbed. It also proceeds more definitely and formally at medical meetings, where the results of individual experience are more fully summed up and presented for criticism. Such meetings should be encouraged for various reasons, because they definitely contribute to the advancement of medical science. Especially ought every hospital to be a center for medical research. And, in closing, I would commend most heartily the example which has been set in this respect by the Medical Staff of the Lymanhurst School for Tuberculous Children, under the able guidance of Dr. J. A. Myers. You have made a splendid record, of which the medical profession may justly be proud.

FOCAL INFECTION*

BY A. L. SEVEREIDE, M.D.

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By focal infection we mean a local or systemic disease due to infectious micro-organisms carried in the blood or lymph stream from a focus of infection, or, in fewer words, a metastatic infection.

The usual location of such foci of infection is in the teeth, tonsils, respiratory tract, including the accessory nasal sinuses, gall-bladder, and the gastro-intestinal tract. It is interesting to note that all of these points are in communication with mucous surfaces. However, any infected area, whether in communication with a mucous or cutaneous surface, or not, may act as the source of a metastatic infection.

Billings speaks of primary foci of infection and secondary foci, the primary, or original, focus as being located in an alveolar abscess, and the secondary focus in the soft tissue adjacent to a chronically infected joint. He also points out that a focus of infection may be either acute

with the signs of an acute process, or chronic and symptomless, and, as a rule, is unnoticed by the patient. Chronic foci of infection are due to trauma, new microbe invasion, or other factors.

This paper will be concerned chiefly with chronic foci of infection and their results.

Probably the first work of any importance on focal infection was done in this country by Frank Billings and his associates. His ideas and the results of his observations were published in about 1910. At that time he produced evidence to show that arthritis deformans and certain types of chronic nephritis were due to metastatic infection. However, as early as the 17th century Petit, a French physician, recorded his observations on the relation between infected teeth roots and systemic disease in a single case, recommending the extraction of the teeth with brilliant therapeutic results.

Billings' first observations and investigations determined rather conclusively that by repeated

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metastatic infections by bacteria of a low grade of virulence, usually a streptococcus, a pathological process is set up in various joints and produces the condition which we recognize as chronic infective arthritis, or arthritis deformans. Billings was able to isolate the infecting organism from the affected joints or the soft tissues and lymph glands adjacent to them, and further demonstrated the presence of similar bacteria in single or multiple foci of infection somewhere in the patient.

In a high percentage of his cases he was rewarded either by clinical cures or by an arrest of progress of the disease, on the complete eradication of the focus of infection, combined with other proper therapeutic measures. Rosenow, working in the Billings' Clinic, was able to reproduce joint lesions of a similar nature in laboratory animals by the intravenous injections of cultures of these same strains of bacteria isolated from foci in the patients. At the same period other workers in his clinic were able to reproduce certain types of chronic nephritis in a similar manner.

Since that time it has been well established, clinically at least, that certain organs of the body are susceptible to metastatic invasion. These are, chiefly, the various joints and the eye, particularly the uveal tract. To a lesser degree, perhaps, the kidneys, the nervous system, the cardiovascular system, and the systemic muscular systems are also liable to focal infection.

The brilliant cures so often attained in severe cases of iritis or iridocyclitis, following the extraction of a few infected teeth or the enucleation of infected tonsils, or the arrest of progress in an otherwise baffling case of arthritis deformans after the eradication of foci of infection, have been evidence enough for most clinicians to accept, at least tentatively. The literature has ample evidence of these clinical cures recorded in all branches of medicine, but more particularly in diseases of the eye and joints.

The fact that disease can be cured by the removal of a focus of infection is reason enough for every clinician to accept the ideas advanced, but recently some very excellent work has been done on laboratory animals demonstrating a definite clinical relationship between foci of infection and systemic disease.

Rosenow, in particular, has reported a large amount of work of this nature, by injecting intravenously cultures of bacteria isolated from foci in patients suffering from such disease as acute and chronic arthritis. He has been able

to reproduce similar lesions in laboratory animals. More recently he has extended the list to include ulcer of the stomach, cholecystitis, herpes zoster, and other diseases. Rosenow now takes the stand that bacteria have the quality of elective localization, which means that a streptococcus from a focus of infection in a patient suffering from arthritis, iritis, or what not, when injected into laboratory animals, will reproduce that same lesion in that animal. Many workers, including Moody and Henrici, have been unable to verify his results, and he has received much criticism. These failures may be explained possibly by difference in technic, such as the oxygen tension under which the bacteria were cultured, etc. Haden, working with cultures from teeth, in cases of iritis and using Rosenow's technic, was able to demonstrate similar lesions in laboratory animals. However, in his animals many other lesions were produced besides iritis, particularly joint lesions, and it may be that the difference lies in the interpretation of results rather than in the results themselves.

Rosenow and Meiser have recently reported the production of kidney stones in dogs, by infecting devitalized teeth in these dogs with bacteria from urine of patients with kidney stones.

With such an array of facts from careful investigators and a wealth of clinical reports there is left but little room for doubt, and most of us accept the idea as sound.

In spite of this, however, my attitude toward focal infection has undergone a remarkable change in the past few years. Coming as I did from the hot-bed of focal infection I was at first very confident, later I became doubtful, and finally my spirits were somewhat dampened regarding focal infection. I try to be more concerned with my failures than with my successes, and I must admit that some of these cases of focal infection give me ample food for thought.

In my experience there are two distinct groups of cases which do not fit in well with the ideas of focal infection which I have just presented to you. First, there is the large group of patients one sees who have evident foci of infection and still exhibit none of the clinical evidences of metastatic infection.

Secondly, there is that considerable group of patients which one sees, or, to be more exact, which I have seen, when with clinical evidence of infection, such as iritis, chronic infective arthritis, or a like condition, and in which we are able to find and eradicate foci of infection, the disease progresses as before or recurs again at a later date.

The first group of cases are perhaps chiefly of academic interest, since they are not at present complaining of disease referable to foci of infection. However, when one seeks for an explanation of their apparent immunity, it can be found. The same principles of virulence of the organism and resistance of the host apply here, as elsewhere, in infective diseases, and relative inactivity of the bacterial foci awaits only the proper condition, namely, a lowered resistance or injury to the host, to enable it to give off metastases elsewhere in the body.

The second group, those which constitute the clinical failures, are not so readily disposed of. When a patient presents himself with a chronic deforming arthritis and one finds on careful examination several abscessed teeth or an infected antrum, and these foci are eradicated, and still the disease progresses, one is brought face to face with a real problem. When one sees a severe case of iridocyclitis in which we are able to demonstrate foci of infection and have these removed, and yet see this patient return within the year with a recurrence, one is entitled to some misgivings. These are my own experiences, and they have happened, not once, but several times—too often for comfort. My experience with neuritis and neuralgias has been no more satisfactory.

This second group of cases stand as an almost continual challenge in our effort to combat disease, and I have tried to analyze the situation—

It seems to me that all cases of true focal infection can be classified under two headings, namely:

1. Favorable cases.
2. Unfavorable cases.

By favorable cases I mean those cases in which the symptoms due to focal infection are present and are recognized as such. They are the cases in which the primary or principal focus can be located and eradicated, and either a cure or an arrest of the disease is obtained. Under this heading come the brilliant results so often obtained in iritis or iridocyclitis following the removal of an active focus, and the equally satisfactory results so often obtained in chronic infective arthritis and neuritis. These, too, are the cases we find reported in the literature.

Under the heading of unfavorable cases comes that large group of chronic infective arthritides, chronic myositis, and iritis cases which either do not improve or cease only temporarily to recur

at a later date, in spite of our most diligent efforts.

It is with the latter group that I am chiefly concerned. Why have we this large group of clinical failures and what can be done to cut it to a minimum?

Our failures are due, first, to incomplete eradication of the foci of infection. This I believe is the most important reason for failure to get results and will continue to be the biggest obstacle in the way of a complete success. Either we are unable to see past the teeth and tonsils as possible foci of infection, or the secondary foci adjacent to the infected areas are too difficult of removal. In any event an active focus remains, and the pathological process progresses. I have in mind a fine old lady who has seen many physicians for a chronic infective arthritis, over a period of fifteen years, until finally toothless and without her tonsils she spent most of her time at Hot Springs for relief. During the past year there was occasion to investigate her "indigestion," as she termed it, and a chronic cholecystitis with stone formation was discovered. Her history of indigestion extended back over many years.

A second reason for failure is mistaken diagnosis. I can recall just recently two cases which had been previously diagnosed focal infection, but which proved to be early pulmonary tuberculosis. I have seen several cases of focal neuralgia considered due to focal infection, in which impacted molars had been either overlooked or disregarded, their removal brought immediate and permanent relief. This list could be extended indefinitely.

We can increase our percentage of favorable cases, first, by more careful and painstaking search for foci of infection, not only in a more careful physical examination of the patient, but also in a more careful history taking, trying to elicit a history of an old gall-stone attack, lurking under the name of indigestion. Possibly by some carefully put questions we can pry out a history of an old venereal infection, which the patient may conceal either through reticence or because he may think it can have nothing to do with his present illness. Such a procedure may save us much embarrassment and our patients many teeth.

A better correlation of symptoms and physical findings, resulting in more correct diagnoses, fewer diagnoses of focal infection perhaps, and more diagnoses of early tuberculosis or arteriosclerosis or angina. Pain in the arms is not always neuritis.

CONCLUSIONS

1. Focal infections are an established fact and removal yields exceedingly satisfactory results in many cases.
2. A higher percentage of cures is not only desirable but attainable under proper conditions.

3. There will probably always remain a certain percentage of failures, due to physical difficulties connected with complete eradication of foci, primary and secondary.

4. These cases are those in which satisfactory results are particularly desirable and are worth all the effort we are capable of.

ERYSIPELAS*

BY B. H. SHERMAN, M.D.

DEXTER, IOWA

Erysipelas is an infection causing an intense inflammation of the superficial lymph channels.

It is defined by Cushing as "a contagious skin disease characterized by a peculiar inflammation of the skin, or more rarely of the mucous membrane, with constitutional symptoms. It is due to a specific organism, streptococcus erysipelatis. The infective organism remains local, the general symptoms being due to absorption of toxins and not to septicemia." However, it is reported that in about one-third of the cases streptococci may be isolated in pure culture from the blood of these patients.

The organism has been, and is fairly easily, isolated from the margins of the swollen area.

The incubation period is from forty-eight hours to seven or eight days.

The contagion is spread by direct contact or by means of the hands of the attendant or physician.

You are all quite familiar with a small red patch beginning at the alæ of the nose or on the bridge of the same, at times on the lip, or at the inner canthus of the eye, spreading rapidly and swelling as it spreads, which is by continuity, into a shiny, red, area, which is hot to the touch and circumscribed, tending to distort the features and later tending to the formation of vesicles or blebs.

The subjective symptoms are a burning or slight tingling about the area of inflammation, seldom causing pain, but swelling rapidly, many times in a few hours, to such an extent that the patient becomes unrecognizable.

Probably due to the many ports of entry and to the richness of superficial lymphatics in this part, it affects the face most frequently, probably 90 per cent. It, however, may extend rapidly

into the mouth and over the fauces, extending down the throat into the bronchi, causing early death.

Although the face is probably the main part attacked, yet no part of the body is exempt. One of the worst forms to treat is that which is associated with varicose ulcers on the legs in elderly people.

In a typical case the onset is usually stormy, beginning with a chill many times, and it may be ushered in by convulsions, especially in children; vomiting may be the initial symptom even with adults.

The initial port of entry may be from a slight abrasion, or scratch, that seems innocent enough, having healed possibly before the erysipelas manifests itself. Many times the infection may have been carried several inches from the port of entry by way of the lymphatics. This condition is most times manifest by red streaks extending even as high as the glands into which these lymphatics drain.

Let it not be forgotten that an erysipelas infection may seem to be stopped in one portion of the body only to start up in another with renewed vigor. Where the deeper tissues are affected the process may assume the phlegmonous or separative type. This is generally due to a more virulent strain and may even come to the surface and spread as an ordinary erysipelas.

LeMaire states that erysipelas may develop, in the new-born, not only in the umbilicus but around the vaccination line or the conjunctiva. Be this as it may, treating erysipelas in the new-born is a problem because of—

First, diagnosis. In many of these babies the first symptom to attract the doctor's attention is an unusually severe form of peritonitis, the infant rapidly succumbing to it. All external signs are absent except a slight redness around the cord or at point of entry.

*Presented at the annual meeting of the South Dakota State Physiotherapy Association at Sioux Falls, South Dakota, May 22, 1925.

Second. The streptococci may not attack the superficial lymphatics but go at once to the deeper structures causing a rapidly fatal peritonitis, as the resistance to them has not become established at this age. After a few months, through possibly the ingestion of their food of all types of bacteria, they develop an immunity which makes the prognosis a different matter.

The older child or adult presents its problems also, for we know that if an erysipelas is not checked in its incipiency it may cause death by extending to some vital organ, such as the peritoneum or the brain. Another bad complication also, not so fatal, is synovitis or separative arthritis. Gamgee reports 817 cases in which one or the other of these conditions obtain.

Separative forms seem to require the most prompt and heroic treatment. The joint may become disorganized and death ensue.

Possibly one of the most obstreperous sequelæ is boils. These seem to rival those of that far-famed man from the East, Job. Possibly one of the worst cases on record is that reported by Zeller and Arnold in which 650 feruncles were counted. They effected all parts of the patient's body including the hairy scalp. However, the patient recovered.

The blood examination in erysipelas seems to me is a useless procedure as the leucocytes tend to always follow the temperature curve. This is more true of the polynucleated and not so true of the leucocytes.

PROGNOSIS

Of all the uncertain things the course of an erysipelas seems to be unique. There are the virulent infections that seem to overpower the patient, spelling death from the beginning, but, aside from this form, the uncertainties are great. What seemed to be a fairly mild form may go on and terminate in death due to many things. First it may just naturally wear the patient out, or it may attack the serous surface, peritoneum, or meninges. Many times the infection seems to travel directly down the trachea, causing a pneumonia or a septic bronchitis, inducing death in a few hours. I have seen one patient who seemed to be choked to death by the edema which attacked the neck, swelling it to gigantic proportions.

Taking all these things into consideration one should be very guarded in his prognosis of this many times rapidly fatal disease, which seems to pursue such a masked course.

I believe in all cases in which I have been called in consultation more cases of erysipelas

are on the brink of the grave before the attendant physician realizes it than in any other disease.

TREATMENT

Since time immemorial the treatment of erysipelas has been a matter of the patient living long enough to create an immunity to the certain strain of streptococcus pyogenes that happens to be causing the disturbance and up to the antiseptic area all kinds of pow-wows, magical laying on of hands, and any other type of rot that seemed to please the fancy of the healer administering the same was practiced, and the more spectacular and, it seems to me, ridiculous such treatment could be made to appear, the farther the healer's fame spread, but the introduction of antiseptics soon proved its efficiency over the relics of barbarism and has proven to be a great help in battling this plague that has been with us since the beginning of time.

In my practice it has been my custom as soon as the diagnosis was made to give an initial dose of castor oil (two ounces), and administering five thousand units of antidiphtheritic serum intravenously and to apply one-half hourly hot alcohol and boric packs, using a 50 per cent ichthyol in lanolin ointment at night.

We have also used the antistreptococcic serum polyvalent, also vaccine with more or less success, but no treatment has even approximated the results we have had with the mercury quartz light. We have seen two deaths since using this form of treatment; however, neither of them was treated by ultraviolet, due to their being out in the country, away from the high line.

In the series of cases treated our technic has been that used for regulation treatments, namely, two minutes for brunettes and one and one-half minutes for blondes, with the cooled lamp, distance thirty inches. And to this should be added a Kromayer lamp to the localized area and if the mucous membrane of the patient is affected it should be irrigated also with a Kromayer, remembering always to be well under the six inch distance to get the antiseptic effect of the ray. Repeat daily. Most cases yield to the first treatment, but in as much as the disease is very tricky we continue until inflammation is all gone. The longest case so far required four treatments.

At first it was our custom to give them everything in the deck,—medicine, serum, vaccine, light, and everything,—due to the fact that one must strike quick and hard, but after having a few experiences of which the following is an example we have modified this somewhat:

CASE REPORT

Patient, O. K., aged 38.

History, negative, except that the father died at the age of 64 of blood poison.

Personal history: Patient never sick until eight years ago, at which time he had a severe erysipelas of the face, which was very much swollen. Temperature from 103° to 105° for eight days, after which recovery was uneventful. No complications except possibly a dull mentality.

Present illness began a day or so before I was called. Examination of patient revealed pulse, 138; temperature, 104°; respiration, 24; and although I know the patient well the features were so swollen that he was unrecognizable. The swelling began to be marked only three hours before I was called. The patient's statement was to the effect that he had erysipelas again, only worse. He was still suffering from chilliness although the main chill was over when the examination was made. Upon suggestion that he be moved to the hospital he demurred, but upon being overruled he was brought in, and treatment with lamp was given as above outlined; serum was not given. In a few minutes he made a severe protest to go home, three miles in the country, saying he was much improved already. Medicines were prepared, and he was released under the promise that I would see him the next day. Upon my rounds you can imagine my surprise when I called at his home upon being informed that my patient had gone to my office, having hitched up a team and driven in alone. Upon arriving at the office I found him much improved; temperature, 100°; pulse, 90; respiration, normal; swelling also much improved, I would say 50 per cent better. I remarked to him that the medicine certainly had helped him quick, but to this he retorted, "By golly, Doctor, I forgot all about that medicine." And reaching into his pocket he handed it back to me not having unwrapped it. He received three more irradiations on successive days and went back to his farm work three days later, none the worse for wear.

Since this time we have treated six other cases of erysipelas; two of which were of the severe type. One case in an elderly man which attacked not only

his face but his mouth and throat, causing much swelling, not only on the face but under the chin. There was a severe edema of the epiglottis and pillars of the fauces, also his tongue being swollen. His temperature was 102°; pulse, 120; and it looked bad for him at first, but within four days all swelling and fever were gone, and he was practically over the erysipelas and, although much weakened, he finally recovered completely. We felt after the first few cases that possibly they were of the abortive type, but after treating seven it does not seem possible that all seven were of that type.

I would like to say a word in conclusion regarding prophylaxis, for, although this is an infectious disease, we see very few direct transmissions to the healthy individual; however, I observed a very severe infection in a patient who fainted, I should say, in deference to the nurse, collapsed upon the sudden death of her mother from erysipelas. The nurse, who, by the way, was a graduate, saw what she thought was a very serious condition in the daughter and at once gave her a hypodermic with a syringe which had been used on the mother during her sickness. No time was available in the face of impending death to sterilize anything, and a hypodermic of one-thirtieth grain of strychnia was given, with the result that within twenty-four hours the whole arm was red and swollen, and very painful, so much so that morphine was required to allay it. As this happened before the advent of the mercury lamp to the country practitioner's armamentarium, the old-fashioned remedies were applied; and after frequent drainage, antistreptococcal serum, vaccines, tonics, sedatives, etc., were applied, the patient, after many weeks of suffering, recovered with a badly scarred but otherwise useful arm.

The age-old idea of not attending an obstetrical case while treating erysipelas still holds good, and should be absolutely adhered to.

Now, although we feel that there is almost a specific in the ultraviolet ray in the treatment of erysipelas, if confronted with a severe case tomorrow we would hand out everything in sight,—ultraviolet light, castor oil, hot boric and alcohol packs, and antidiphtheritic serum, and to this we would add more ultraviolet light.

PRACTICAL EXPERIENCE WITH DIATHERMY*

By B. T. GREEN, M.D., F.A.C.S.

BROOKINGS, SOUTH DAKOTA

Heat is one of the oldest remedies and has been employed in the treatment of almost every disease to which flesh is heir. Like many other useful agents it was originally empiric and was adopted by the medical profession because experience found it to be of value. Comparatively recent study has placed heat among the specific remedies and limited its employment to its own particular field.

*Presented at the annual meeting of the South Dakota State Physiotherapy Association at Sioux Falls, South Dakota, May 22, 1925.

It has long been known that nature attempts to repair damaged tissue by means of a series of reactions known as the reactions of inflammation. It necessarily follows that rational treatment of tissue injuries should foster nature's activities. It should act to initiate, intensify, retard, or balance these inflammatory changes in a manner best calculated to repair a given pathological condition.

It has been demonstrated that heat, in proper degree, delivered to living animal tissue sets up

reactions in every way similar to the reactions of inflammation; that is, it produces an arterial hyperemia carrying nutrition to the parts treated; it dilates capillary, venous, and lymph channels favoring drainage and osmosis; it destroys pathologic bacteria or inhibits their growth and activity, and increases phagocytosis. Pain is relieved because pressure is removed. Heat is physiologic in its action and comes to the aid of nature by the very means which she herself employs.

With the therapeutic value of heat fully demonstrated the problem has been one of successful application. To this end the source of heat must be dependable, its production must be accurately controlled, it must be localized in the tissues under treatment, and its reactions modified and adjusted to the need of the given pathology.

Electricity had long been used in the treatment of disease when D'Arsonval, in 1890, demonstrated that the principal effect of high-frequency electricity upon organic tissue was due to the production of heat, but it was not until seventeen years later that Nagelschmidt designed the first practical apparatus for the conversion of high-frequency electricity into heat, demonstrated its practicability, and originated the name *diathermy*. Since that time (1907) the employment of conversive heat as a therapeutic agent has kept pace with the improvement in high-frequency generators. With the present high degree of perfection in apparatus and the elaborate technic which has been evolved, diathermy has become the method of choice for the treatment of inflammatory tissue.

Though a most valuable addition to our therapeutic armamentarium, diathermy, like all other remedies, often fails or falls short of the results expected even by the most conservative therapist. While heat may be capable of producing perfect reactions it must be remembered that failures may result from imperfections in therapeutic judgment, imperfect technic, imperfect apparatus, and imperfections in tissue reactions. There will be failures proportionate to these and other imperfections, while better judgment, apparatus, and technic will serve to eliminate failure and bring greater success.

Numerous disappointments in the course of a somewhat extended experience with diathermy has led to the writing of this paper. No originality in discovery of causes of failure is claimed; however, investigation has impressed a few facts which are passed on for whatever they may be worth.

Electricity, like every phenomena of nature,

follows definite physical laws which it never disobeys. These laws are well known and their inflexibility recognized, yet many failures are due to the expectation that electricity will disregard law and do that which in nature is impossible. Instead of disobeying law many failures occur because electricity is obeying law. The most elementary study of amperage and voltage will reveal the cause of many a failure. To illustrate: Electricity with sufficiently high amperage and sufficiently low voltage will travel a thousand miles over a conductor of sufficiently low resistance rather than across an inch of high resisting medium, while a current under immeasurably high voltage will tear its way through miles of the highest resisting medium. But with the highest voltages the lines of least resistance are never wholly disregarded. A bolt of lightning is never straight. What may be expected of currents under the comparatively low voltages used in diathermy? In the human body the resisting medium (organic tissue) which transforms electricity into heat may be most complex, varying from bone and fibrous tissue to soft cellular structures, fluids, and fat, all of varying density and conductivity. Straight lines cannot be followed nor made to cross in geometrically located foci. Heat cannot be accurately located at focal points in any and all parts of the body, teachings to the contrary notwithstanding. The experiment of coagulating egg albumen in the center of a confining glass tube is interesting and beautiful, but living pathological tissues are not found in glass tubes, nor are body tissues as homogeneous in structure as egg albumen. It may be practically possible to locate heat approximately at foci in some of the deeper structures in parts sufficiently accessible, but in many locations it is quite impossible because, as above shown, electricity always acts in conformity to natural law and cannot behave otherwise. Any teaching to the contrary is pseudoscientific.

In the few favored spots where heat may be located with some degree of accuracy, failures often result because the proper balance of amperage and voltage is at fault. There must be sufficient current for conversion into the required amount of heat and a voltage which will be sufficient to overcome the resistance necessary for the conversion. Unless this nicety of balance is preserved failure may result where diathermy would otherwise succeed. It is a difficult practical problem in the conversion of energy, and success depends upon its solution. The tendency is to use too much amperage and too little voltage in deep therapy. Much of the so-called deep

diathermy fails in its results because, after all, it is merely surface treatment and the operator, as well as the patient, are the victims of innocent deception.

Many operators work in the belief that the transformers they use can be made to deliver the necessary voltages for deep treatment when they cannot. A transformer for ordinary work should have a voltage up to at least 30,000 volts. Operators should insist upon high-voltage control and give less attention to high amperages. 2,000 ma. is sufficient for any ordinary work.

Sedative diathermy may sometimes fail because the voltage is too high. Instead of a soothing sensation, pain is felt in the part under treatment either at the time or some time afterward. The treatment supposed to be sedative has been stimulating. However, a generator that is out of resonance may produce the same result; and, before deciding that voltage is too high, a test for resonance should be made.

The condition of the patient's skin may be a handicap. When wet electrodes are applied to a normal skin and the amperage slowly raised to the desired point, the natural perspiration will continue to keep the contacts moist after the soap, lather, or other medium has dried. If the sweat glands are inactive the patient soon complains of a stinging electrical sensation which prevents successful treatment.

The successful treatment of the obese is often difficult, if not altogether impossible, for the reason that adipose is a poor conductor, and the skin, which in the obese is usually moist, easily diverts the current and the deeper structures are not reached.

Placing electrodes at great distances is likely to result in partial or total failure because of the varying densities and the lack of continuity of tissues in the desired track of the current. Fortunately in some instances there may be fair uniformity of structure; and, with sufficient voltage, enough current may be made to pass between the electrodes to heat the tissues sufficiently to secure good results from the treatment.

When pathological structures to be treated are near the surface of the body or in accessible body cavities, one electrode may be placed in near proximity, in which case it may matter little as to the position of the other. An opposite location is desirable and should be chosen when possible, otherwise it may be placed almost anywhere and its size increased to indifference.

Failures often occur because the operator is a stickler for direct diathermy. Many conditions may be better handled by the indirect methods,

either bipolar or unipolar. Local pathology may often be treated to advantage by the non-vacuum electrode, while general conditions and illy defined local inflammations are best reached by the autocondensation pad or chair. Any modification that will supply heat where it is desired is scientifically correct. If it is kept clearly in mind that it is heat, and heat only, that is required in treatment and make proper application regardless of the source or combination, many failures will be turned into successes.

Many of the failures in diathermy are due to the nature of the pathology treated. It is certain that there can be no reaction to dead tissue and no therapist would expect results, but there are those cases where tissues are on the borderline of viability and may or may not react to treatment. While these may and should be given the benefit of the doubt, yet there must necessarily be failures not due to any other cause than failure in tissue reaction. Many varicose ulcers fall in this class.

Permanent cure by diathermy is possible in selected cases, such as traumatic injuries,—sprains, fractures, infections with ample drainage, etc. It would be a poor therapist who would expect permanent results in treating a neuritis due to a focal infection without the removal of the focus.

Much of the treatment by diathermy is necessarily palliative, in which case the demand and the prescription are both proper even though relief may extend only over a few hours. These are cases in which failure is expected as far as tissue repair is concerned. It is administered like any other sedative treatment, though, unlike most others, it is without depression or other harmful results; for example, headaches due to eyestrain may be palliated by sedative diathermy, while cure is found in the proper correction of the visual defect.

It seems unnecessary to call the attention of a group of physiotherapists to the large number of failures in diathermy due to faulty diagnosis when the very choice of treatment is based upon diagnosis. Many consider that a diagnosis is made when an ailment is named, but not so except in so far as the name of a disease implies certain typical pathology. Is it not a fact that atypical pathology is the rule in disease and that the most successful treatment is applied for the relief of the pathology present and not because a certain name is applied to a typical condition? The diagnosis required for success in diathermy is an accurate knowledge of the diseased or damaged tissue to be treated, its extent, the degree

of impairment of normal physiological processes, etc.; in other words the therapist must know, as far as possible, just what is going on in the diseased area and to estimate reactions. This is real diagnosis, and unless carefully worked out diathermy will be followed by many more failures.

It is frequently advisable to employ diathermy as an adjunct to other treatment,—medical, surgical, other forms of physiotherapy, etc. Doing so is often the difference between success and failure. Though diathermy is a specific in its own field and is recognized by many as the most successful anti-itis treatment known and that it is more often indicated than any other, it frequently requires additional measures and may it-

self be employed as an addition to other treatment.

Those who have made therapeutic use of high-frequency electricity during the past ten years (approximately the period during which really effective generators have been available) have necessarily learned by experience. Many of their present successes have grown out of their past failures. It has been a matter of research, a more or less blind struggle for truth, during which time it has been difficult and often impossible to get the ear of scientific medicine. All is changed now. Diathermy is generally accepted by the profession, a literature has been built up, and the subject is being ethically taught in leading medical schools.

CONGENITAL HYPERTROPHIC STENOSIS OF PYLORUS*

BY PAUL R. SCALLIN, M.D.

WEBSTER, SOUTH DAKOTA

Congenital stenosis of the pylorus, or better called hypertrophic stenosis of the pylorus, is not a new condition, for in 1777 George Armstrong first gave an account of pyloric obstruction; however, no one gave a clear clinical picture of the condition until 1887, when Dr. Hirschsprung reported five cases to the German Pediatric Society.

The age at which symptoms appear varies considerably. However, pyloric stenosis generally appears during the third and fourth weeks of life and is variously estimated to be present in from 0.1 to 4 per cent of all births. It is interesting to note that 80 per cent of all reported cases have been in male babies. Dent reported finding the condition in a seven months fetus, while Graham reports one at six and one-half years, but these are exceptions, as by far the greater number of cases develop symptoms before the sixth week of life.

Pathologists differ as to the real cause of pyloric stenosis: whether it is a real hypertrophy or a thickening due to contraction. As a result we may recognize three schools: first, those that think the cause is primarily and exclusively a hypertrophy of circular muscle and only rarely a hypertrophy of the longitudinal muscle also; second, those who believe the hypertrophy to be primary with muscle spasm secondary; and, third, we have those who consider the spasm to be primary and the hypertrophy secondary. Dr.

John Thompson, of Edinburgh, is a prominent member of the third school. Straus considers the hypertrophy the direct result of rhythmic contractions of pyloric sphincter. These contractions have been demonstrated on fluoroscopy of pyloric stenosis cases. Facts in favor of pyloro-spasm as the primary cause are as follows:

1. Relatively slow onset. Few patients develop symptoms before they are several days old.
2. Short duration in some cases. Finklestein reports some cases which recovered in ten days.
3. Normal pyloric musculature found at times. Dean Lewis, of Chicago, operated on two infants having all the symptoms of pyloric stenosis, except tumor, but found nothing abnormal in the abdomen.
4. Degree of hypertrophy of pyloric musculature depends on duration of symptoms and not upon the age of child.
5. The disease runs a course of a few months, and the cure, whether surgical or medical, usually is permanent.

Symptomatology and diagnosis:

1. History of a perfectly well baby for two or three weeks up till onset of symptoms which may be very gradual or very abrupt.
2. Vomiting is projectile in type.
3. Visible gastric peristalsis. The wave starts high up in the left hypochondrium and travels obliquely across the navel to the skin of the

*Presented before the Twelfth District Medical Society of South Dakota at Webster, South Dakota, January 14, 1925.

ilium. Sometimes there is a reverse peristaltic wave seen which retraces over the same course.

4. Constipation with starvation stools. These vary with degree of stenosis. At first they may contain a small amount of milk, and later they look like meconium consisting mainly of bile, mucus, and intestinal détritüs.

5. Gastric retention. This is present after the condition has existed for any length of time. Here vomiting usually occurs late after the second feeding or hours after first feeding.

6. Emaciation. Varying with degree of stenosis and type of treatment.

7. Tumor. When palpable it is usually found one inch to the right of the median line and midway between the ensiform and the umbilicus.

8. X-ray, to measure the size of the stomach and the degree of the pyloric obstruction.

Fluoroscopic examination is considered the most important means of diagnosis by Straus, as he believes the snake-like, rhythmic, peristaltic contractions appearing at the pylorus independently of the rest of stomach are absolutely pathognomonic of congenital stenosis.

No other disease of infancy gives the same combination of symptoms, hence it should not be confused with vomiting due to overfeeding, irregular feeding, rumination, or the ingestion of air with food. Occasionally we have a very gradual onset without typical projectile vomiting to begin with, and here we may be in doubt until the characteristic clinical picture appears or the x-ray makes the diagnosis.

Treatment:

As Gerstley states, in treating these cases of pyloric stenosis, the main thing is to make the patient gain in weight, for if such is the case the baby will get well undoubtedly. Treatment should be directed at the whole baby, and not at any one symptom, such as trying to stop vomiting by reducing the diet, as some of the worst cases are those who have undergone the hunger cure to stop vomiting.

In general, we are going to quiet and calm the child as a whole, relieve local spasm as far as possible, and try to get enough food through the pylorus, independent of all vomiting, to permit the child to gain weight.

For calming the child a quiet environment and the care of a competent nurse are most important.

Atropin is the only drug which is important in relieving the pyloric spasm. Dr. Sidney Haas, of New York City, was the first to use this drug with any degree of success. He uses one drop

of a 1/1,000 solution of atropin before the first feeding and increases by one drop before each successive feeding until vomiting is stopped or until the physiological effect of atropin is attained. Large doses of atropin have been given without any bad effects. Haas reports giving as high as 1/6 grain in twenty-four hours. Dr. Murray H. Bass, of New York City, also reports excellent results with atropin in these cases, and he states that he has given as much as 1/13 grain in twenty-four hours without any toxicity being noticed. Wm. Lucas of the department of Pediatrics at the University of California gives 1/400 grain of atropin twenty to thirty minutes before feeding time and then a gastric lavage using a weak solution of sodium bicarbonate.

Breast milk, of course, is the best food from the standpoint of the infant's nutrition; however thick cereal mixtures are much less apt to be vomited. McClure first suggested the thick cereal for nervous vomiting; and then Sauer introduced it into the treatment of pyloric stenosis. The formula for this cereal is as follows:

| | |
|---------------------------|------------------|
| Skimmed milk | 9 ounces |
| Water | 12 ounces |
| Farina or rice flour..... | 6 tablespoonfuls |
| Dextrin-maltose | 3 tablespoonfuls |

Boil an hour or more in a covered boiler until thick.

Gerstley considers the number and size of feedings much more important than the nature of the food. He recommends small feedings, 0.5 to 1 ounce and ten to twelve feedings a day. Since the gastric mucosa becomes less irritable as digestion proceeds, it is also wise to feed a small quantity (1/2 ounce), wait fifteen minutes, and then give the rest of feeding and it will most always be retained. If the baby vomits, wait fifteen to thirty minutes and re-feed, and the second feeding will most always be retained. However, it may be necessary to supply fluids by hypodermoclysis to keep the intake of fluids equal to the outgo.

Morrison says that surgery is indicated—

1. When medical and dietetic treatment fails after seven to ten days trial.

2. When the child weighs six pounds or less than its birth weight.

3. If barium mixture remains in the stomach more than four hours.

Strauss advises surgical treatment when the stenosis is greater than 20 per cent.

The advantages of early surgical treatment as summarized by Lucas are as follows:

1. Marked reduction of risk from starvation.
2. Practically little or no post-operative shock.
3. Little or no danger of sudden death.

Morrison uses the following preoperative preparation:

1. Alkaline gastric lavages and enemas, 30 to 75 c.c. every three hours for twenty-four hours prior to operation.
2. Thirty to 50 c.c. of normal saline subcutaneously every two hours for twenty-four hours prior to operation.
3. The arms and legs are wrapped in warm cotton wool.
4. Hot water bottles under and around the operating table.
5. Stomach emptied from gas and food by lavage just before operation.

The anesthesia of choice is novocaine with a whiff of ether when the peritoneum is opened. The operation generally used is the Fredet-Rammstedt with a mortality of 18 to 20 per cent; however this may be lowered to 10 per cent or less by early operation. Strauss claims that he has had a very low mortality with his operation,—a muscle-splitting operation which is a modification of the Fredet-Rammstedt operation, the latter consisting of simple division of the circular muscle of the pylorus down to the mucosa.

Post operative care:

1. Maintain the body heat. This is most important.
2. The head should be lowered the first one-half to one hour after operation so as to allow saliva to run out of mouth and respiratory tract. Then the patient is placed in semi-erect position after nourishment is taken, for this assists in emptying stomach and permits the escape of gas by the mouth and tends to prevent regurgitation.
3. Vomiting is practically eliminated if the peritoneal cavity is filled with Ringer's solution at time of operation and an intravenous injection of glucose is given—reports Lucas.

Postoperative vomiting when present is due to—

- a. Gas in the gastro-intestinal tract.
- b. Incomplete severance of the muscle fibers.
- c. Too rapid increase of feedings.
- d. Peritonitis.

To prevent dehydration:

- a. Give 1 ounce of salt solution per rectum every three hours.
- b. Start feeding as soon as child awakens, about 3 hours after operation.

Start with breast milk 1 dram every two hours and water 1 dram in the interval for the first twelve hours. Gradually increase milk until the child is getting one ounce two hours by forty-eight hours post-operatively.

If no vomiting occurs put to breast in three or four days and allow the infant to nurse but two or three minutes. These children usually return to normal about twenty-five days after operation.

CASE 1.—Baby Warren B. (History No. 7502). This is a case of a baby born in the hospital December 3, 1922. Normal birth, weighing seven pounds and fifteen ounces. Vomiting occurred the first day of birth and increased in severity until the fifth day. Most of the typical symptoms of pyloric stenosis were present except that a tumor was not palpable. The patient was given atropin, gr. 1/1,000, and gastric lavage before each feeding, and vomiting was controlled. On December 10, 1922, the weight was six pounds and ten ounces. Gastric lavage was discontinued December 14, and atropin was gradually reduced until the child was getting no treatment. The patient was discharged January 2, 1923, weighing seven pounds and thirteen and one-half ounces. March, 1924, the child weighed twenty pounds and eight ounces, and the parents report the child's condition good.

As you will see, this is but 10 per cent under weight for a child of this age, which is a very good weight considering.

CASE 2.—Baby Robert M. (History No. 8841). Baby was born September 14, 1924. Normal delivery, weighing eight pounds and thirteen ounces. Breastfed. The baby was perfectly healthy the first two weeks of life. After this the mother states that the baby would spit up some of feeding at various intervals after nursing. This gradually became worse until the baby developed projectile vomiting, the time of vomiting varying from immediately after to two hours after nursing. The baby entered the hospital October 14, 1924, with a weight of seven pounds and thirteen and one-half ounces.

There were typical projectile vomiting and visible peristalsis, but no palpable tumor. A diagnosis of congenital pyloric stenosis was made. The baby was given atropin 1/1,000 grain hypodermically fifteen minutes before each feeding. This failed to stop the vomiting, and the atropin was increased to 1/800 grain and gastric lavage given just before nursing. This controlled the vomiting. The weight one week after admittance was the same, but from that time on the baby made a steady gain weighing ten pounds and six and one-half ounces on November 22, 1924 (age two and one-third months). The atropin and gastric lavages had been gradually reduced until the last two days prior to discharge.

(November 23, 1924), the patient was without treatment and no symptoms developed. The baby returned to the hospital November 29, weighing nine pounds and eleven and one-half ounces with projectile vomiting. Treatment was the same as mentioned above, and the baby made steady gain, weighing ten pounds and fifteen and one-half ounces when discharged, December 23, 1924. At the present time the mother is washing the stomach twice daily, and giving atropin gr. 1/800, three times a day, and the last report states that the baby is doing well and gaining in weight steadily.

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PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of April 15, 1925

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, April 15, 1925, at 8:00 p. m. The meeting was called to order by the President, Dr. H. P. Ritchie. There were forty members and four visitors present.

The minutes of the March meeting were read and approved.

The Secretary read a letter from the Minnesota Historical Society acknowledging receipt of the old minute books of the Academy which have been placed in their vault for safe-keeping.

Dr. R. O. Beard was elected to honorary membership of the Academy.

Dr. Oscar Owre reported a case of nephroma of the kidney.

Dr. George Douglas Head reported the following case of "Carcinoma of the Stomach Simulating Ulcer of the Stomach or Duodenum." (Specimen shown).

Cancer of the stomach is rarely associated at its onset with an acute hemorrhage from the stomach and bowels. The case I wish to report began with a sudden emesis of a large quantity of blood and also the passage of bloody stools. In its history and clinical findings it simulated an ulcer of the stomach or duodenum. This was the early diagnosis made. The subsequent development of a mass in the body of the stomach raised the question of cancer. The presence of a perforation in the center of the growth in the hard scirrhus part of the mass suggested strongly carcinoma superimposed upon an ulcer base.

Mr. O. J. O., aged 61, married, children, traveling salesman. The patient has been a healthy man all his life aside from some stomach trouble off and on, which has bothered him for the last twenty years. On November 16, 1924, while on a trip to North Dakota, he was suddenly seized with nausea and vomited up a large quantity of blood, a wash-basin full. He also had a number of black, tarry stools. On the day following the large hemorrhage he

vomited again a similar quantity of blood. He thinks about a cup full. After the hemorrhage he felt very weak and exhausted. He was seen by a physician, who told him he had a duodenal ulcer and kept him in bed with an ice-bag over his upper abdomen and on starvation for four or five days, after which he was allowed to return home, where I examined him on December 4, 1924.

The examination revealed a tall, thin, extremely anemic-looking man, weak and exhausted from hemorrhage. He was complaining of some discomfort in the upper abdomen, but the examination disclosed no tenderness. No mass could be felt; no enlarged lymph glands. The entire examination was negative, outside of a dark-brown stool containing occult blood, and the blood findings of a high-grade secondary anemia. Hemoglobin 42 percent; r. b. c., 2,696,000; color index, .89; w. b. c., 14,250. Differential leucocyte count: p. m. n., 84.5; lymph., 8.0; L. mono., 3.5; trans., 2.5; eosin., 1.0; baso., 0.0; myelocytes, 0.5; no poikilocytosis; no anisocytosis; no polychromatophilia. No x-ray or gastric studies were done on account of the patient's condition.

A diagnosis of gastric or duodenal ulcer was made, and the patient was put upon a rest cure for ulcer, with the alkaline treatment and liquid foods. He had very little discomfort, the color of the stools gradually lightened, and his illness pursued the regular course, except that the stools always contained a small amount of occult blood.

After he had been in bed and under treatment for six weeks, I began to allow him semisolid food. He then commenced to complain of pain in the left upper abdomen close to the left costal margin; and, on palpation in this area, a small mass, the size of a pullet's egg, was palpated. It was movable, descended on inspiration, and was clearly in the great curvature of the stomach. Only two interpretations of the mass could with reasonableness be made, that is, an ulcer in the great curvature with dense adhesions and perigastritis, and a carcinoma of the greater curvature.

The gastric distress increased, the mass became larger and more tender, and on March 30, 1925, Dr. George Eitel opened the abdomen and found a sharply circumscribed carcinoma the size of an orange in the great curvature of the stomach, without metastases, but with dense adhesions to the transverse colon.

The mass with a part of the stomach wall was excised, together with a portion of the transverse colon. The patient lived four days following the operation. (Exhibits specimen.)

You will note the scirrhus type of the growth, in the center of which there is a small perforation. Inasmuch as the perforation is in a hard portion of the mass, the question is raised whether this case is an illustration of a carcinoma superimposed upon an ulcer. This occurs in about 8 to 10 per cent of carcinomata of the stomach. The history of a long gastric ailment over years, with a sudden severe hemorrhage, and the course which the case pursued strengthens this interpretation of this condition.

DISCUSSION

DR. ABBOTT: Was there carcinoma in the whole area?

DR. HEAD: I do not know. A piece was cut out near the periphery and sent over to the University. This is the first case of carcinoma of the stomach which I have observed in which the onset of symptoms was ushered in by severe hemorrhage from the stomach and bowels.

DR. JUDD: This certainly is a very interesting case and illustrates very well the type of case we see which starts with an ulcer of the stomach and, when it comes to operation, is found to be malignant. The question of whether or not it was malignant in the first place is pretty hard to settle. This case certainly suggests that it was an ulcer at the start.

DR. HEAD: There is another point of interest I might add. This man lived about four days after the resection was done. On the fourth day it was thought advisable to give 200 c.c. of a 1 per cent glucose solution intravenously. After about 100 c.c. of glucose had been put in the vein he was given one unit of insulin by order of the attending surgeon. Of course the patient was hypoglycemic because of his long starvation. Immediately after this man had been given the one unit of insulin he developed a very severe chill lasting a number of hours, with marked restlessness and symptoms of shock. He showed all the evidences of the presence of an extreme state of hypoglycemia, from which he did not rally. The patient's condition was not good at the time the glucose and insulin were given. I do not think the giving of this small amount of insulin had any effect upon the outcome.

Dr. W. F. Braasch reported a case of cystic degeneration in hydronephrosis.

Dr. F. R. Wright gave a review of Lichtenstein's monograph on "Gonad Therapy."

DR. HEAD: The question arises in the minds of a good many of us as to just how long the effects of this transplantation of gland remain?

DR. WRIGHT: The case mentioned was eight years, but he says that when this operation is done on animals they will remain for an indefinite period or throughout the animal's life. This man was twenty-nine years old when operated on and thirty-seven when the report was made.

In the absence of Dr. H. L. Taylor, Dr. E. K. Geer, of St. Paul, gave a short talk and showed a moving picture, in four reels, of the develop-

ment of "Pulmonary Tuberculosis." This picture was prepared by Dr. Louis Gregory Cole, of New York City.

JOHN E. HYNES, M.D.
Secretary.

BOOK NOTICES

PRACTICAL MEDICINE SERIES: Vol 1, General Medicine. Edited by George H. Weaver, M.D., Lawrason Brown, M.D., Robert B. Preble, A.M., M.D., Bertram W Sippy, M.D., Ralph C. Brown, B.S., M.D. 710 pages. Chicago: The Year Book Publishers, 1924. This volume is one of a series of eight year books issued at various intervals during the year. Price of series of eight volumes \$15.00.

This useful volume attempts to cover in a brief way the progress in the various fields of medicine during the year 1924. The material which is reviewed is largely that which will be of interest to the clinician. The literature, as far as it is covered, is well reviewed and is arranged in a compact, systematic manner.

"The Infectious Diseases and Endocrinology" is covered by Dr. George H. Weaver, "Diseases of the Chest" by Dr. Lawrason Brown, "Diseases of the Kidney and Blood" by Dr. Robert B. Preble, and "Diseases of the Digestive System and Metabolism" by Drs. Bertram W. Sippy and Ralph C. Brown. These writers have covered their special fields quite thoroughly considering the limited space allowed. The majority of the publications reviewed are interesting and valuable.

The section on "Diseases of the Chest" is especially worth while, and Dr. Brown covers quite thoroughly in 170 pages much of the year's progress in diseases of the lungs, bronchi, and pleura.

—M. H. NATHANSON, M.D.

SURGICAL PATHOLOGY. By William Boyd, M.D., M.R.C.P. Ed., F.R.C.S., Professor of Pathology, University of Manitoba; Pathologist to the Winnipeg General Hospital, Winnipeg, Canada. Octavo of 837 pages with 349 illustrations and thirteen color plates. Philadelphia and London: W. B. Saunders Company, 1925. Cloth \$10.00 net.

The subject matter of this volume is divided into general and special pathology. The special portion is further divided into systems, the diseases of each of which are given in detailed discussion. It is a well-arranged, well-written book. Its special merit lies in the fact that, as its title indicates, it is a clinical pathology and may well be studied from the standpoint of differential diagnosis. The author has stressed those conditions which are of utmost importance, the diseases which are most commonly encountered in every-day practice of medicine. Tumors, both benign and malignant, are well presented; some of the more rare are passed over briefly, while those of common occurrence are studied carefully, which, together with clinical features of aid in diagnosis, make the book an excellent guide to differentiating diseases. It is an excellent work and a step in the right direction,—pathology of living tissues.

—DANIEL H. BESSESEN, M.D.

THE JOURNAL-LANCET

Represents the Medical Profession of
Minnesota, North Dakota, South Dakota and Montana
The Official Journal of the
North Dakota and South Dakota State Medical Associations
The Hennepin County Medical Society
The Soo Railway Surgical Association
and The Sioux Valley Medical Association

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JULY 15, 1925

THE LAYMAN AND THE DOCTOR

How is it possible to remedy the misunderstanding which exists between lay people and medical men or trained scientific men? A great deal of the doctor's troubles are usually kept quiet for the reason that he does not want to expose himself or his errors or troubles to the public, and yet somehow the public forms its own conclusions, and not infrequently, in fact almost always, their conclusions are at variance with the facts. For instance, the doctor performs an operation. He does it with ordinary care and skill, according to the legal definition; yet, if anything happens to the patient, the lay people are the first ones to find fault with his method and manner of treatment. It looks as if it might require centuries of conferences and other methods of education for the two classes to get together and to understand one another's point of view. There is always a hue and cry against physicians, mainly by either vicious or unthinking people. Look about you for a time, and if you are an associate of an attorney you will find he knows something about damage suits that are brought against doctors, and not infrequently he sympathizes with the patient rather than with the doctor because he has much the same viewpoint as the average layman. This has resulted in a conclusion that is very difficult to surmount. There are numberless cases of suits for malpractice brought against medical men, and almost never is a cult man

sued for anything that he does, although he sometimes does more damage than any number of physicians can do.

Arnold Bennett, in a recent statement, says "Doctors don't know much about medicine, but they know a darn sight more than the layman." That ought to be evidence enough for the average lay mind. When Dr. Wendell Phillips, the president-elect of the American Medical Association, spoke before the Civic and Commerce Association at a luncheon recently, he emphasized these various points: That doctors are constantly criticized because they are misunderstood; that they have done more to revolutionize medicine and to protect the lives of the people within the last few years than had ever been done before, and that was because they were trained, educated, and drilled in various scientific subjects; and Dr. Phillips thought that the lay people ought to grasp this situation. He did not in any way discountenance the cults. He simply referred to this class of healers, which embraces all non-medical types, pointing out that they have never done one constructive thing that improved the human race through public health measures. But how many people think of that for a moment? The doctor goes about his business, doing the best he can, to the best of his knowledge and belief, and using the skill and care which he has either been taught or has learned by years of experience. The supposition is that he has gained in wisdom. Although this may be questioned by many lay people, the facts are that he has learned, and he is qualified to give a better opinion than the untrained, the uneducated, and the unscientific man.

It seems that they are having a great deal of trouble in India just now, where the physician especially is being discriminated against because of his ignorance of the lower classes. When one of their sick people dies they form a tribal union and kill the doctor. They think nothing of it; they think it is simply a retaliation or a proper measure that if the sick person dies the man of medicine who attended him should die, too. If they cannot kill him they have him charged with manslaughter. Most of the laymen seem to think they can hale a doctor before a court for the most trivial things. The majority of laymen think that doctors should be possessed of the wisdom of the gods, the strength and endurance of the lions, the speed of the wild deer, and yet live upon a dole that would starve a laborer. What is the answer?

We recently received a very interesting set of cards from Messrs. Reed & Carnrick, of New

Jersey, which are very appropos. They are as follows:

1. "Why is it that when you call a plumber, carpenter, or other skilled mechanic to do work in an emergency on Sunday, a holiday, or after shop hours, he charges double time, while, when you call the average family doctor at unseemly hours, he rarely asks, and seldom gets, a nickel more than ordinary fees?"

2. "Why is it that when a country doctor burns up 25 cents worth of gas, \$1.00's worth of wear and tear, and 2 cents worth of lubricating oil making a call off the beaten track, some thrifty ones think he is getting rich if they slip him \$2.00 for his trouble?"

3. "Why is it that when a man does not pay his butcher's, grocer's or baker's bill, Mr. Butcher, Grocer, or Baker sits on his door-step until he gets it, and that when the doctor is owed a bill, months overdue, he contents himself writing letters which the patient usually tears up unopened?"

4. "Where will you find another man to match the average doctor? He lives the true altruistic life, devoting himself unreservedly to others. His skill and time are yours on the shortest notice, in the blackest hour of night, and in the worst of weather. His devoted unselfishness, ready sympathy, and healthy good humor but increase his gray hairs."

THE SCOPES' TRIAL IN TENNESSEE

It is quite likely that there will be a great deal of ink spilled during this trial of Scopes in Dayton, Tennessee, and it is difficult to see just where the public are going to get out of it and what they are going to get out of it. If the lawyers stick closely to the matter of law it will be dull and uninteresting because the trial involves simply the question as to whether or not the legislature of Tennessee has the right to say what shall be taught and what shall not be taught in the public institutions of that state. If that is all of the trial we are going to get in the newspapers, it will be of very little interest. But between men like Bryan and Darrow they could raise a storm of protest in the papers all over the country, because they will probably question or uphold the validity of the theory of evolution or the scientific accuracy of the Bible. Bryan will be for the Bible and Darrow will be for the scientific explanation of evolution. Both of them, of course, believe they are right, or at least they will put up a pretty scrappy protest against the theory held by one another. The trial is to be

broadcasted. Special train service will be instituted from Chattanooga. Parking provisions have been made for ten thousand motor cars, and alighting and hopping-off accommodations for air planes are being prepared. It looks as if Dayton, Tennessee, is going to get on the map, and the theory of evolution and its opponents and supporters may cut but small figure in the city where such an interesting case comes before a jury drawn from its citizens. One is apt to smile at the absurdity or probability of a Tennessee jury determining the truth or falsity of the evolutionary theory from either Mr. Darrow or Mr. Bryan. But it will be great sport to hear and see them fight, and after they get through the public will not be any wiser than they were before unless the judge limits the trial to the question of law. It is a question, too, whether the great legal minds of the country will be in the case. It looks as if it were a fight between mediocrities.

The whole trial will stimulate people to study evolution, and perhaps it will get out of their minds the theory that evolution means that man sprang from a monkey. The better writers on evolution maintain that evolution is something of much greater importance; that it extends so many millions of years back in the creation of the world that man and monkey have nothing to do with it except as they develop in their own sphere from something that we know very little about.

Very recently Henry Fairfield Osborn, who is research professor of zoology at Columbia University and senior geologist of the U. S. Geological Survey, and president of the American Museum of Natural History, has written a small book entitled "The Earth Speaks to Bryan." It can be obtained at booksellers for one dollar. In this he gives some very plausible reasons for thinking that the earth is very old, and the writer takes the liberty of quoting (from page 5) under the head of "The Testimony of the Rocks: 'Day unto day uttereth speech, and night unto night sheweth knowledge' (Psalm 19:2)." He evidently is not a Bryanite, for he says "The Earth Speaks, clearly, distinctly, and, in many of the realms of Nature, loudly, to William Jennings Bryan, but *he fails to hear a single sound*. The earth speaks from the remotest periods in its wonderful life history in the Archeozoic Age, when it reveals only a few tissues of its primitive plants. Fifty million years ago it begins to speak as 'the waters bring forth abundantly the moving creatures that hath life.' In successive eons of time the various kinds of animals leave their remains in the rocks which compose the deeper layers of the earth, and when the rocks are laid

bare by wind, frost, and storm we find wondrous lines of ascent invariably following the principles of *creative evolution*, whereby the simpler and more lowly forms always precede the higher and more specialized forms."

Mr. Osborn is not only an evolutionist but a Christian and a believer in religion and in the religion taught by the Bible. And he finds many things in the Bible which reinforce his belief. He says, further, that "In Darwin's day the earth had hardly begun to speak of the relationship of ours to the other *Primates*, but Darwin's was the prophet's ear, close to the earth, which truly interpreted its feeble tones. To-day the earth speaks with resonance and clearness, and every ear in every civilized country of the world is attuned to its wonderful message of the creative evolution of man." He speaks very emphatically on the fact that two new and unexpected truths have developed: "First, that *man has not descended from any known kind of monkey or ape*, fossil or recent * * * Second, *man has a long, independent, superior line of ascent of his own*, with a relatively erect posture," with hands free to grasp and use tools and to handle implements that have been in existence for hundreds of years. Caves are found in France and Spain that have engravings, drawings, and paintings that are estimated to be 50,000 years old. However, that will not discourage Mr. Bryan; and he will do his best, with all his oratory and his use of argument, to show that evolution is in opposition to religion and that if evolution is established as a truth, a science, it may interfere with the interpretation of the Bible.

The writer has never been able to see why science and religion could not go hand in hand, as there are many evidences of men who are investigators and scientists who are deeply religious. We shall all listen with great eagerness to the daily conflict which is in progress.

S. S. S. (Sob-Sister Stuff)

Someone has very aptly said that the sob sister is the bride of crime; that the two, crime and sob sister, are inseparable and they cannot even be divorced. Mr. Edwin Baird, in *Real Detective Tales*, says very pointedly that the sentimental judge, the sentimental jury, the sentimental lawyer, the sentimental court flies—these are the sob sisters, and they are ever present in the court of sentimentality. We all know the sob sister who overflows with the milk of human kindness, but her milk contains no nourishment; it is simply an excess of emotional perspiration. Most of

these "s. s." people have a secret yearning for some hardhearted, "hard-boiled," and criminal mate, and it is usually the mate of the opposite sex. The sob sister feels sorry for the wrongdoer even though he has committed murder. She buys things for him,—candy, flowers, or moonshine,—but she feels no pity for those whom he robs or kills. She looks upon him as a possible uplift subject, and she strives in her work of uplifting until he grows angry and strikes her over the head and tells her where to go. She wants everyone to sympathize with him, but she has no sympathy for his victims. It must be a great source of secret joy to the criminal who is awaiting trial or sentence to have these foolish people "slobber" over him. He knows perfectly well that it is nothing but hysteria on the part of the would-be uplifter, and he clings to her simply to further his own ends, that of possible freedom, so that he can go out and commit more crimes. It is rather remarkable that the law-abiding citizen who was shot down in cold blood meets his sudden death without the least crying out. But the man who shoots him is really very rarely punished, for the sob sister is always lurking around the corner somewhere to help this poor miserable sinner to gain his freedom.

There has never been a period in the history of America when so much crime has been the order of the day. Never have there been so many robberies, and holdups, and very often injuries, as have been perpetrated since the end of the World War. It is simply another evidence that war is degenerating, not only as to life, but as to morals; and it has hardened the ready-to-be criminal to attempt anything that he can possibly put over. Of course it is quite probable that some of these men are thieves, robbers, and murderers from some mental deficiency; but the sob sister who is trying to cheer this type of man up during his term of punishment is made of the same stuff. As a matter of fact, the whole work of the uplifter is a farce; and the publicity given to such individuals, both criminals and sob sisters, is wholly unnecessary and tends to increase the number of disastrous crimes. If they would punish a few of the sob sisters in some way once in a while they might get back into the law-abiding pathway. But when policemen are murdered in cold blood by cold-blooded men and the murderers are sympathized with by equally cold-blooded sob sisters, it is almost impossible to check or prevent crime.

There seems to be an epidemic in some cities, and the ordinary robber who allows his mind to drift to fields of gain by simply taking a chance is

spreading over the whole country. It was rather astounding to learn that St. Peter's Treasury, in Rome, had been robbed; but it is extremely gratifying to know that the robbers were captured within two days and all the loot recovered. There was no sob-sister stuff there. But in this country, where there is so much sentimentality and an equal amount of absolute indifference on the part of the public, it is no wonder that we are looked upon as a degenerate race, ready to do anything at any time provided we are not caught in the act.

NEWS ITEMS

Dr. C. E. Remy has moved from Yankton, S. D., to Omaha, Neb.

Dr. E. H. Marcum, of Bemidji, is in Europe for special study in the hospitals.

Dr. C. W. Bray, of Biwabik, has been elected president of the St. Louis County Health Association.

Dr. A. Oshana has moved from Altura, Minn., where he had a community practice, to Mason City, Iowa.

The new Minnesota law limiting the time for bringing malpractice suits to two years went into force on July 1.

Dr. Botho Felden, a genito-urinary surgeon from Berlin, is associated with Dr. C. T. Gran-ger, of Rochester.

Dr. F. H. Tuck, of Shakopee, is home from Boston, where he went for a special course in pediatrics at Harvard.

The Minnesota Public Health Association is giving health demonstrations in northern counties of the state this month and August.

The degree of Doctor of Laws was conferred upon Dr. E. C. Rosenow, of the Mayo Clinic, last month by Park College, of Missouri.

Dr. James S. Burger, of the U. S. Veterans' Hospital of St. Paul, was married last month to Miss Cora Margaret Jelly, of Hastings.

A drive is on to raise funds for the new Lutheran Riverview Hospital of St. Cloud. The plans for the building have been drawn.

A new time schedule for nurses in the hospitals of St. Paul went into effect on July 1. It reduces their hours on duty very largely.

Dr. M. A. Shillington, of St. Paul, presented a paper on the use of insulin before the Eastern Montana Medical Society, held last month in Miles City.

Dr. T. P. Groschupf, a recent graduate of the University of Minnesota Medical School, has become associated with Drs. Marcum and Stewart, of Bemidji.

Dr. A. C. Strachauer has assumed the duties of Director of the Cancer Institute of the University of Minnesota. Students will be received at the Institute on October 1.

The Sioux Falls and Bethany Hospital Associations of North Dakota have united, and a new and modern hospital will be built at Sioux Falls by the Amalgamated Association.

Dr. Gertrude G. Wellington, formerly president of the Women's Medical College of Chicago, and a resident of St. Paul, for a number of years, died last month at Balsam Lake, Wis.

Dr. A. A. Zierold, of Minneapolis, was married last month to Miss Marian Wash, also of Minneapolis. Dr. Zierold is a graduate of the Medical School of the University of Minnesota, class of '19.

Dr. Horace Newhart, of Minneapolis, was chosen president-elect at the annual meeting of the American Federation of Organizations for the Hard of Hearing held in Minneapolis last month.

Miss Gena K. Aarsrud is the new superintendent of Sunnyrest Sanatorium at Crookston, succeeding Dr. J. G. Jungmann, who has gone to Minot, N. D., as superintendent of the new hospital in that city.

The Hennepin County Tuberculosis Association has a new health film, entitled "Arrested," which it is now showing in the Minneapolis parks. It will be in continuous use as long as there is a demand for it.

Dr. John E. Adams, formerly at the head of the Department of Psychology of Yale University, has come to the University of Minnesota to establish the new Institute of Child Welfare financed by the Laura Spellman Rockefeller Memorial.

The Visiting Nurses' Association of Minneapolis, which is doing much hourly nursing, estimates the cost of such service at \$1.10 an hour to the Association. The charge for the service

is determined by the ability of the patient to pay. Much of it is free.

Dr. Charles A. Lapierre, of Minneapolis, accompanied by his wife and daughter Ada, are making a three months tour in Europe and will return the latter part of September. His sons Dr. Arthur and Dr. Jean are taking care of his practice during his absence.

Dr. K. H. Van Norman, who came from Johns Hopkins about three years ago to superintend the Miller Hospital of St. Paul, has been elected director of a group of three hospitals at the Western Reserve University of Ohio. He will give up his work at the Miller Hospital in October.

Dr. Charles H. Mayo, of Rochester, who headed the group of several hundred physicians and their wives who took the Inter-State Post Graduate Assembly Clinic tour to Canada, the British Isles, and France, received marked honors in Europe. Honorary degrees were conferred upon him by two universities.

Dr. J. A. Myers, of Minneapolis, recently gave clinics on tuberculosis in Bristol, and other towns of Dav County, S. D., under the auspices of the Red Cross. In over 300 examinations made by him only one case of tuberculosis that had not been diagnosed was found, which shows, Dr. Myers thinks, the excellence of the work done by physicians in that state.

At the July meeting of the Lymanhurst Staff July 28, papers will be presented on "Some Points in the Physiology of Respiration," by Dr. F. H. Scott, Professor of Physiology, University of Minnesota, and on "Investigation on Development and Size of the Heart in Children by the Teleroentgen Method," by Dr. Thomas Ziskin. All physicians are invited to attend the meeting and take part in the discussions.

Dr. Halbert L. Dunn, a 1922 graduate of the Medical School of the University of Minnesota, who has been on the Mayo Clinic Staff for the past year, and worked a year with Dr. George Draper in the Presbyterian Hospital of New York City, has been appointed assistant professor in the new School of Research at Johns Hopkins of which Dr. Raymond Pearle is the head. Dr. H. L. Dunn is the son of Dr. Louis Dunn, of Minneapolis.

The Northwestern (N. D.) District Medical Society and the Devils Lake District Society will

hold a joint meeting at the State Tuberculosis Sanatorium near Dunseith on the afternoon and evening of July 22d. The program will consist of one paper from each of the Societies and a clinic by Dr. J. G. Lamont, Superintendent of the Sanatorium. The following day the members of both Societies will go to Ninette, Manitoba, to attend the meeting of the Brandon and Southwestern Manitoba Medical Society at the Provincial Tuberculosis Sanatorium there.

The postponed annual pilgrimage of the Brandon and Southwestern Manitoba Medical Association to Ninette is on, weather permitting or otherwise, for July 23d. The program will be clinical throughout—presentation of cases and discussion of such phases of tuberculosis and its treatment as heliotherapy, bone and joint tuberculosis, septic chest conditions that may be confused with tuberculosis, and the pulmonary form of tuberculosis with its various complications. An invitation is extended to the members of the Northwestern Manitoba Association, and the Southeastern to join with the Southwestern and it is likely that a number of medical men from North Dakota, perhaps as many as fifteen or twenty, will be present also. This meeting, therefore, is not an ordinary but an extraordinary one—indeed international in its scope. It is especially requested that all will be on hand to start the program at eleven o'clock. This start together is important.

Minneapolis Office Space for Rent

In 630 Syndicate Building on Nicollet Ave. side. Either oculist and aurist or pediatrician. Three other doctors in suite.

Substitute Work Wanted

By a 1901 graduate of the Medical School of the University of Minnesota. Available at once. Address 253, care of this office.

Physician Wanted

A young man for an Iowa village; hospital facilities. Nothing to buy. State particulars in first letter. Address 234, care of this office.

Minneapolis Office for Rent

Space in Yeates Building. Single or double room suitable for dentist, eye, ear, nose and throat man, or other practitioner. Telephone, Main 4090.

Practice for Sale in Northern Minnesota

A \$6,000 cash practice in village of 800; unopposed; insurance and railroad appointments; fine fishing and hunting. Price \$500. Address 252, care of this office.

Wanted

Substitute work or an assistantship by an experienced physician, a Canadian graduate, who has practiced a good deal in the States. Address 247, care of this office.

Substitute Work Wanted between July 15 and September 1.

By a Minnesota graduate (1924) now engaged in medical college work (Department of Bacteriology). Address 243, care of this office.

Location Wanted

By general practitioner of wide experience. Prefers a country practice in good territory with a mixed population. Address 255, care of this office.

Position Wanted

With surgeon or well-established clinic, or a good location with hospital facilities in South Dakota by a young physician who is well qualified and experienced. Address 254, care of this office.

Minneapolis Office Space for Rent

In Physicians and Surgeons Building, Minneapolis, with two doctors. Privileges of thoroughly equipped laboratory and x-ray facilities. Address 256, care of this office or telephone Geneva 2887.

A Physician's Office Equipment for Sale

Allison operating table; cases and obstetrical instruments; set of dental forceps; Eureka nebulizer; Macey desk; Globe-Wernicke book cases; office table. Address 232, care of this office.

Practice for Sale

In central part of Minnesota in a very rich territory. Fine village of 500 people. Good schools and modern improvements in village. A splendid opening. Address 251, care of this office.

Hospital for Sale

A small private hospital in a splendid location in Minnesota is offered for sale because of the illness of the owner who has done major surgery for ten years. Address 244, care of this office.

Laboratory and X-ray Technician wants Position

Applicant is an undergraduate nurse with hospital experience of one year in a high-grade small hospital. Will give faithful service. Best of references. Age, 27. Address 241, care of this office.

Locum Tenens Wanted

For one month beginning August 1st or earlier. Contract practice; work light; cool climate. \$200, furnished house and extras. Address C. C. Smith, M.D., South Agnew Location, North Hibbing, Minn.

Substitute Work Wanted

Due to just having burned out, I would like locum tenens work. Graduate of University of Illinois, class of 1911; registered in North Dakota. Available at once. Address 242, care of this office.

Practice for Sale in South Dakota

A \$7,000 unopposed practice in a town of 600. Large territory. Price of equipment and introductions, \$1,000; terms; accredited schools; fine churches; good roads; near hospital. Address 235, care of this office.

Location Wanted

By a thoroughly capable physician, able to do first-class surgery and x-ray work. Graduate of Class A school and can furnish the best of references. Protestant and Mason, married. Address 240, care of this office.

For Sale

Complete drug store with building in Northern Minnesota town. Large territory; no competition. Excellent place for physician who is a registered druggist. Reason for selling, poor health. Address 239, care of this office.

Location Wanted

By a University of Minnesota graduate (1923) with two years general practice and six months experience in physiotherapy. Prefer association with general practitioner, surgeon, or clinic, but will consider purchase of a desirable practice. Address 245, care of this office.

Physician Wanted

Dr. Biornstad wants young, aggressive M.D. at his Clinic. Must be interested in physiotherapy and have surgical inclinations. Scandinavian preferred. Excellent prospects and future for right man. Address Dr. Biornstad's Clinic, 831 Second Avenue South, Minneapolis, Minn.

Practice and Office Equipment, etc. for Sale

Due to the recent sudden death of a physician in a fine Minnesota town of 12,000, close to the Twin Cities, his surgical and office equipment, books, etc., are offered for sale; also a 5-passenger auto. Splendid hospital. An exceptional location for a German Catholic doctor. Address 233, care of this office.

Physician's Office in Fine Location in Minneapolis

Over drug store, corner of Penn Ave. and Fiftieth St. at end of the Oak and Harriet car line. Location unsurpassed. District growing rapidly. Dentist across the hall. Nearest physician nearly one mile. Rent, \$35 a month with heat. Inquire at Rood's Pharmacy, 2300 West 50th St. (telephone Walnut 2413), or telephone to owner, Hyland 3129.

For Sale

Late Type 120 Kilovolt Acme International X-ray Generator complete with Filament Control for 220 Volt Alternating Current. Also Acme International Combined Radiographic Fluoroscopic Table for both horizontal and vertical fluoroscopy. Two Coolidge Tubes. Complete Dark Room Equipment. Also have some office equipment to sell. Splendid buy for someone who is just installing an x-ray department. Address 238, care of this office.

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SPECIAL USES OF RADIUM*

BY CHARLES DARCY WRIGHT, M.D.

MINNEAPOLIS, MINNESOTA

SECTION I—TONSILS

What a period of development of medical and surgical knowledge is the present, with its bacteriology, parasitology of infection and immunities, of aseptic surgery and scientific chemotherapy!

Radium, like every other great discovery, has had its period of hope and great expectations and its period of disappointment followed by its proven usefulness.

The tonsil is formed of differentiated lymphatic tissue. It is partly surrounded by a fibrous envelop, with its free surface covered by a mucous epithelium of the throat; this epithelium dips into the substance of the tonsil forming crypts.

There are two distinct tonsillar cells, i. e., the differentiated lymphatic cells and in the germinal nodules the actively dividing phagocytic cells, intended to destroy and digest invading organisms.

The network of lymphatic vessels enters the tonsil from the attached side and the lymph flow is directed toward the free surface, so lymph and leucocytes are always being discharged on the free surface of the tonsil and in the crypts. The crypts are also lined with epithelium, similar to, yet thicker than, that on the tonsil surface.

The tonsils furnish the first protection or guard to the respiratory tract against bacterial

invasion. The lymph flow and the phagocytic white cells on the surface of the tonsil form the first defensive armament of the tonsil.

The crypts, lined with epithelium, are bacterial filters.

In these crypts the lymph and leucocytes, supplied from within the tonsil, also disintegrate, destroy and absorb many bacteria.

When this defense is inadequate, the tonsil resistance is overcome and inflammation and chronic infection of the tonsil follow.

Nature makes no mistakes. Tonsils were put in the throat for the specific use of guarding the air passages from infection.

When the disease in the tonsil has gone so far that a complete raying must be made the fibrosis left between the pillars is an inert mass cleared of all infection and incapable of becoming a later source of infection.

There are many cases where radiation is of great advantage over tonsillectomy:

Those patients whose organic changes make them poor operative risks.

Patients naturally weak or naturally timid whose dread of operative procedure is very great and productive of much mental agony.

Patients whose history points to hemophilia. Suspicious cases of status lymphaticus.

Adults of advanced years where all other foci of infection have been ruled out.

*Presented at St. Mary's Hospital, Minneapolis Clinic Week, April 19, 1925.

Patients mentally unfit for operation because of knowledge of operative tonsil cases where the patient bled to death or of those who have died after injections of the tonsil.

Patients who will not have tonsillectomy without a general anesthetic and who dread the loss of consciousness so much that they cannot bring themselves to submit to operation.

Then also comes a very important and large class of cases including a host of our more important business people who have the courage and know they need to have the relief from the infection of their tonsils; but who will not spare a week away from business to have their tonsils removed.

There is also a class of people who dread pain following an operation, though they know it is not much worse than an attack of tonsillitis, who procrastinate the procedure.

And how can you blame people in whom radium will accomplish just as good results without the pain, loss of time, indisputable danger (little or great) of operation, if they prefer the radium treatment of tonsils?

As tonsillectomies are done the world over, 50 per cent of the cases operated on have some infected tonsillar tissue left in the throat.

These cases are comparatively rare when the tonsillectomy is done by the most skillful tonsil men, yet the very foremost tonsil men in the world freely admit that this sometimes happens to them.

A large number of pillars fare badly from tonsillectomy.

I do not believe radium, properly used, will ever injure a throat or leave a source of infection still in the tonsil.

As far back as January 22, 1921, a report was made from the Rockefeller Institute on the treatment of hypertrophied tonsil. "Coming from such an ultrascientific and ethical body of men, it is not to be questioned or doubted.

"Briefly, it told of the treatment of forty-six patients ranging in age from three and one-half to forty-five years by exposing the area of the tonsils to irradiation. Two weeks later distinct shrinkage of the hypertrophied tonsil was noted. This continued from one to two months, at which time the tonsillar crypts had opened and drained, and in all but a few the exudate had disappeared from the throat, leaving the tonsil smooth, pale and of a healthy appearance.

"Cultures were made from the crypts in forty of the forty-six patients before and at intervals after the treatment began. The common organ-

isms of the throat were not affected. Thirty-six of the forty patients showed hemolytic streptococcus, and of this number the tonsils of thirty were free of the organism four weeks after the treatment.

"As the atrophy of the tonsil progressed the crypts became more shallow and drained better, the streptococci disappeared and the lymphatic tissue became displaced by connective tissue. The hypertrophied tonsil had undergone a shrinkage comparable to the atrophy of age when the gland is composed of little more than a small collection of fibrous tissue."

Viewing the treatment from the point of a radium therapist the entire technique is most simple and easily accomplished in two or three treatments.

Tonsillectomy cases may be divided for radium and surgical consideration into six classes:

First Class—Simple hypertrophy.

Second Class—Chronic interstitial tonsillitis of the hyperplastic type.

Third Class—Chronic interstitial tonsillitis of the fibrous type.

Fourth Class—Chronic follicular tonsillitis with little or no hypertrophy.

Fifth Class—Cases where there are pus pockets in the tonsil or under the tonsil (not as in the crypt).

Sixth Class—Secondary operations—

(a) Secondary lymphoid hyperplasia especially in children.

(b) Where part of the glandular substance of the tonsil is healed under the connective tissue scar.

One has only to review the progress of *x*-ray and many other advances made in medicine and surgery to be reminded that much that was derided has proven invaluable.

The action of radium is somewhat like *x*-ray, but its use may be better localized in throat work.

Radium is especially useful in:

First class, as specified, because the hypertrophy in all these cases can be reduced to a normal or atrophic condition readily, without danger and discomfort.

Second and third classes, as specified, because the hyperplasia or fibrosis can be made to subside quickly and effectively without danger and discomfort. Lymphoid cells are dispersed, the tonsil mass shrinks, the crypts open to the surface and infection subsides. As we obtain the necessary skill, we shall be able to stop when the infection is removed and not produce enough

atrophy to give a fibrosis of the lymph stroma, thus leaving a healthy tonsil, reduced in size, cured of its infection, and still functioning against air passage infection as nature intended it to do.

Class four, cases as specified, must be judged by the amount of fibrosis or hypertrophy. If acutely dangerous to the health and there is little fibrosis or hypertrophy, tonsillectomy is preferable.

Class five, as designated, is better for tonsillectomy but there would be no class five if radium were used early.

Class six, as designated: Division (a) of class six is better for treatment by radium. Division (b) radium has proven satisfactory to me.

The latter is the class of cases that experience ten days or two weeks of very severe suffering following the operative procedure.

After many years of tonsillitis Waldeyer's ring is often so infected that, though a complete tonsillectomy is performed, each cold is followed by an infection of the lymphatic tissue of Waldeyer's ring associated a few days later with a mild laryngitis.

Now, no surgery can remove the lymphatic tissue in this area except as it forms part of the lingual tonsil. No medicine can prevent its return. Here radium gives the only relief possible against recurrence, and radium will give results. These recurrences of infection, though not as dangerous to the system as tonsillitis, are, nevertheless, of some considerable danger and give a good deal of suffering and may thoroughly incapacitate a person for some time.

The amount of radium used, the time of application, the distance and the screening are all matters of experience and skill. No harmful effects follow the skillful use of radium on the tonsils, either when used by internal application to the tonsil or external use through the walls of the throat or when a combination of the internal and external is made.

The careless use or overuse of radon in removing tonsils has caused a good deal of trouble and some bad results. Radon is rapid in its results, prolific of severe reaction and if the radon is implanted near the pillars, very unpleasant results follow. Two one-fourth m. c. implants are sufficient and must be set well away from the pillars or the capsule of the tonsil.

The use of 400 m. c. of radon properly

screened with a tonsil window would be ideal for tonsil work as four minutes would complete the raying. But 400 m. c. of radon costs approximately \$500.00 and, of course, unlike radium, it dies rapidly being one-half inert in 3-85/100 days. The expense makes its use prohibitive.

All the trouble I have seen in tonsil work has been due to undue haste or lack of care or knowledge in screening or lack of complete paraphernalia for applying radium.

Radon cannot be unskillfully implanted in tonsils in 0.5 m. c. doses without disaster. Infection following radon use in tonsils, especially Vincent's angina, must be from lack of asepsis.

Some still believe that radium sterilizes itself, impossible as it may seem.

Severe pain and earache following implantation of radon emanation seeds, used in tonsils, just means that too much has been used or that the seeds have been implanted too near pillars or other non-tonsillar tissue.

I have often been asked how it is possible to remove the lymphatic, infected tissue of the tonsil without removing other tissues of the throat, and it might be well to explain that here.

Any structure of the body may be removed or disintegrated by radium. The tissues of the body are divided into fifteen classes with reference to their susceptibility to destruction by radium. Fortunately, the lymphatic tissue, which is the infected tissue of the tonsil, is the first or second most easily dissolved tissue of the body; whereas the connective tissue and other tissues of the throat are well down the list as being the harder tissues to destroy with radium. So it is quite possible to remove all the lymphatic tissue of the tonsil and not impair, in the least, the pillars of the tonsil.

If one had two columns of firm ice, between which had drifted a light snow, placed in a case where the temperature was below freezing, one can easily imagine how a spotlight could be thrown on the pillars of ice and snow sufficiently to remove the soft snow and not damage the firm pillars of ice. The simile may serve as explanatory.

If one could not see the snow dissolve it would require a good deal of experience to know how long and how often to use the spotlight so as to completely remove the snow and leave the ice. So it is with the lymphatic tissue of the tonsil.

BLOOD PRESSURE: DIFFERENCE OF READINGS IN THE TWO ARMS

BY W. H. BODENSTAB, M.D.

Medical Director Provident Life Insurance Company

BISMARCK, NORTH DAKOTA

A great deal has been written on blood pressure during the last few years, high and low blood pressure, its variability at different times and under different circumstances, but I have never seen any article which deals with the variability of pressure when taken in the two arms at the same time and under the same circumstances. My attention was first called to this variability in 1920 when I examined a physician for life insurance. When I took his blood pressure he advised me that I would undoubtedly find his tension low, as he had had numerous readings made while in the service, and his systolic blood pressure had never been above 112 mm. of mercury. He was 45 years of age and, except for a slight overweight, he was a first class risk. I took his blood pressure on the left arm, as usual, and found it 112 mm. I then put the arm band on his right arm and got a reading of 142 mm. of mercury. I then took several readings on both arms and these corroborated my first readings. He told me also that his blood pressure had always been taken on the left arm.

Since that time I have taken many blood pressures and compared the readings of both arms and I was astonished at the results obtained. Unfortunately I kept no records of all the readings up to about a month ago.

During this last month I have recorded 100 cases, including hospital patients, office patients and applicants for insurance with the following results: In these 100 cases the systolic blood pressure varied from 2 to 46 mm. and the diastolic from 2 to 40 mm. of mercury. The average systolic variation was 11.7, and the diastolic 9.6. In some of the cases the reading was higher in the right arm and in others the highest reading was obtained in the left arm. In only 10 of the 100 cases was the systolic blood pressure alike in both arms, while the variability of the diastolic pressure was even higher, as only 4 were found alike.

These readings were all taken with a mercury instrument, some in the recumbent position and others in sitting positions. In none of the subjects tested was there present any lesion which might account for the difference. We know that in injuries of one of the arms, in the presence of tumors, or in aneurism of the aorta we are

liable to find a variation in the readings of the two arms. However, these factors were definitely eliminated as far as possible in my cases.

What is the cause of this variation? What effect has it on life insurance examinations?

The cause of this variation is, in my opinion, a more unsettled question than the cause of hypertension. The immediate cause of essential hypertension is unknown. We presume that there is some factor which brings about a spasm of the smaller blood vessels. This produces an increased peripheral resistance and necessitates a rise in blood pressure in order to maintain an efficient circulation. Whether this stimulating effect is produced locally upon the blood vessels or through the central nervous system is still a matter open for discussion. In either case, and no matter which of the theories we accept, we are unable to explain consistently why this action should be more pronounced on one side of the body than on the other.

The effect which this factor may have on life-insurance examinations can readily be gathered when we thoroughly consider the question.

We are usually taught by insurance companies to take the blood pressure on the left arm and that the normal average blood pressure between the ages from 20 to 60 is, respectively, 120 to 135 mm. of mercury, and that a variation of more than 15mm. above or below this average is suggestive of disease.

I recently examined a man for insurance. He was sixty years old. Four years ago he had had a prostatectomy. He was in good physical condition, the urine was clear, but he was fifteen pounds under standard weight. His blood pressure reading on the left arm was 90 mm. of mercury and I thought I would have to reject him. Then I took a reading on his right arm and found it 124 mm. of mercury. I passed him. But this factor of variation works both ways. Supposing an examiner finds a blood pressure of 160 mm. in a man aged thirty in his left arm and a normal reading in his right arm and passes him. He may be a conscientious examiner, but ignorant of the importance of reporting the highest reading, or he may be a little unscrupulous and give the benefit of doubt to the applicant and report the lower of the two pressures.

Or supposing the reading in his left arm is normal and he passes him, when, if he had taken the pressure on his right arm, he would have found it to be 30 or 40 mm. above normal. In both of these instances the life insurance company unconsciously assumes a risk which under ordinary

circumstances it would accept only as a sub-standard risk, or probably reject outright. The only solution in my opinion on the problem will be to read blood pressures on both arms and to record the highest one, since only by so doing can the interests of the company be protected.

A TESTIMONIAL DINNER

TO

DR. RICHARD OLDING BEARD

Emeritus Professor of Physiology

University of Minnesota, June 12, 1925

Members of the Board of Regents of the University of Minnesota, the faculty of the Medical School, and a group of medical alumni and friends, tendered to Dr. Richard Olding Beard, who is retiring from active teaching service, with the close of the school year, a testimonial dinner at the Minneapolis Club, on June 12, 1925.

The occasion was beautifully appointed in the large dining hall which was filled with Dr. Beard's friends and associates, and, among them, many of his old students.

Dr. Lotus D. Coffman, President of the University of Minnesota, presided. At the close of the dinner, before introducing the speakers of the evening, President Coffman said:

It now becomes my very pleasant duty to preside at this meeting. I scarcely like to call it a meeting because it is no ordinary assembly. I am sure it isn't a ceremony because there isn't anyone to be married here tonight; and I have been conscious for the last half-hour that it isn't an obituary, for the honor guest of the evening is very much alive. He is as wide awake and intelligently as gifted as he ever was. We have several here who have known Dr. Beard in various capacities at the University far more intimately than I. They will be able to speak of his work and service here.

It has been my good fortune since I came to the State to have him aid me in making a partial survey of the University. He and his associates prepared such an elaborate statistical report that the Legislative Committee said, upon examining it, "What does it all mean, anyway?"

Since he has been connected with the University of Minnesota he has been one of the leaders of the movement for the consolidation of medical education at and in the University. He was one of those persons who recognized that, after all, medical education can only flower and come into its fruit in a university environment, and that if you are able to build a strong and influential medical school it will be partly because you have done the same thing for other departments of the University. When the various medical schools of the state were consolidated, Dr. Beard was one of those who insisted that they should be made a part of the University. Most of you know he has been prominent, too, in the movement for the advancement of nursing educa-

tion. All in all, he has been a force of great influence; a leader who emphasized fundamentals and who saw far into the future.

It is a fine thing for one at the close of his labors in an institution to have a group of his friends assemble in this way to pay their respects to him.

As the first speaker of the evening, I have the honor to introduce Mr. Frederick B. Snyder, President of the Board of Regents.

Mr. Toastmaster, and most honored guest of the evening, ladies and gentlemen:

If I hesitate a bit in my talk tonight will you please attribute it to the fact that I have not come prepared to deliver any set speech. I preferred, rather, to come just as one of the friends of the honored guest, in order that I might speak the little word I have to say direct from the heart, and leave it to his closer associates who are familiar with the great work he has done to tell you about that.

It is a great pleasure to be here tonight to express my appreciation of the work this good man has done, and to tell you that I personally have a regret in this, that, through no fault of his own, but just by reason of the passing of time, he has been obliged in a way to give up his work. You know, as we live and go along in life, we are apt to forget the passing of time and that advancing years bring with them certain penalties. If the penalty should happen to be illness of mind or body,—perhaps we may have been guilty of something in our past life which has brought upon us that penalty; but when a man goes through his life and spends upwards of thirty-seven years in a given cause, serving the State, and then wakes up one morning and is told, "You are penalized; the age limit has run against you; your salary must be cut, and your usefulness is not what it was yesterday," that is pretty hard, because in the case of our honored guest, his eyes are as bright, and the grasp of his hand is as firm as it ever was. We shall hear from him tonight and I know his mind is as alert as it has been in all these years, and I know, too, that there is seated in his being that same imagination which has carried him forward all this time and is going to carry him still further along.

I ask you, Dr. Beard, not to feel discouraged just because this time limit has been set down on you. Perhaps time will prove it to have been happily pre-arranged. While you have done many things in the upbuilding of the Medical School of the University of Minnesota, destined to carry your name forward

when you are gone, it is safe to predict that the task you have undertaken, since your retirement, to raise an endowment for the Medical School, will bear fruit not only in gifts while you are active, but long afterwards when wills and testaments are opened and reveal bequests and legacies which, without your efforts, would never have been made.

On behalf of the Board of Regents, I bring you greetings. The Board appreciates all you have done and wishes you God-speed in your new work.

President Coffman announced that Dr. William J. Mayo, who had expected to be present and to speak upon the occasion, had been detained in Rochester on account, doubtless, of the series of severe storms which had struck that city during the preceding two days.

He called next upon Dr. Elias P. Lyon, Dean of the Medical School, who spoke for the Administrative Board:

Mr. Toastmaster:

We have come together this evening to honor a man who has devoted his life to a human institution. A human institution is an interesting social and biological phenomenon. I say biological phenomenon advisedly; for I think there can be no doubt that the origin of the human institution lies in the gregarious instinct which is a factor of survival,—an instinct displayed by ants and bees, by birds, by many mammals.

But the human institution is tremendously more complex than the community life of the lower forms. The human institution takes its purpose and character from the necessity of adjustments; but under the guidance of memory and consciousness it accomplishes a multitude of complex adjustments which are entirely differentiated from the life of the brutes. Perhaps one would not be going too far in saying that it is the human institution which most of all distinguishes man from the lower orders.

Now, the first thing that strikes me about human institutions is that they may be divided into two classes. In the first class the selfish ideal,—the ideal of immediate advantage to the group concerned,—is predominant. You will think at once of many such organizations in society. In the second class, the altruistic ideal is dominant. In this second class are the school and all the organizations for social welfare.

I think it is much to say of a man that he has devoted his life to a human institution whose ideals are essentially altruistic. This is the primary glory of the educator, and this is the primary honor we pay to Dr. Beard.

A human institution is said to have a life of its own. And this is because the analogy of the institution and of the organism is so fundamental. Often institutions live a very long time. But it is apparent that this life of the institution is really the combined lives of the component individuals that from time to time make up the institution; just as the life of the body is the co-ordinated and integrated activity of the individual cells, some of which are permanent but many of which come and go, are born and die. The body goes on living, though many of its cells be changed from day to day. But some of the cells, as those of the nervous system,

stay long and have a dominating influence in the body. So in the institution some men are very intimately and fundamentally related to its destiny. Such a man in this medical school has been Dr. Beard. He has been a part of its brain, a part of its co-ordinating and planning mechanism, a part of the institutional consciousness. When such a man leaves it is like taking out a brain center. The loss can never be fully replaced. We do well to honor such a man.

Then there is a third thing that strikes me regarding human institutions. Though institutions grow, change, decay, and sometimes die, nevertheless the trend, the scope, the impetus to this life is determined by those men who first organize and establish the institution. They are the germ cells, so to speak,—the biological determinants of institutional destiny. From them flow the hormones; from them proceed the invisible influences which make the institution, perhaps hundreds of years later, what it is to become. Witness the English Barons at Runnymede and the Magna Charta, witness the signers of the Declaration of Independence, and the founders of our Constitution. For good or bad, the course of an institution is set by its founders. It is a great honor to Dr. Beard that he is one of the founders of this Medical School, which has accomplished so much and which appears to have such a large and useful future. Its high standards, its capital facilities, its excellent reputation, its large outlook and its plans for expansion are largely the work of his hands and his brain.

I have worked for twelve years with Dr. Beard. We have not always agreed, just as the thyroid and the adrenals do not always agree, as the endocrinologists tell us; but we have adjusted and we have compromised and we have co-operated, and I can truthfully say that not one accomplishment, not one advance, not one plan of these twelve years but has been largely influenced, shaped and invigorated by Dr. Beard.

Take our first task, a more liberal curriculum. Probably I am an educational radical, a pedagogic Bolshevik. Possibly Dr. Beard is a conservative. But he is never an obstructionist. He is a physiologist and he is willing to experiment. If we have had, as I believe we have had, for the past eleven years, a more stimulating curriculum, if we have furnished more scope for initiative and individuality than most schools, if we have been able to administer such a scheme more safely and soundly,—no small share of the praise should go to our esteemed colleague whom we honor here tonight.

Or take the Graduate School of Medicine. Dr. J. Clark Stewart perhaps furnished the germinal idea. When I came here the idea was sprouting. Dr. Moore was for it. Dr. Beard championed it. Dean Ford, Dr. Jackson and the rest of us gave it form and secured its right relations in the University. The giving of graduate degrees in clinical subjects is known as the Minnesota idea. It is one of the things we are proud of; and much credit for this achievement, as we look at it in retrospect, goes to him in whose honor we celebrate.

Or take the Mayo Foundation. In this case again the embryo idea was here when I came. There was division of opinion, which later became acrimonious. Dr. Beard was for it. He drew up the first papers, sketched the first definite picture, which formed the basis of discussion, criticism and betterment. He

gave his heart to this cause. And whatever the Mayo Foundation may amount to now is to be set down in no small figures in the debt which the University of Minnesota owes to this undaunted champion.

And what does the Mayo Foundation amount to now? You may hold what opinion you will as to its immediate and demonstrable value to the Medical School. It did not work out as an adjunct or as a part of the Undergraduate Medical School. The logic of events, the logic of Dr. Mayo's fundamental provision for the advanced education of doctors placed this great gift in the Graduate School. If we had foreseen this at the start it might have saved us from heartache. And now that it is accomplished and in the right way, no one who knows the facts can doubt that the Foundation adds distinction to the University of Minnesota, or that this distinction will grow as time goes on. For this distinction we add largely to our tribute to Dr. Beard.

Or take our further plans for the Medical School. Envisaged in the form of buildings, these plans contemplate the completion of Millard Hall and the Institute of Anatomy—two structures to the securing of funds for which and the erection of which Dr. Beard long ago devoted time and energy, and one of which bears within it everywhere the evidences of his activity. The plans involve further the increase of our hospital up to about 600 beds, with an appropriate out-patient building; and, further, a building for the School of Nursing for which our guest has already sweat, bled and died a good many times. When the Nurses' Building comes to be realized I suspect we shall find Dr. Beard's name engraved on every brick and stone, as "Calais" was engraved on Queen Mary's heart.

Now, on our planning committees from the earliest time, long before I came here, Dr. Beard has labored and his judgment and energy have been valuable.

There is another feature of our University relationships of which I should like to speak in this connection. There was a time when the Medical School stood aloof from the rest of the University. It took, one might almost say, a certain joy in being different; in being separate. When I came here I remarked that it almost seemed that there was a wall about the Medical Campus blocking it off from the rest of the University. All this has been changed. We are now amalgamated into the greater whole. Our programs interdigitate with those of the other colleges. Hundreds of students from other colleges take subjects in the Medical School and representatives of our departments sit on other faculties. We have come to realize the ideal that the Medical School is not an organization alone for the training of physicians, but rather is the custodian and reservoir of the medical sciences; the mechanism for supplying instruction in these sciences to all who desire such instruction either as the basis for a profession or as a part of a general education; and, finally, that the Medical School is the organization by which, through active research, these sciences may be forwarded and improved. I count this changed attitude of the Medical School as one of its finest achievements of the last ten years; and I gladly acknowledge the co-operation of Dr. Beard in this enterprise.

I might speak of other things—our technicians' course, our public health nursing course, the em-

balmers' course and other activities—but I can say in a word that there has not been an undertaking of our faculty in which Dr. Beard's initiative and counsel have not been represented.

I have reserved for the last the School of Nursing. Dr. Beard has gained distinction as a leader in nursing education. Our nursing school stands high among such institutions. It is, as you know, the first Nursing School of university rank. There is not a feature of it, alike in its organization, curriculum and administration, that does not bear the impress of Dr. Beard's labors. The central or combined school is a monument to him. When nursing education, the world over, becomes sound education rather than a cheap kind of trade-training founded on the exploitation of its apprentices, and when the history of this great monument is written down, Dr. Beard's name will appear as that of its pioneer and apostle,—like Horace Mann in public school education or Mary Lyon in the education of women.

I have attempted to set forth the facts of our activities for twelve years and Dr. Beard's relation to these activities, without exaggeration or fulsome eulogy. His earnestness, honesty of purpose and ceaseless activity are admirable characteristics. His love of his work, his belief in our high mission as medical educators, his ardent advocacy of high standards and his loyalty to the University are high lights in a career of almost forty years in this institution. I want to add one more thing which has stood out prominently in my experience with him. Like all men of strong opinions and ardent desires, Dr. Beard is a hard fighter. He maintains his position strongly to the last. But when the vote is taken and the decision made, if it happens to be against him, he does not sulk in his tent. He is, above all, a co-operative man, a team-player. And that quality, all too rare among strong men, he has displayed over and over again in my relations with him.

We trust that he may long remain with us as a counsellor and friend and that he may live to see the Medical School, whose small beginnings he witnessed and fostered, whose middle years he so largely helped to formulate and guide, become the great institution for good which his genius foresaw and his labors hastened. May he live in health, strength and happiness to see this consummation of his labors; and in that day, even as now, may he feel the acclaim of his thousands of students and his hosts of friends for one who honors and is honored by that choicest epithet: He was a teacher,—“A teacher of men!”

President Coffman then introduced Dr. Orville N. Meland, President of the Minnesota Medical Alumni, who responded on behalf of that Association:

Mr. Toastmaster, Dr. Beard, Ladies and Gentlemen:

One can hardly think of the Medical School without recalling its teachers. Of those teachers, one stands out prominently; not only because of his winning personality, but because of his untiring efforts in building up the School to what it is to-day.

We remember the time when the Department of Physiology consisted of two full-time men, Professor Beard and Professor Scott, and a part-time man, Dr. Russel Wilcox. Instruction was given in a large room which served as a laboratory, so filled up with

desks and apparatus that it was almost impossible to turn around in it. Another small room was used as the office and store-room. After two or more hours in the laboratory, we went to the amphitheater on the floor above, where we spent another hour on its uncomfortable straight-backed benches. Here it was that Dr. Beard lectured to us. He was always prompt. Stepping in briskly, he delivered a finished, very polished discourse on some physiologic subject, and then as promptly disappeared. Here was laid the foundation for our clinical medicine. Those days have changed. To-day the Department of Physiology is housed in new buildings;—it has a larger Staff; but its supporting structure was built years ago by this man we revere.

Tonight we are honoring the passing of this man. He is severing his official connection with the University. He has accomplished great things and he can look back upon those accomplishments. To us he has not changed. He is a little bit older, a little grayer, but his eye is still keen. To us he is the same Dr. Beard.

Dr. Beard, I wish to extend to you the congratulations, the love and the appreciation of the Alumni. We wish you God-speed. May your memories of the past be pleasant; may your dream of a greater Medical School become a reality.

President Coffman next introduced Dr. S. Marx White, who as chairman of the committee of arrangements for this testimonial occasion, spoke also on behalf of the Faculty.

Dr. White expressed his disappointment over the absence of Dr. William J. Mayo, from whom he read a telegram of regrets. He also read, in turn, telegrams or letters received from absent friends who had been unable to attend. These included Dr. Walter E. List, Superintendent of the Minneapolis General Hospital, Dr. James T. Christison, of the Department of Pediatrics, Dr. and Mrs. Leonard G. Rowntree and Dr. and Mrs. Harold E. Robertson, both men of the Mayo Foundation and formerly Chiefs of Departments in the Medical School; Dr. Ernest M. Hammes, of the Division of Nervous and Mental Diseases, Dr. Charles Lyman Greene, formerly Chief of the Department of Medicine, Drs. W. Starr Judd, William F. Braasch and H. A. Meyerding, of the Mayo Clinic; Dr. Emil S. Geist of the Department of Surgery; Dr. John G. Cross, formerly of the Department of Medicine; Dr. Karl H. Van Norman, Superintendent of the Charles T. Miller Hospital.

Dr. White then spoke as follows:

Having taken an active part in the preparation of the delightful experience of tonight, and realizing that Dr. Beard is somewhat in the position of the sweet girl graduate, in that he is stepping from one experience into another, as he will outline soon, I have to confess that I enjoy the rather unique distinction of having been here, as a member of the faculty of the University of Minnesota, longer, in

point of time, than any other member of the Administrative Board of the School, excepting himself, although I am one more recently appointed to a position on that Board.

It happens that Dr. Beard and I graduated from the same institution, the Northwestern University Medical School,—he a number of years earlier than I. I did just what he did, came immediately from that institution to Minneapolis, and, like our honored guest, have had reasons only for felicitation and none for regret since.

From the time Dr. Beard came here he occupied a prominent place in the medical profession of this city. It was within a couple of years after his arrival here that one day, in a medical meeting, stimulated by the presentation of some clinical problem, he discussed this problem from the standpoint of the physiologist, and, on the following day, was visited first by a member of the faculty of the Minnesota Hospital College and, on the day succeeding that, by a member of the St. Paul Medical College, each of whom offered him the Professorship of Physiology in his school. He could not accept both of these positions; and while he regrets, and probably will express this regret to the St. Paul members here tonight, his inability to accept the St. Paul position, yet, his acceptance of the Minneapolis post laid the foundation for a long and distinguished career in his special field. Out of these two schools was born, in 1888, the Medical School of the University of Minnesota. Dr. Beard was one of its promoters; he was appointed to the Chair of Physiology; he remains the last member of its original faculty in active service.

Almost immediately after his acceptance of the position he was elected secretary of the faculty and has carried the duties of the secretaryship of the Medical School ever since with the exception of about four years. He has shown in that capacity, in addition to the many other abilities he possesses, a tremendous ability in administrative matters.

One of my earliest recollections of Dr. Beard, and this was in about 1899 or 1900, gives a sidelight on his character which you will appreciate. My honored chief at that time was Dr. Wesbrook, then Professor of Pathology and Bacteriology and later Dean of the Medical School. Dr. Wesbrook's appreciation of Dr. Beard expressed to me at that time has been very characteristic of the situation ever since. We had a building in which the laboratories of the Medical School were housed and a number of heads of departments were together there. Dr. Beard in Physiology, Dr. Lee in Anatomy and Dr. Wesbrook in Pathology and Bacteriology; and each was compelled to be always fighting for more room, more money, more help and more students. After a particularly interesting, amicable and productive discussion,—always short of physical violence,—Dr. Wesbrook said to me: "As you get more and more interested in the affairs of the Medical School, there is one thing you must do and one man you must keep your eye on all the time. Keep your eye on Beard. He will get everything there is to get and then some." That has been characteristic of our honored guest of the evening.

Following these earlier years, there has been a long period of very great activity for Dr. Beard. The Medical School of the University of Minnesota has been distinguished as being manned by a group

with high ideals and great desires for the advancement of medical education. In all these years there has been no movement with which I have been personally acquainted which has not borne the impress of Dr. Beard's hand. He has had an active, effective and directing influence in all the advanced movements that have been made and they are many. If the Medical School of the University of Minnesota stands in the front rank, it is because of the efforts and initiative and idealism of a group of men, such as he, who in spite of discouragement, in spite of the slowness of progress, have kept their ideals before them and have never swerved in their devotion to the School, to medical education and to the profession.

Now at this time of retirement from an active position in the faculty, a time which might be spoken of as somewhat of a graduation, it is interesting to note that this man whose energy has been so boundless, whose perseverance has been so great, and whose contributions have been so eminent, is planning, not a cessation of his labors, but a step forward to something that is even bigger and, we hope, something that will be even better than the things of the past.

The Committee on Endowment and Building Funds of the Medical School has had, as its head, Dr. Beard and at this moment of laying down his teaching labors there appears to us to be an opportunity, unique, of which advantage should be taken. The Committee on Endowment and Building Funds has under way, with every prospect of success, a plan by which Dr. Beard's efforts in the upbuilding of the Medical School will continue his active participation in the work of the Committee, and I believe that the direction of his efforts will be even more effective, more pleasant, and more largely productive than in the past. I can state with confidence, my belief that we shall be enabled to retain him in connection with this Committee, and we hope that he will continue in the relation of general secretary at the heart of the work and will conduct the affairs of the organization in an effective and productive manner.

I am sure that when Dr. Beard rises to reply to the things that have been said to him and about him tonight, he will give us, not a backward look, but a look into the future, and will outline his greater plans for the Medical School. I think, therefore, that it is a matter for felicitation, for thankfulness on the part of this group, rather than for regret, that Dr. Beard steps out now from one performance to another.

The Toastmaster then called upon Miss Marion L. Vannier, Director of the School of Nursing, to speak on behalf of that unit. Miss Vannier said:

It is a pleasure to be able to express our very great appreciation of the service Dr. Beard has rendered to the cause of Nursing Education.

I feel that I am speaking not alone for the nurses of the University School, but for all nurses everywhere, when I say that he has our deepest gratitude and our enduring regard. Probably no other man is so well known to the nursing profession. His articles and published addresses on the subject of Nursing Education have been read and appreciated by thousands of nurses in this country and abroad:— in other words Dr. Beard is an international figure in the nursing world and it is largely through his

influence that the University of Minnesota School of Nursing has become so well and favorably known. Here, in the heart of the School and in that small group of interested teachers and administrators known as the Executive Committee, he has been a leading spirit. Ever since 1909, when the School was organized, he has served as secretary of this committee.

His faith in the value of educational ideals, his persistence and optimism in the face of difficulty, have been largely responsible for the life and growth of the School, and I am glad to announce that even though Dr. Beard is retiring from the faculty of the Medical School, he has agreed to continue his connection with the School of Nursing committee and I hope that during the coming years all of his ideals and ambitions for the School will be realized.

Even to the Nurses' Home! Dr. White says that Dr. Beard always gets what he goes after and we therefore have hope that we may yet succeed. I was told when I came here nine years ago that a new Nurses' Home was soon to be built. We have not got it yet! But—we *have* Dr. Beard!

The President then introduced Dr. J. C. Litzenberg, who spoke on behalf of the committee of arrangements of the evening, as follows:

President Coffman, Dr. Beard, Mr. Snyder, Ladies and Gentlemen: I wish I had the eloquence to express what is in my heart. I wish I were as well fitted in my command of the English language, as I am in my knowledge of Dr. Beard, to say what I desire to say on this occasion.

As Dean Lyon was talking, I thought I would have to make a correction of his use of the terms "Bolshevist" and "Conservative." You know there is a party, in between, called the "Progressive," and I would put Dr. Beard in that category.

He began his career in the Medical School somewhere around the age of 32. At 38 he was advocating the addition of a year to the three-year medical course. At 48 he was insisting upon a two-year college preparation. At 58 he was promoting fellowships for graduate students. At 68 he has the same vision for medical education that he had at 38, 48 and 58. Dr. Beard "retired" is an impossible conception. You couldn't make him stop working if you tried.

In order that our gratitude to you, Dr. Beard, might be put into words and into something of a permanent form, all of these friends have asked that an appreciation be presented to you on this occasion of your retirement from active teaching. This is an appreciation written by loving hearts, and I may add that it was made by an artist with loving hands. When I asked the Medical School Art Shop to do this, the head of the Art Shop asked that she might do it herself because of her long association with you and her admiration of you and your work. It gives me great pleasure to present to you this illuminated "appreciation" in behalf of your friends and admirers here assembled. It is signed by the President of the Board of Regents, the President of the University, the Dean of the Medical School, the President of the Alumni Association of the Medical School and the Director of the School of Nursing, and affixed to it is the official seal of the University of Minnesota.

President Coffman, in introducing the guest of the evening, said:

We are proud of our Medical School, just as we are proud of our University. We have made great progress in the development of the University and its various units in recent years. As far as the Medical School is concerned, this progress has been due largely to the splendid gifts which the institution has received, rather than to any large increase in State support. The hospital facilities of the University of Minnesota are almost entirely the result of gifts. The Elliot gift of 1907 started the movement. Since then, there have been other gifts. Mrs. Todd, Mrs. Gale and Mrs. Mapes presented the University with the sum of \$45,000, which was supplemented by \$110,000 of University funds which enabled the University to build an eye, ear, nose and throat hospital. The Citizens' Aid Society, at the instance of Mrs. George Christian, gave \$250,000 for the building and equipment of the Cancer Institute. Mr. William Henry Eustis gave in money and in property to the amount of \$1,500,000 for a children's hospital, a children's convalescent home and their endowment.

It is a fine thing for persons of private means to co-operate with the State in the building of a Medical School where young men and young women may study the science of medicine and nursing. If this movement continues, there is no reason why we should not have built here at the University of Minnesota as great a medical center as can be found anywhere in the world. This dream can be realized only by the co-operation of private and public capital.

Even with the gifts that have already been made, we shall still fall short of what we should accomplish. In addition to these, of course, there is the gift of the General Education Board of \$1,250,000 which when matched by \$2,350,000 will make a total of \$3,600,000 for the further development of medical education. As yet we have been unable to match the General Education Board gift. We are still hoping that means may be found to accomplish this purpose.

Proud as we are of our Medical School, its achievements, aims and purposes, we must still dedicate ourselves to the task of continuing its development if it is to be on a par with the leading medical schools of this country, and if it is to serve the people of this region as it should.

I am sure that in his response to the greetings of the evening, our guest, whom it is my pleasure to call upon, will bring us a message which looks to the larger future of the School.

Dr. Richard Olding Beard, in response to the addresses presented, said:

It is difficult to find words to express my grateful appreciation of the goodness and the friendship that have prompted you in arranging this occasion for me tonight. That it is nothing new in my experience of you only serves to quicken my feeling. This same sense of your friendship, this same assurance of your esteem, has been mine for these many years.

I am glad that you have adopted the comely fashion, growing comelier as it becomes more customary, of not waiting until "the pitcher is broken

at the fountain" before you attempt to measure its carrying capacity, to evaluate the service it has rendered, to note the human need it has sufficed, in its way, to meet; that instead you take such an opportunity as this to assure one of your kindly sense of the work he has done or tried to do, before he shall have reached the goal, to which we all move, when he would not perchance hear your assurances and could not feel the handclasp of those who wish him well.

It has been one of my rather unique duties, in the doing of which I have taken a strange satisfaction, to have written a memorial, on behalf of the faculty, of each one of its members who has passed away since the very beginnings of the School. The performance of that duty has been the more possible because of my intimate knowledge of the character and the sterling service of the men with whom I have worked; but, nevertheless, in the doing of it, I have often thought that we might better have written the memorial, better have spoken the words of it, put them into print, that the recipient might have read them before he had passed on.

Years ago, one day, I walked into the office of our dear old President Northrop to have him say to me,—“Beard, I want you to write for the coming exercises, (incident to the death of the first Dean of the School), a memorial to Dr. Perry H. Millard.” It was the first of the sadly long series of these tributes I have since undertaken, and I demurred, for there had been occasions of conflict between this militant Dean of the early day and his equally militant secretary. “But,” said the peace-loving Prexy, “you know the man and his virtues and his achievements better than anyone else knows them. That you and he have not always agreed should make your testimonial to him all the more telling.” I wrote, and I have always been glad to have written, that memorial to a really remarkable personality. There was much of power in the character of this man who organized the Medical School of the University of Minnesota. I have never re-read that memorial without a satisfying appreciation of the request of Dr. Northrop.

Years afterwards the old President said to me again: “There is something I want you to do for me. If I should go on into the other world before you do and should there be any occasion to write a memorial of me, I want you to write it.” And it is one of the rewarding events in my life that when he *had* passed on I was asked to represent the faculty of the University in laying this last tribute at the feet of the Grand Old Man of Minnesota. No duty could have conferred upon its doer any higher honor. And yet after I had written it and seen it in print, I wondered, again and again, to myself, if we might not far oftener have assured him of our love and loyalty while he yet lived. My thoughts went back to old Thomas Carlyle and his mournful cry, as he stood by the grave of the wife he had lost, “I loved thee, Jeanie, but I would that oftener I had told thee so.”

So, yet more fully and with deeper gratitude, I appreciate the kindly things that have been said of me and of my service to the Medical School of Minnesota tonight. I shall carry the memory of them with me always. I appreciate particularly the beautiful thought that has placed these sentiments, so beautifully expressed, into this permanent form.

When my friends approached me regarding the program of the evening it was suggested that I attempt some reminiscences, but I said that I would rather not. The past is of value only so far as it is funded into the present,—into the character of the men who have made the present what it is. Reminiscences always suggest something of regret and, personally, I have none. I want to assure President Snyder that in reaching my retiring age, in giving up my active membership in the faculty of the University, I am not in any-wise unhappy. I have nothing but satisfaction in the thought of the work I have done in the development of the Medical School, for it has been the love of my life. In thus coming to the time when I may be relieved of my teaching and executive duties I anticipate something of a sense of freedom. For forty years I have taught physiology and there are younger men, doubtless, who can do it now better than I. I shall enjoy an occasional opportunity still to lecture, perhaps to larger and more mature groups and upon chosen themes.

I have no idea that retirement for me means quitting. I am not going to quit. I expect to go on in the service of the Medical School and to enjoy the chance to choose my own form of work. As one of the immediate opportunities I am more than pleased to accept the continued direction of the work of the Committee on Endowment and Building Funds. I am delighted to have so able, so representative a body of men and women to work with me and I am sure that work we will.

I should not have declined the invitation to talk reminiscences to you tonight, I should not have taken up this forward-looking task if I had not had vision to see and faith to believe that this Medical School of ours has a large future. This occasion gives me an opportunity to leave with you a message,—an opportunity I may not so fittingly find at another time. It is a message which I may hope will leave some permanent impress upon your minds.

Abraham Flexner, in 1910, placed the Medical School of Minnesota in the front rank of the teaching institutions of the United States. If we are to keep it there it must be by a quick appreciation of the need to maintain its actual and its relative growth among other leading schools. If it is to take its place in coming years as the medical center which, geographically and educationally, it should take in the Northwest, it is well that we permit no grass to grow under our feet. It behooves the Board of Regents, the faculty, the alumni and an interested and beneficently-minded public to be up and doing. The people at large do not discharge their debt to modern medical science, in the matter of preventive as well as curative medicine, by the mere payment of professional fees when they are ill.

We enjoy, at the present moment, a fine vantage ground of support already gained or offered to us. We should not allow the failure of any individual or any public body to delay our acceptance of these offers or to thwart the development of the School's logical future.

It rests with the Board of Regents to determine methods of procedure; but the Medical School is, I believe, a unit in the belief that a readjustment of the offer of the General Education Board should be sought at the earliest possible moment, to the end that its two distinct problems—the one of Medical

School and University Hospital expansion, the other of the future location of the Minneapolis General Hospital—may be separately worked out and each without prejudice to the other. So we may be given the impetus to do our part toward our self-development—may be set free to work out our own salvation. And it can be worked out.

Whether or not the next legislature rises to its opportunity to aid in this development, the way can be found in this Northwest, as it is being found elsewhere, to meet the needs of medical progress. Never has there been so great an awakening of the American people to the value of human health as there is to-day; never has the interest of a beneficently-minded public in the promotion of medical education and research been so keen. Minnesota will prove no exception in meeting the rise of this tide of sympathy in the cause of health protection when her occasion for assistance comes.

What is necessary to make Minnesota a great medical school? True, something more than mere brick and stone masonry, fundamental as this physical expansion is. Six hundred hospital beds on the Campus, the completion of the two medical laboratory buildings, a nurses' hall, are physical necessities, but they will constitute only the shell into which the living kernel of our great growth is to be planted.

I remember well that when the committee of the Medical School appointed to work out the details of needed physical expansion reported to President Coffman, over a year ago, he said, "And now, gentlemen, you should be thinking about the question of maintenance, of support." The Committee on Endowment is the answer of the Medical School to that challenge. It proposes to help to answer that question.

Medical education, keeping pace with the growth of medical science, has become a necessarily expensive thing. Medical research is the essential stepping-stone to effective medical teaching and it, too, costs money.

A State-supported school cannot compete in these days with generously endowed institutions of medicine without something more than State appropriations.

It needs the larger revenue that will provide an adequate teaching staff, at adequate compensation, to command the highest order of ability.

It needs endowed chairs, particularly in the clinical branches, to permit the employment of full-time teachers at suitable salary.

It needs an equipment of modern type, perennially renewed to meet the improvements of the day, for the effective study of the human subject and the effective prevention, diagnosis and treatment of disease.

It needs an annual income for the upkeep of its library in the recognized classics and the current literature of the day.

It needs a fund for the foundation and support of a University Medical Press and the promotion of original authorship.

It needs a generous provision for teaching fellowships in number equal to its capacity to give to graduates abundant clinical material for study with unlimited opportunity of laboratory investigation, and to fulfill the need for this desirable type of assistant teaching.

It needs the means to extend to the profession of medicine, at large, ample opportunity in the renewable values of graduate study.

It needs endowment for the promotion of research alike in the fundamental medical sciences and in the constantly multiplying problems of preventive and remedial medicine.

These are the things that make for a great medical school and these are the things for which, in full measure, State support cannot provide. These are the things which, buildings aside, invite the beneficence of the lover of his kind. Their recital should kindle the imagination of teachers and students, alumni and professions—incite their interest in an evolution in which they all may share and in the attainment of which they all may lend a hand.

Not only has the Committee on Endowment and Building Funds prepared and distributed to the alumni in the past few months and is now distributing to the medical profession, literature descriptive of the School's need and the giver's opportunity, but it has initiated the endowment fund with a subscription by the graduating class of June, 1925, to the first unit share of one thousand dollars. The generous action of the "Boys" should serve as a stimulus to their colleagues in the profession and among the alumni. It is very interesting, at this juncture, to note the recent offer of the medical alumni association to assist in securing endowment for the School.

There is none of us who will deny the obligation of the School to its alumni. Of equal force is the obligation of the Alumni to the School. I am convinced that it will benefit both if in the near future the Alumni may have a substantial stake in the endowment of their Alma Mater, as they should have a substantial share in the guidance of its policies.

I cannot look into a large future for the Medical School in which the medical profession of the State does not play its part. There are few of us but deplore any past occasion of difference with its members. The School needs their cordial support. It hardly seems just that differences of judgment upon past events should alienate their interest or deny to the School their encouragement and help. I plead with you all that for your part and through your influence with your professional associates you seek to level the barriers which any such differences have raised. Let us ask the profession to forget dissension and to abate criticism; to get together and to think together and to think greatly in behalf of the School.

With a natural union of the naturally allied forces of the faculty, alumni and profession, there need be no limit to the natural growth of the School, to the spread of its influence, to the realization of the values it may render to the public "whose we are and whom we serve."

With the faith and the affection I hold and have held in the Medical School, from its beginning to the present day, I can see a large vision of its future and the future of medical education in Minnesota for which we have long hoped and waited, a vision that has sustained us through years of difficulty and doubt and disappointment and sustains us yet. A born optimist, I love to look into the horoscope of its future and find there something to work for still.

I see a School of sufficient capacity, its laboratories

adequately manned and equipped, its clinical material abundant to its teaching needs, opening wide its doors to every properly prepared and fitly selected student who would enter. I would tenaciously cling in such a school to the principle of intelligent selection of the human material which may fitly be educated by the State to serve the State in preventive and remedial medicine.

I see an equipment of hospital services, suitably endowed for the investigation of the causes of disease and the methods of their prevention; for the application of modern science upon the ever advancing crest of its progress to the diagnosis, the treatment and cure of disease. I see this hospital of the future the most effective mechanism for the restoration of the sick to health and to economic efficiency.

I see a medical library and a medical literature in the Minnesota school, complete and accessible, that will contribute its quota of funded influence to the education of graduate and undergraduate students alike; that will yield its gathered stores of literary wealth to the promotion of research; that will invite the use by the profession of a circulating system; that will serve to extend the knowledge of the people at large in the things that belong unto their health. I see the time when the University will take up the task of sending suitable information to the public, in the interest of the public health and in substitution of the miserable husks of knowledge fed to it by the lay and the pseudomedical press.

I see the Minnesota School making its large perennial contribution to the sum and the progress of medical science.

I see the widening of the limitless field of preventive medicine and public health, with physicians and public health nurses working hand in hand for the honoring and the building of better human bodies and the development of better human minds.

I see a medical and hospital campus around which a group of associated public and private hospitals will cluster, which will draw their resources of library, laboratory and nursing service from the institution's abundant stores.

I see the creation of an Institute of the Medical Sciences, grouping, under its administrative direction, the Medical School and the Colleges of Dentistry and Pharmacy, the School of Nursing, the School of Public Health and the special courses which prepare for the technical services of them all.

I see a medical school, again, of so high ideals and so generous proportions that it will attract great teachers and draw great scholars, and train, in turn, great educators and scientific investigators and clinical leaders who will mold the movement of their time in modern medicine.

I see a school whose graduates will be of so initial fitness, of so cultural preparation, of so thorough professional training that the University may fitly and unquestioningly set its seal upon them as a guaranty to the public that the health of mind and body, the issues of life and death, may be safely entrusted to their guiding hand.

I see a profession, born of such a school, that shall rise above the strifes and jealousies of other days, that shall no longer tolerate mediocrity and commercialism in its midst, that shall rise to the full conception of its obligation of service, that shall awaken to that sense of social consciousness which will compel the full exercise of its educational func-

tions for the benefit of the great mass of mankind, that will inspire and justify the public trust, that will make it the natural instigator and promoter of every measure for the public good.

May these things be in Minnesota!

In his closing comment upon Dr. Beard's address, President Coffman said:

Some people grow wiser as they grow older; some just grow older. We have had two persons at the University of Minnesota who apparently grew wiser as they grew older. I refer to Dr. Nachtrieb and Dr. Beard, both of whom are present here this evening.

Ever since these men became members of the staff of the University of Minnesota, they have insisted that laboratories are as essential to the development of science as books are to the humanities. It has not always been easy for the people of the state to appreciate this fundamental truth. This last year when we were discussing our biennial estimates with certain representatives of the Legislature, after I had drawn a picture of the kinds of people whom we should have upon the faculty, the salaries which we should pay such persons, and of the laboratories, facilities and equipment which we should supply for them, one member of the Legislature said, "Mr. Coffman, why do you need all these hospitals in connection with the Medical School? Cannot medicine, that is, all of medicine that is necessary, be

taught from text-books?" It seems clear that we still have a long distance to travel before we have fully educated the public to appreciate the picture which Dr. Beard has drawn.

As I said earlier in the evening, if we are able to induce persons of private means to co-operate with us so that the University of Minnesota receives gifts in amounts similar to those which Yale, Johns Hopkins, Western Reserve, the University of Chicago, and Leland Stanford receive for medical education, these gifts to be used to supplement the funds which the State is now devoting to the development of medical education, we can then have a school here which is unequaled among the schools of the world.

We should set our minds and hearts to the task of having not a second-rate school, but of having the best school that can possibly be made.

Now as we close, let me say that a generous share of Dr. Beard's achievements can be attributed to the comradeship and assistance of his wife. May we hope that he may have the comfort and guidance, the assistance and co-operation of this wise helper by his side for many years to come.

It seems as if the pleasures of the evening would not be complete unless each had an opportunity to express his wishes to these good people. I therefore suggest that Dr. and Mrs. Beard stand at the door so that we may, as we go out, wish for them a long life, filled with abundant happiness and untold opportunity for continued usefulness.

PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of May 13, 1925

The Minnesota Academy of Medicine held its regular monthly meeting at the Town and Country Club on Wednesday evening, May 13, 1925, at 8:00 p. m. In the absence of the President and Vice-President, the meeting was called to order by Dr. J. T. Christison. There were forty-seven members and one visitor present.

The minutes of the April meeting were read and approved.

Dr. Carl B. Drake (St. Paul) reported the following case of hemochromatosis:

The patient is a male, aged 47, whom I first observed at the Ancker Hospital two years ago. At that time he was complaining of a loss of about eighteen pounds of weight during the preceding seven months, marked weakness for a year, and a mass in the right abdomen, which he had noticed a month before and which seemed to be rapidly enlarging. His attention had been called a month before to a marked change in the color of his face and hands. He had been perfectly well up to a year previous to his admission to the hospital, at which time he had noticed dizziness and lassitude.

Born in Poland, he came to this country at the age of six. He had had measles in childhood. For eight years he had had some stiffness in his right knee. He had noticed some loss of hearing in the

right ear for the past three years, which did not seem to be progressing.

No family history of tuberculosis, cancer, or diabetes could be elicited. Venereal infection was denied. He had smoked cigarettes since childhood. He began drinking beer at the age of fourteen, taking an occasional drink. As a young man he was accustomed to drink about a pint or two of beer daily. Since his marriage, at the age of twenty-four, he has been in the habit of drinking half alcohol and hot water flavored with lemon very frequently and for a number of years three times a day before his meals. He denies ever having been intoxicated.

Examination at that time gave essentially the picture he presents tonight. His weight is 142 pounds, what it was two years ago, although he states he has lost and regained twenty-four pounds during the interval. The color of his face and neck suggests a deep tan, while the hands besides being dark are slate-tinged. Xanthomata are present on both upper and lower eyelids. There is no change in the pigmentation of the mucons membrane of the mouth, the skin of the axille, nipples, pubic region, or feet. There is no adenitis or jaundice present. The abdomen is moderately enlarged, and a mass continuous with the liver extends downward some three fingers' breadth below the level of the umbilicus on the right and corresponds to a marked enlargement of the liver lobe on the left. The lower border is distinctly sharp and indurated. Splenic dullness is increased but the border of the spleen is

not palpable. No ascites can be determined. Physical examination fails to show other abnormalities.

Blood pressure two years ago was 110/70. Repeated examination of the urine failed to show the presence of bile or other abnormality.

Blood examination was Hb., 70 per cent; r. b. c., 2,700,000; w. b. c., 8,200; and a normal differential count. The blood Wassermann was negative.

The roentgenogram of the stomach failed to show any filling defect, but the stomach and colon were distinctly pushed to the left and downward, respectively.

The patient lost weight during his month's stay in the hospital and weighed 118 pounds on discharge. A neoplasm affecting the liver was suspected and Roentgen-ray treatment was advised but only one treatment was given.

The patient was lost sight of until yesterday (May 12, 1925). He states he has had great difficulty in obtaining any work he can do because he cannot pass a physical examination. He feels stronger, can walk several miles without difficulty, and has gained in weight from 118 to 142 pounds. He thinks his abdomen is slightly smaller and the pigmentation of his hands somewhat less than two years ago.

The patient appears somewhat improved, due doubtless to his gain in weight. Blood examination now is: Hb., 85 per cent; r. b. c., 4,500,000; w. b. c., 4,600. The urine is normal. Fluoroscopy shows no mediastinal thickening. There is poor excursion of the diaphragm on respiration, and the dome of the liver extends nearly to the nipple level on the right. Blood pressure is 114/76.

Diagnosis: Hemochromatosis.

In 1882 Hanot and Chauffard reported two cases of diabetes mellitus associated with hypertrophic cirrhosis of the liver and a bronze-like pigmentation of the exposed surfaces of the skin. In the next few years several similar cases of so-called bronzed diabetes were reported by other writers.

In 1899 von Recklinghausen described a condition of general pigmentation of the viscera which he called *hemochromatosis* and pointed out its relation to bronzed diabetes. He described two forms of pigment present, one the brown pigment, hemosiderin, which reacted to iron tests and which was found disseminated throughout the liver and pancreas particularly, but also in the lymph glands and skin. The other pigment, hemofuscin, ochre-yellow in color, which did not react to tests for iron, was found in the smooth muscles of the stomach and intestines particularly.

About a hundred cases of hemochromatosis have been reported to date.

In 1921 Blanton and Healy summarized the eighty-one cases so far reported. The liver in such cases is enlarged and cirrhotic due to both intra- and extra-cellular deposits of pigment—for the most part hemosiderin. The pancreas is golden bronze or brown in color and fibrotic, the islands of Langerhans being rarely affected. Eighty-five per cent of the cases reported had shown sugar in the urine. The spleen varied in size and the abdominal lymph nodes particularly showed brown or chocolate-colored changes. Iron pigment was found in the skin in small amounts in only half of the cases reported.

Explanation as to the cause of the disease has for the most part been theoretical. The picture

points to a toxic agent affecting liver cells particularly and possibly red cells also, although anemia is not the rule. If red cells are abnormally destroyed, the destruction is kept pace with by new cell formation. We do know that hemosiderin deposits are found in pernicious anemia also.

A recent contribution to the subject has been made by Mallory, who reported in the January, 1925, number of the *American Journal of Pathology*, the finding of ten cases with pigmentation of the viscera justifying the diagnosis of hemochromatosis in a series of 288 necropsies performed during the year ending March 1, 1923, at the Boston City Hospital. Just as astonishing was the failure to find a single case in the following year.

The two outstanding features in the study of these ten cases was the frequent history of the excessive use of alcohol and the exposure to copper-poisoning in the trades. Suspecting that the two factors were related, investigations were made.

Rabbits were administered copper orally, intravenously, and subcutaneously with resulting hemofuscin deposits in the liver and other organs. Analysis was then made of numerous alcoholic beverages. Whereas wines tested contained in most instances only a fraction of a milligram of copper per liter, and many specimens of distilled liquors contained less than 10 mgm. of copper per liter, enormous quantities of copper were found in some specimens of moonshine. One sample contained as high as 1250 mgm. of copper per liter, corresponding in toxicity to 4.95 c.c. of copper sulphate.

The logical conclusion is that hemochromatosis is the result of copper poisoning. Mallory states that, whereas the human organism can tolerate small doses of copper, the excessive absorption of copper over a prolonged period of years produces the picture of hemochromatosis. When the pancreas becomes sufficiently affected, diabetes mellitus complicates the picture.

As sources of copper poisoning, Mallory points out:

1. Distilled liquor contaminated with copper dissolved from copper condensers by action of volatile organic acids (citric and acetic) distilled over with the alcohol.

2. Occupations in which copper is absorbed by inhalation of dust or handling.

3. Acid foods (fatty acids in lard, organic acids in jellies, candies, etc.) cooked in copper vessels.

My patient is the picture of hemochromatosis. The low blood pressure and gastric crises of Addison's disease are lacking. The duration is too long for a neoplasm involving the liver. There is no history of poisoning from arsenic or silver. History of lues is lacking, and the Wassermann is negative. The lack of jaundice is against a Hanot's cirrhosis.

Diabetes is likely to develop, and the patient has been warned to cease the use of alcohol.

DISCUSSION

DR. L. A. NIPPERT: Dr. Drake's reference to the necessity of taking a careful history is illustrated by the history of a farmer who complained of persistent cough and expectoration, which troubled him for several years. Nothing definite was found on physical examination but the fluoroscope showed black deposits scattered throughout both lungs. On further questioning it was found that he had worked in a copper mine for fifteen years before he became a farmer nine years ago.

Dr. A. C. Strachauer (Minneapolis) reported a case of resection of two-thirds of the stomach for a large ulcer, the interest in the case being on account of the pre-operative diagnosis of carcinoma of the stomach so advanced as to probably be inoperable.

Patient, Henry P., aged 63, was admitted to the medical service of the University Hospital complaining of cardiac symptoms, with nausea, weakness, and loss of appetite. When seen in consultation by the staff of the surgical service, the patient's hemoglobin was 28 per cent; r. b. c., 1,820,000; w. b. c., 7,800; free HCl, 0; total, 0; stools positive for blood. Fluoroscopic examination showed a large filling defect on the lesser curvature of the stomach, believed to be cancer. As there was no evidence of any metastasis, the cul-de-sac being negative on rectal examination and the supraclavicular findings negative, it was felt that the only hope for the patient was through operation. Two pre-operative blood transfusions were given, raising the hemoglobin up to 34 per cent and the red blood cells to 2,100,000.

Operation: On opening the abdomen a large lesion with a crater was exposed on the lesser curvature of the stomach. The contents of the peritoneal cavity were otherwise negative. The mass grossly appeared to be malignant, but was local and removable; therefore, an excision of two-thirds of the stomach with cautery and a polyanastomosis with jejunal loop about fourteen inches from the duodenojejunal angle was done.

The patient was transfused again on the evening following the operation. There was no vomiting or distension, and save for transient auricular fibrillation on the day following the operation, convalescence was uneventful.

Microscopic examination by the University Hospital pathologist showed benign ulcer.

It is impossible to decide by the appearance of a certain large, limited group of ulcers of the stomach whether the lesion is benign or malignant. These lesions should always be removed whenever possible and microscopic examination made. Many carcinomas have been operated on under the diagnosis of simple ulcer of the stomach, gastro-enterostomy alone being performed or incomplete destruction by the cautery; the patient, after a time, died from carcinoma. Likewise, massive benign ulcers of the stomach have, erroneously, been considered inoperable, as in the above case.

Transfusion of blood should be resorted to more frequently in the pre-operative preparation of the patient. The procedure forces the resistance in extra hazardous cases and makes operable what would otherwise be an inoperable case.

Dr. A. A. Law (Minneapolis) reported three cases of malignancy of the gall-bladder.

Dr. F. E. Burch (St. Paul) read a paper entitled "Ophthalmoscopic Evidence of General Circulatory Disease," and showed lantern slides.

DISCUSSION

DR. MURRAY: The subject of retinal arteriosclerosis is one of a great deal of interest not only to the ophthalmologist, but to the internist. A great many

of these patients first come to the ophthalmologist complaining of eyestrain, blurred vision, headache, dizziness, and other symptoms of eyestrain. It is of very great importance to the ophthalmologist to study all these cases carefully to see these changes. When changes occur in the retina in the course of arteriosclerosis, and they are gross changes, they are very easily recognized. Dr. Burch pointed out the changes seen in those cases. But in the early cases, in cases of hyperpiesis where fundus changes are not so marked, it is important to find them at that time. Lesions in the retina are not always good indications of the type of arteriosclerosis. There are certain changes which are found in the early stages of arteriosclerosis. Instead of having contracted arteries we often see broad arteries, full arteries with broader light reflexes. Sometimes at that stage we find a hyperemic disc, and it is important to make a very careful study of the fundus.

When we attempt to classify the types of arteriosclerosis by the changes that occur in the retinal vessels we get into a rather difficult subject. If we have a case of essential hypertension, we get, usually, certain changes in the fundus, but they may vary a great deal. I refer to the cases in which there are no renal or cardiac changes. In one of the cases Dr. Burch showed you, which I had under observation, there have been no renal changes at any time. That case showed rather marked retinal changes present, that is, narrowing of the arteries with increased light reflex, compression of the veins by arteries, also hemorrhages and areas of exudate; she had fundus changes, which might have indicated hypertension plus nephritis, although the exudates did not appear as in albuminuric retinitis. This particular case had hemorrhages; the areas of exudates disappeared, and others have followed. This case also had a cerebral hemorrhage from which she recovered. About six months after the picture was taken, the patient died from abdominal hemorrhage from the mesenteric vessels.

These cases are important from a prognostic standpoint, as the condition of the retinal vessels is some indication of the condition of the cerebral vessels. I do not think Dr. Burch referred to Moore's report on this. I believe he reported on forty-four cases of cerebral hemorrhage, in which 70 per cent showed arteriosclerosis in the retinal vessels and 30 per cent showed no fundus changes.

These cases are of interest to the internists and I hope we will hear from them as to the value of ophthalmoscopic examinations in these cases.

DR. FULTON: It is not as a mere matter of form that I compliment Dr. Burch on his excellent paper, for its practical merit must be apparent to every member of the Academy who has had the very great privilege of listening to it. It will be an extremely useful document to refer to and to study in the future.

I have recently read a paper, by the same author, in which he takes up the relationship of high blood pressure and vascular diseases to cataract operative procedures. In this paper he has worked up some very valuable tables which are most useful in bringing about a more thorough understanding in regard to the relationship of these conditions and in the end are instrumental in producing the best possible results for the relief of such eye conditions.

In the early stages of cataract and in monocular cataracts, the ophthalmoscope gives valuable information as to the condition of the blood vessels, local and systemic. Recently I have devoted considerable time to the study of tuberculous disease of the eye. Here again this instrument is our most valuable aid.

For a long time we believed that the retina was an index for the study of kidney conditions, and that the kidney condition was the chief causative factor of retinal pathology. We are now aware, however, that nephritis may not produce retinitis any more than retinitis can produce nephritis. There is a retinal picture consisting of cork-screw arteries, kinked veins, small white spots seen in all parts of the retina, especially around the macula, and a brick-dust colored disc which were looked upon as indicative of high blood pressure due to kidney complications, but this condition may be met with independent of any kidney trouble; but when to this condition there is quickly added edema, hemorrhages, and numerous white foci, we know we have a development of parenchymatous nephritis and the end of the patient is near at hand.

I agree with Dr. Burch in his comments upon thrombosis of the retinal veins. A careful ophthalmologic study of this condition has been made by a number of oculists recently, and many cases reported. It may exist with or without systemic disease. Most of the cases I have met with have been traced to a septic focus, the removal of which brings prompt relief to this form of retinal trouble. The prognosis is always extremely favorable, especially when the pathology is confined to the branches of the central retinal vein.

The pictures shown here tonight illustrate in a very thorough and satisfactory manner the vascular diseases of the fundus, as seen by the ophthalmoscope.

The internist has much to explain in regard to blood pressure. We sometimes find a vast difference in the blood tension of the right and the left arm. Blood pressure in normal blood vessels, even as high as 200, is not considered dangerous if the walls of the vessels are normal. So contradictory are the results of the blood tension taken by different doctors at different times as to indicate that the instruments used for this purpose are not as reliable as they should be. They do not seem to be as accurate as those the oculists use for taking the tension of the eye. By means of the tenometer, associated with the dynamometer, not only an accurate measurement of ocular tension, but an accurate estimate of the retinal arterial blood pressure is obtainable.

This paper indicates to us very forcibly that an accurate knowledge of the fundus conditions as revealed by the ophthalmoscope aids us very materially in obtaining a correct diagnosis, prognosis and treatment of patients with diseases of the heart, blood vessels, and kidneys, as well as intracranial diseases.

DR. BURCH (in closing): I am very grateful for this discussion.

I wish to call your attention to the use of the electric ophthalmoscope leading to errors in interpretation of the light reflex. The ophthalmoscope which had a beaded lens in the tiny lamp often exaggerated the reflex. If we use the slit mirror

ophthalmoscope with the softer light we find it makes a great difference.

The classification of circulatory and renal diseases is not clear in the minds of the ophthalmologists, but by discussions between ophthalmologists, internists and pathologists, we are acquiring information that eventually will permit us to know how to interpret these changes much more correctly than we do today.

Dr. E. S. Judd (Rochester) gave a "Review of the Results of Operations on the Biliary Tract and Pancreas." Lantern slides and charts were shown.

DISCUSSION

DR. MANN: This has been an exceedingly interesting series of points all along the line. I wish only to touch on one or two phases, and one is the early diagnosis of chronic cholecystitis. I think we all realize that the diagnosis has been difficult to make; that in the past—or a few years ago, at least—almost no diagnosis was made unless it was of gall-stones, and now we feel that gall-stones are simply an end-process in this inflammation of the gall-bladder and come fifteen to twenty years after inflammation of the gall-bladder first begins. Exactly as the early diagnosis of appendicitis used to rest on abscess, a perforation, or a gangrene, and in the early stages was not diagnosed, so it has been even a longer time before we have been able to come to an early diagnosis of chronic cholecystitis.

We had a series of very interesting cases which showed symptoms which did not point to the gall-bladder, and in many of which there was no diagnosis made. These cases had been studied before; some in various clinics and by various groups of men, and without any adequate diagnosis. The internist and myself studied these cases, making an intensive study of them. In all of these a test-meal was given, and a full fluoroscopic and laboratory examination was made, and they were completely studied from the medical side. We had definite hours each week in which to go over those cases which seemed to be nearest a diagnosis.

The first case which came to operation was a young man who had so much disability that he was hardly able to work. He had symptoms which pointed to chronic appendicitis, or to chronic ulcer of the duodenum or stomach, or to abdominal adhesions, and not definitely to the gall-bladder. There was no history of colic. Most of these cases give no history of colic. We looked this man over carefully; all the findings were negative. He had moderate tenderness over the gall-bladder. By putting him on the table and having him bend forward, with his arms hanging free, we could get under the ribs a little better than we had been able to before. On pressure he was tender over the gall-bladder area in this position. When he was flat on his back we could hardly tell.

Here, then, we had a man who had been under treatment for over a year, who had not worked because he was not well enough to work, and on whom no diagnosis had been made. He had abdominal symptoms which constituted a real disability, and had tenderness over the gall-bladder. I told him he might have a gall-bladder, but we could not say definitely. He said "If there is any-

thing you can do, I want you to do it," so we tried. He had a gall-bladder that did not look much changed from the normal. The liver had a few little markings on it, like streaks of connective-tissue markings from a chronic localized hepatitis, radiating out from the gall-bladder margin of the liver. I did a cholecystectomy on him, and the microscope showed definitely a chronic cholecystitis.

We selected one or two more which came near this one in type of symptoms and operated on them. The operative findings were similar. In the end 240 (or more) patients were carefully re-studied and out of that number we selected 57 for operation. Every one of the 57 showed pathological changes in the laboratory. The changes in the liver were very interesting. They were similar in type, but varied in the degree of the changes. In the first grade—perhaps about 25 per cent—we could not see any change with the eye. In the rest we could see changes. We studied these latter in a series of 4. In the first group we could see faint markings on the upper surface of the liver. The gall-bladders were more adherent to the liver. In these would be vein-like markings more evident on the upper than on the lower surface of the liver. The second grade would be definite streaks going from the gall-bladder margin of the liver, radiating like a fan. In the third class we found areas in which the connective tissue in the liver was more dense and in grooves near the gall-bladder margin, which left the liver substance more or less in spindle-shaped masses between the grooves of contracted connective tissue, the result of a prolonged chronic hepatitis spreading from the gall-bladder region as a center. Then we got a few cases in this series in which the whole edge was atrophied like a half-moon, the color was like greyish wet leather with the streaks running fan-like beyond it; so we felt that that was the end-result of the chronic localized hepatitis which we noticed as faint markings in the first grade. This constitutes the fourth grade of the chronic localized hepatitis.

In the whole series of cases we tried to get some kind of a history which would lead us to a diagnosis, but we could not. The patients all showed some abdominal disturbance, usually connected with definite indigestion and associated with pain or distress, and causing a definite disability. There was no colic in most of the cases. But there was, first, definite disability; and, secondly, definite tenderness over the gall-bladder area. So I think we can move ahead and make a diagnosis in these chronic cases on those two points, after all other probable diagnoses are carefully ruled out. First, a long history of abdominal pain or distress usually associated more or less with digestive disturbances and constituting a real disability; and, second, definite tenderness over the gall-bladder area.

DR. DUNSMOOR: I am tremendously interested in such a presentation as Dr. Judd's, particularly with that reference showing that the real pathology does not always depend upon gall-stones being present, and I agree most thoroughly with his deduction that the gravity is decidedly increased when associated with pancreatitis or an obstructive jaundice without gall-stones. I am confident that pneumonia is no more frequent in biliary operations than in cases depending upon any other pathology which is above the level of the umbilicus. I personally believe

that surgical pneumonias follow most frequently those cases which have severe shock, which permits the pneumococcus to get the best of the fight before reaction sets in. Operations involving injury to the splanchnic system easily produce more shock than others save where there has been tremendous hemorrhage.

I am very much pleased with what Dr. Judd says about care in reducing obesity before operating. I am positive that any such procedure should antedate for a long time an operation, and then allow the patient to begin the upgrade diet before operating. Recently I operated for gall-stones on two women who each weighed over 400 pounds, and as both made a complete recovery they support my theory.

DR. FARR: I am sure that Dr. Judd has brought out many important points based, as they are, on a great deal of experience. I wish only to refer to two particular features in this discussion. One relates to the incidence of pneumonia and the other to local anesthesia as an aid in making diagnosis.

I am glad to find that Dr. Judd's position is opposed to that taken by his chief who recently stated that as most pneumonias are embolic in origin, the kind of anesthesia makes but little difference. It is my belief that even if pneumonia is embolic in its origin, the healthy lung is better able to cope with the process than is the lung which is water-logged with infectious material from the nasopharynx,—a condition which frequently results when general anesthesia has been given.

The second point relates to the question of local anesthesia as an aid in making diagnoses. I wish to refer to what we have termed the "physiologic test." We first made use of this test many years ago in differentiating between the appendix and a right ovarian cyst as the cause of the patient's symptoms. We have now tested the method many times and believe that when traction upon a suspected organ reproduces the patient's symptoms, this organ is apt to be the seat of the disease. Today I operated on a dentist, thirty years of age, who had been sick for three years. He had been on bowel management for a number of months, and his main symptom was pain in the left upper quadrant, especially late at night. He was slightly tender over the gall-bladder, and pressure over his appendix region caused referred pain on the left side. I inspected his organs at operation; the gall-bladder was white, and thick and there was one enlarged gland near its base. The appendix was retrocecal and obviously pathologic. Traction upon the appendix, however, did not reproduce his symptoms. After the removal of the appendix his gall-bladder was grasped and by making traction his former symptoms could be reproduced. This test was made four or five times, and each time the patient complained of pain in the left side.

I would suggest therefore, that surgeons familiarize themselves with local anesthesia and use it in abdominal surgery, in which case a very large percentage of this work can be done without special difficulty. I would further suggest that by the use of the "physiologic test" we may perhaps have a means of cleaning up the diagnosis in the case of obscure intraperitoneal lesions.

DR. L. A. NIPPERT: Dr. Judd's most instructive paper reminds me of the introduction to the discus-

sion of gall-bladder disease by Dr. Ochsner, of Chicago, which he read before the Hennepin County Medical Society twenty or twenty-five years ago. He stated that while on a visit to a small town in Minnesota he asked his friend, the doctor in charge of the hospital, how it came about that in this small town he had so many operations for gall-bladder disease when in the great city of Chicago he himself saw so few. The doctor replied "That is very simple: we diagnose our cases." Then Dr. Ochsner stated that he began to think over so many chronic cases of indigestion that troubled him year in and year out, and began to suspect gall-bladder disease, operated, and cured them. Suspecting an illness is often the first step to a correct diagnosis.

DR. STRACHAUER: I would like to ask Dr. Judd how much significance he attaches to a subserous deposit of fat in the gall-bladder?

DR. JADD (in closing): We are having a very interesting time in finding out just how much can be accomplished by the use of the x-ray in making a diagnosis. Dr. Carman of our x-ray laboratory is very much interested in the Graham test. That it does show the gall-bladder there is no doubt, but the question arises as to the interpretation of the findings. He is quite enthusiastic over what he has been able to accomplish with it to date, and we feel that we are learning just a little more about this each day. If the gall-bladder is taken out, the pathologists are pretty sure to agree that it shows some evidence of inflammation.

For a long time we have endeavored to determine the exact significance of fatty deposits in the wall of the gall-bladder and also of the enlargement of the regional lymphatics, which Dr. Deaver so frequently mentions. These were some of the problems presented in our cases of Group I cholecystitis. So far as our present knowledge is concerned, the only point on which we can base a diagnosis in the absence of definite findings of gall-bladder disease at the time of operation, is the history of attacks of pain such as occur in the presence of known gall-bladder disease.

The more often one investigates the liver, the more he is impressed by the fact that the white lines in the liver and the changes in its appearance which we have attributed to primary infection of the gall-bladder frequently exist in patients who have no history of gall-bladder trouble and in whom we are unable to find evidence of inflammation in the gall-bladder. We have observed it in exploring cases of ulcer and appendicitis. If a section of liver is excised and microscopic study made, you will always find round cell infiltration, and a condition which you will be obliged to call hepatitis.

The point which I wish to bring out is that if we study a large group of cases of early cholecystitis from the standpoint of end-results, we shall find that the percentage of cures will run very low unless the operation is based on a good clinical history in which the chief complaint was of attacks of colicky pain. Sometimes dyspepsia, migraine, and arthritis apparently improve after removal of the gall-bladder.

—JOHN E. HYNES, M.D.

Secretary.

BOOK NOTICES

PRACTICAL MEDICINE SERIES. Eye, Ear, Nose, and Throat, Vol. 3. Edited by George H. Weaver, M.D., Lawrason Brown, M.D., Robert B. Preble, A.M., M.D., Bertram W. Sippy, M.D., Ralph C. Brown, B. S., M.D. Series 1923. Chicago: The Year Book Publishers.

This year's volume maintains the high standard established in the past by its distinguished editors. The difficult task of selecting from a literature, which each year grows more voluminous, those contributions of the most practical clinical value and abstracting them without sacrificing clearness to brevity has been performed with a skill born of thorough technical knowledge and wide clinical experience. The past year has been productive of an unusual amount of work of real merit and significance, especially in rhinology and laryngology. This is covered with surprising thoroughness in this little volume.

—ARTHUR EDWARD SMITH, M.D.

PRINCIPLES AND PRACTICE OF OBSTETRICS. By Joseph B. DeLee, A.M., M.D. Professor of Obstetrics at the Northwestern Medical School. Fourth edition, thoroughly Revised. Large octavo of 1,123 pages, with 923 illustrations, 201 of them in colors. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$12.00 net.

This volume has been thoroughly revised, and the illustrations redrawn. The theory less changed but other text largely improved.

A strongly conservative attitude "in order to stem the tide of obstetric operation so prevalent and with frightful maternal and infant mortality attending" is expressed. Hence close lines are drawn for both operative and therapeutic measures. It is good to read when one notes the prevalent activity of obstetricians in positions of leadership.

The emphasis given to prenatal care; injuries of pelvic fascia and floor; prevention of milder infections; sepsis in the home etc. is at the forefront of the best thought.

The surgery of the low Cesarean section is the best example of the progressive and worthy labors of the author. The foundation laid in thirty-two years of practice and fourteen of teaching with the tabulated results of this particular operation, above 300 justifies the brief positive advocacy of the method.

The author with many another physician, deplors the paucity of data in regard to the endocrinal aspects of obstetrics and pregnancy.

His advice in use of pituitrin; the protection of the birth canal from infected bath water; the mechanism and slight worth of the Walcher position; treatment of the rigid cervix; injuries of the skull of the infant in delivery; and many another on almost every page evidence the mine of value to the practicing obstetrician.

The bibliography and the volume make a library that is wonderfully complete and up to date. A great exception is Osler's *Dictum* that the textbook is out of date soon after publication.

—GEO. D. HAGGARD, M.D.

THE JOURNAL-LANCET

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PUBLIC HEALTH CONTROL IN RURAL DISTRICTS

The recent epidemics which have passed over the country, and particularly those of last winter, have caused very serious inconvenience in many rural districts. An illustration of what may occur is furnished by the history of a small town epidemic where there is no health officer. This town began, with the rest of the state, by having a smallpox epidemic which raged through the winter and which was apparently uncontrolled. The mortality rate was about as one would expect. Then gradually the epidemic faded out or at least faded down, but it was followed by a very extensive invasion of scarlet fever throughout the community, not only in the town itself, but in the sparsely settled surrounding districts. This was apparently uncontrolled. More recently the same town has been the victim of a typhoid invasion, and, although the carrier was discovered, it was impossible to prevent the spread of typhoid. Epidemics of poliomyelitis are reported in some communities in the state, particularly in the one cited, and there is a great deal of indifference on the part of the people. This is presumed to be so even in the larger cities. In the farming districts, neighbors seem to think it is their duty to go and visit in the sick-room, and not infrequently there are from two to four people in the same room with the patient suffering from typhoid. Consequently it is not incon-

ceivable that some of these people should carry away, either through water or milk, or by other means, the typhoid germ.

The community as a whole seems to be rather at a standstill. It does not know what to do, and it does not know what not to do. They have no health officer, and this is sometimes explained on the ground that there are one or two physicians in the town, perhaps not always agreeable one with the other. The man who may be appointed health officer usually declines the appointment, first, because the work would interfere with his own individual business, and he does not want to get into trouble with the patients or the community, hence he either winks at the procedure or just openly pays no attention. If the other doctor should be the one appointed in the same official capacity, he does the same thing as his predecessor, and sometimes the lot of the health officer falls to the undertaker—rather a peculiar combination of things. But this shows the fear and the lack of courage to control an epidemic of communicable diseases which could have been successfully nipped if taken in time. The State Board of Health sends their inspectors to the place to give advice, but there is no officer to whom it can delegate authority to act. The result is that the State loses out in the control of communities.

The real trouble, then, is up to the people. Shall we antagonize the quarantining of houses, or shall we let the epidemic run its course? And the latter course is followed, because evidently no one cares or no one has courage enough to command the situation and prevent the spread of the disease.

A local health board should be formed of the prominent business men, who, through the authority which may be vested in it by the State Board of Health, could demand that the health of the community be protected, but it is quite likely that a merchant or other business man being confronted with the problem would decline just as the doctor declined. He is afraid it will hurt his business, and his business, to him, is much more important than the fact that the community is free from epidemic diseases.

HAVE YOU HAD YOUR VACATION?

This is a throttling part of the year. To do or not to do. To "vacate" or to stay at home is a very difficult question to decide. Should one leave a comfortable place and go to one that is uncomfortable? Should one travel and see the sights, go abroad and see other lands, all pro-

vided there is money somewhere that can carry out the project successfully?

Somehow there seems to be a shortage of funds for the average man and his family. True, he owns an automobile or two, but he cannot leave his business, he cannot spend his time in an illogical effort to regain his lost health when he is perfectly well. Thus, vacation time is a sort of state of mind, a habit. People leave town because other people do so. They go to places where other people go. Fortunately, there are a great many people who love the out-of-doors, and they love to fish and hunt and roam around and sleep in tents or shacks with other insects, and, strange to say, they get along with poor food and seem to thrive on it. Perhaps because the food is not good they eat less. The probable joy in everyone's vacation is that one is soon going back home to comfort and properly prepared food and fairly comfortable beds.

The writer had an argument with a patient sometime ago when she consulted him as to how she should take her vacation, and where she should go. She announced with great firmness and determination that she hated tents; she would not live in a shack; she disliked resorts. She had visited many mountain resorts, both east and west. She intimated that she was too tired to travel. The discussion was somewhat prolonged, but it ended by the patient going down to the hospital and going to bed for three weeks' rest, which did her a great deal of good and relieved her of all the inconveniences of travel and selection of a camping site or a so-called resort place. She got up feeling encouraged and strengthened and feeling that she had profited thereby; and, what is more important, the expense was not so great as if she had gone on a vacation.

But medical men need vacations; that is, they need to get away from the routine of business and either meet their fellow men who are not doctors or go, as many of them do, to northern resorts where they can feed the mosquitoes and other delectable animals or where they can fish in spite of mosquitoes, and where they can enjoy a form of Andy Gump's fishing trips, and return home wonderfully encouraged. Unfortunately, a good many who go on vacations come back very tired, and they need to be put to bed for two or three weeks in order to restore their equilibrium and enable them to resume their practice. The lure of the woods, the automobile, and the fishing tackle is great to some. The automobilist rolls over the roads, occasionally stopping to fix a tire or repair engine trouble, until he gets to the lake,

to the woods, the great out-of-doors, and then he tells with a perfectly straight face that he is having a marvelous time, and yet everybody knows that he is lying!

On the other hand, there is the man who takes his vacation by playing golf three or four times a week, and, if anything can distract a man's attention, it is to walk around the links and follow a golf ball. He certainly gets away from his worries and troubles and is out in the open air where he enjoys the game, or, at least, if you can believe him, he does. Then he gets into tournaments, and thereafter his talk is largely the golf type of talk. He thinks tees and balls and clubs, and he wonders why other people do not do the same thing. And, because of this enthusiasm and because of the imitation of the human kind, a lot of men start out to play golf. They are men who are over 55; they have never had any exercise except that of turning around in a swivel chair, and they think they need to play the game. They do, but not that way. They get over-enthusiastic, and they play longer and make more strenuous efforts than they are aware of, and not infrequently they come to grief. The man who contemplates playing golf after he is 50 should consult a physician before he undertakes the game and should abide by the advice of his physician. Perhaps it might not be inadmissible to suggest that in selecting a physician he select one that is not a golf enthusiast! Some of these players will play forty or fifty holes a day and incidentally will walk fifteen miles, and yet if you ask them to go ten miles and back on foot they would laugh at you, notwithstanding the fact that they are in the great out-of-doors; but the lure of the game is not there. We venture to say if they carried a golf club in place of a cane, and had a couple of golf balls in their pockets to take out and look at once in a while, they would have a thoroughly good time.

Walking is the best game in life and the best exercise ever invented, but it is sometimes uninteresting.

"THE DIRECTION OF HUMAN EVOLUTION"

The above is the name of a book which is published by Chas. Scribner's Sons and is written by Edwin Grant Conklin, Professor of Biology at Princeton University; and it is a very sane and direct treatise on the theory of evolution.

He not only considers evolution, but he considers the topic which has been engaging people's attention for some time, namely, the religious

controversy which has gone on against the evolutionary theory. Even though one is not an evolutionist Conklin presents the subject in such an attractive form that it stimulates the reader to investigate both sides of the question. He has stirred up a good deal of controversy, pro and con, in which the religious man feels that evolution is not interfering at all with his belief in the Supreme Being. Everyone must have a faith of some kind, even though he does not understand the source of that faith. He must have something that he can believe in or hope for, but it should not interfere with his mental operations in the investigation of some of the modern sciences.

Conklin says that uncertainty among scientists as to the causes of evolution has been interpreted by many unscientific persons as throwing doubt upon its truth. The modern scientific investigator has found that there are many complex things in nature revealed by scientific investigation that are very difficult to explain, and he is honest enough to admit that he has been able to go just so far and the probabilities are that after his investigations have continued over a period of years many of their theories will have to be abandoned. That is a part of the daily work in life, and we have been going through changes, advancing and receding so that one ought to accept the possibilities of error even though his theories seem good and sound.

Conklin says, further, properly to preach these evidences (of evolution) requires some first-hand knowledge of morphology, physiology, embryology, ecology, paleontology, and genetics. Huxley gave some advice to philosophers of his day which is still good advice: "Get a little first-hand knowledge of biology." The average anti-evolutionist lacks such first-hand knowledge. He usually has no desire to get it second hand from those who have studied nature. One of these doubters of Darwin, when asked if he had ever read his books, replied, "I would not touch them with a ten-foot pole." Neither facts, evidences, nor sweet reasonableness can penetrate such armor.

Physical evolution makes one realize that *intelligent human selection* must take the place of natural selection, and that the more unfit must be prevented from propagating their kind. To advance physical fitness requires the utmost care, and results may be doubtful because of some throwback in the blood stream, or some unexpected and unlooked-for difficulties have found their way into the blood stream. The result is not perfect. Ordinarily speaking, selection that

is founded on intelligent human efforts is amply rewarded. Under these circumstances the next improvement in the human race will be the intellectual advancement prompted by education and everything that tends to teach men fundamentals, and finally the third advance should be from the social aspect—social evolution.

Is there anything in this preliminary discussion that can be made a basis of antagonism by those who are professedly religious? Conklin quotes from the Scriptures to prove many of his points, so that both sides, the evolutionary side and the religious side, may use the same Bible, but different quotations, to substantiate their beliefs.

Conklin closes his book, which all through appears to be written by a man who thinks clearly, by saying, "The religion of evolution deals with this world rather than with the next. It prays, 'Thy kingdom come, Thy will be done on *earth*.' It seeks to build here and now the city of God. It looks forward to a time when 'Righteousness shall cover the earth as the waters cover the sea.' It looks forward to unnumbered ages of human progress upon the organization of increasing specialization and co-operation among individuals and races and nations to ages of greater justice and peace and altruism. Indeed, the religion of evolution is nothing new, but is the old religion of Confucius and Plato and Moses and especially of Christ, which strives to develop a better and nobler human race and to establish the kingdom of God on earth."

In most institutions of learning they are teaching biology, even if only plant biology; but biology as a subject should be taught much more frequently, carefully, and thoroughly, and in a way so as not to offend those over-sensitive natures who sense trouble rather than progress in front of them.

MISCELLANY

THE FREDERICK K. STEARNS MEMORIAL.

"Frederick Stearns & Company have founded at the University of Michigan, the Frederick Kimball Stearns Memorial Fellowship in Medicine, in honor of the late Frederick Kimball Stearns.

Mr. Stearns was a life-long patron of the arts and sciences, and had shown a special interest in the progress of the University of Michigan. The Stearns' Botanical Gardens, the Stearns' Fellowship in Pharmacy, and the Stearns' Collection of Musical Instruments, the most complete collection of its kind in the world, were evidences of his interest and generosity.

While the medical fellowship is to be used at the direction of the University medical authorities, the

work during the coming year will be devoted to researches on Insulin and Insulin therapy. The study of this problem has been of the greatest interest also in the Scientific Laboratories of Frederick Stearns & Company, in the course of the development of their product, "Insulin-Stearns," which has been so extensively used in the treatment of diabetes."

NEWS ITEMS

—Dr. J. C. R. Charest has moved from Murdock to Marshall.

Dr. W. H. Smith has moved from Cass Lake to Cold Spring.

Dr. W. D. Bayard has moved from Fargo, N. D., to Chicago, Ill.

Dr. N. B. Gearhart has moved from Philip, S. D., to Huron, S. D.

Dr. J. E. Brosseau has moved from Frankfort, S. D., to Argyle, Minn.

Additional rooms are being added to the Cokato Hospital at Cokato.

Dr. George J. Hanley has moved from Jordan, Mont., to Marmarth, N. D.

Dr. George A. Townsend, of Chico, Mont., has retired from practice on account of poor health.

Dr. E. S. O'Hare, who has been practicing for some months in Dogden, N. D., has resumed practice in Esmond, N. D.

Dr. Edward D. Anderson, of Minneapolis, has gone to Europe to visit the clinics in London and Glasgow and on the Continent.

Dr. Henry A. Beaudoux, of Minneapolis, and his family have moved to San Francisco, Calif., where the doctor will begin practice at once.

Dr. A. C. Hart, of Woonsocket, S. D., has been appointed by the governor of South Dakota a member of the State Board of Health of that state.

The Fargo (N. D.) Clinic is to construct a clinic building, which will be 50x140 feet in size and two stories high. It will be a modern medical building.

Dr. and Mrs. A. J. Moe are again in charge of the Moe Hospital at Sioux Falls, S. D. This hospital is open to all physicians in good standing in the profession.

The Board of County Commissioners of Hennepin County, will erect a hospital building on the Hennepin County Farm at Hopkins, which will cost over \$200,000.

The attorney-general of South Dakota has given an opinion that one does not have to be a citizen of the United States to obtain a license to practice in that state.

Drs. H. M. Frisch and Albert H. Zachman, recent graduates, who took their internship at St. Mary's Hospital, Minneapolis, have formed a partnership and located at Fairmont.

A tentative architectural sketch of the hospital building planned by the Sisters of St. Benedict of St. Cloud shows a handsome structure six stories high and with a capacity of 200 beds.

Miss Loretta McAlvey, a registered nurse of St. Paul, who took postgraduate work at Rochester, has been appointed superintendent of nurses in the McKennan Hospital of Sioux Falls, S. D.

Dr. Edward C. Guager, of St. Paul, has returned from an extended visit to the clinics of Europe. He says there were one hundred and fifty American physicians in Vienna during the winter.

Of 212 children examined at a series of free clinics given in Morris last month by the Stevens County Public Health Association, 111 were found to have defects needing the attention of a physician.

Dr. Edwin O. Colvin, of Baker, Mont., died last month at the age of 70. Dr. Colvin was a graduate of the University of Michigan Medical School, class of '95, and had practiced in Montana sixteen years.

Dr. Richard J. Phelan, of Minneapolis, died on July 27, at the age of 49. He was a graduate of the Medical School of the University of Minnesota, class of '03, and had practiced in Minneapolis since graduation.

The Hennepin County Medical Society has appointed a golf committee to arrange golf tournaments for the members of the Society. Drs. Gilbert Thomas, Henry L. Ulrich, and Arthur Hermann compose the committee.

A bronze tablet in memory of the late Dr. John H. Adair, who was connected with the Minnesota State School for Dependent and Neglected Children for thirty-four years, was erected last month in the lobby of the school hospital.

A free health clinic given at Williams, Lake of the Woods County (Minnesota), attracted people from a distance of thirty miles; and a woman and her young son walked nine miles to be present. The Christmas Seals make such work possible.

"The Sioux Valley Lutheran Hospital Association" is the name of the new organization which grew out of the combination of the Sioux Falls and Bethany Hospital Associations, and which contemplates building a new hospital at Sioux Falls, S. D.

Dr. L. G. Guyer, superintendent of the Nopemng Sanatorium, has been appointed executive secretary of the Tuberculosis Division of the Department of Public Institutions of Minnesota to succeed Dr. Robinson Bosworth, who recently resigned to go to Rockford, Ill.

At the annual meeting of the Southwestern Minnesota Sanatorium Association held at Worthington last month, officers were elected as follows: President, Dr. C. L. Sherman, Luverne; vice-president, Dr. P. C. Doland, Worthington; secretary, Dr. S. A. Slater, superintendent of the Sanatorium, Worthington.

Dr. Albert John Ochsner died at his home in Chicago, on Saturday, July 25. Dr. Ochsner was 67 years old and probably one of the best known surgeons of the United States. He was the author of numerous papers and had written largely on surgery and had always identified himself very closely with medical men, medical meetings, and everything that could be done for the interests of the sick in Chicago and everywhere.

Most of the Northwestern medical men and their wives who went to Canada and Europe in May on the Interstate Postgraduate Assembly Clinic Tour, will be home this month. Dr. and Mrs. George G. Eitel, of the Eitel Hospital, of Minneapolis, were booked to leave Hamburg on the steamer Cleveland yesterday. Dr. and Mrs. Eitel were especially interested, not only in the surgical work seen on the tour, but also in hospital management.

The baby clinics, which were a notable feature of the State Fair of North Dakota last year, will be extended in their scope this year and will be open to babies from any state. No premiums will be given this year, but a score-card will be given to the mother of every baby examined. A new score-card, made on a basis of 1,000 points, will be used. The card was devised by Dr. E. S. Platou, of Minneapolis, and records all the valuable points in the baby's history.

Dr. Hugo J. A. J. Hartig, of Minneapolis, died on July 26, at the age of 35. The cause of death was an automobile accident. Dr. Hartig was a graduate of the University of Minnesota Medical School, class of '14 and had been Hennepin County physician for the past two years. At the time of his death Dr. Hartig was a member of the Child Welfare Board and a number of clubs. He served in the World War, and was State Commander of the Veterans' of Foreign Wars.

The Montana State Medical Association held its forty-seventh annual meeting at Lewiston last month, when the following officers for the current year were elected: President, Dr. C. F. Watkins, Billings; president-elect, Dr. F. F. Atlix, Lewiston; vice-president, Dr. E. B. Hitchcock, Great Falls; councilors, Dr. E. M. Gans, Judith Gap; Dr. J. H. Garberson, Miles City; Dr. W. H. Stephan, Dillon. The 1926 meeting will be held at Glacier Park.

South Dakota has a drastic law for failure to report contagious and infectious diseases to the State Board of Health. Of 539 such cases reported from Minnehaha County (Sioux Falls) last year, 316 (about three-fifths) were cases of venereal diseases; and 50 per cent of the venereal diseases were among people under twenty-one years of age. Dr. A. H. Tufts, of Sioux Falls, is the superintendent of the County Board of Health and collaborating epidemiologist of the United States Public Health Service.

The Wabasha County Medical Society held its fifty-seventh annual meeting at Plainview last month. Papers were presented by Dr. H. E. Bowers, Lake City, on "Medical Co-operation;" by Dr. E. A. Meyerding, St. Paul, on "Insurance and Other Medical Problems;" and by Dr. W. C. MacCarty, of the Mayo Clinic Staff, on "Some of the Newer Developments in the Cancer Field." Dr. D. S. Fleischauer, Wabasha, was elected president. The next meeting will be held in July, 1926, in Wabasha.

The Sioux Valley Medical Association held its annual meeting at Sioux Falls, S. D., on July 7 and 8. The attendance was good, the program was excellent, and the social side of the meeting was exceedingly pleasing to all the members and visitors. Dr. R. F. Bellaire, the secretary, was unable to be present because of sickness, but his work was seen in the attendance, the program, and the general excellence of the meeting. Officers for the next year were elected as follows: President, Dr. J. P. Isaacs, Freeman, S. D.; first vice-president, Dr. J. M. Crowley, Rock Rapids,

Iowa; second vice-president, Dr. C. O. Wright, Luverne, Minn.; secretary, Dr. R. F. Bellaire, Sioux City, Iowa; treasurer, Dr. W. R. Brock, Sheldon, Iowa; censor for four years, Dr. S. A. Slater, Worthington, Minn.

The Devils Lake and Northwestern Medical Societies of North Dakota held a joint meeting at Dunseith, N. D., on July 22. Dr. A. L. Cameron, of Minot, read a paper on "Thyroid Surgery." Dr. J. G. Lamont, Superintendent of the North Dakota State Sanatorium, gave a clinic on the "Diagnosis and Treatment of Tuberculosis." Two moving-picture films dealing with the prevention, pathology, and treatment of tuberculosis were shown in the moving-picture theater. Part of the afternoon was spent in an inspection of the Sanatorium and especial interest was taken in the arrangements for sun treatment of the disease. An excellent dinner was served in the main dining-room of the Sanatorium to about seventy-five, including doctors and their ladies; and after dinner a program of music and speeches was carried out under the direction of Dr. James Grassick, of Grand Forks. This was a very interesting and instructive meeting, and it is a pity that all members of both societies could not attend.

THE SOUTHWESTERN MANITOBA MEDICAL SOCIETY

The Southwestern Manitoba Medical Society held its annual meeting at the Provincial Tuberculosis Sanatorium at Ninette, Manitoba, on July 23.

Clinics were given by Dr. Pritchard, Dr. Jamison, and Dr. Stewart of the Sanatorium, as follows: "Bone and Joint Tuberculosis," by Dr. Pritchard; "Heliotherapy," by Dr. Jamison; "Septic Conditions of the Chest Often Confused with Tuberculosis," by Dr. D. A. Stewart; "Treatment of Pulmonary Tuberculosis," by Dr. Stewart; and "Family Groups or Contact as a Cause of Tuberculosis," by Drs. Stewart and Pritchard.

The meeting began at eleven o'clock with an inspection of the Sanatorium. At noon luncheon was served to all doctors and their friends present. The afternoon was filled with clinics, and supper was served at the close of the program. About one hundred were present, including doctors and their ladies and a most pleasant and profitable time was had by all.

NOTE:—The above report was sent us by Dr. A. J. McCannel, Secretary of the North Dakota State Medical Association, accompanied by an interesting letter which we are taking the liberty to publish, because of its very readable contents, without Dr. McCannel's knowledge or consent:

"I am here at Killarney, Manitoba, with several other North Dakota physicians, held up by rain on our return from the meeting of the Southwestern Manitoba Medical Society at Ninette, and decided to send you a few notes on that meeting, as well as the one held the day previous at Dunseith, N. D.

It is a pleasant drive of about one hundred miles from Minot to Dunseith, where the North Dakota Tuberculosis

Sanatorium is located, and sixty miles more of pleasant driving to Ninette to the Manitoba Tuberculosis Sanatorium; that is, pleasant driving when the weather is good, but when it rains and the mud is bad, why then Killarney has a splendid summer resort and good fishing, so we are still happy.

Both the institutions at Dunseith and Ninette are most beautifully located, the former just at the foot of the Turtle Mountains and the latter in the Lang Valley, about thirty-five miles north of St. John, N. D. Both institutions are under very able management, but, like all State and Provincial Institutions, are not large enough. Each has a large waiting list.

Those who attended both meetings are enthusiastic in their praise of the entertainment they received, as well as the high quality of the clinics presented.

At each place there was an abundance of clinical material and the x-rays of the different pathological conditions were very complete and very instructive. The only regret is that our institutions cannot be more thoroughly utilized for such meetings for the instruction of the members of our profession, as this would also benefit the public.

At both meetings the emphasis was laid on the need for early diagnosis of tuberculous conditions when there is so much more hope for a cure, and emphasis was also laid on the effects of sun therapy in the treatment of all cases of malnutrition.

The North Dakota men who attended the Manitoba meeting were Dr. J. A. Carter, Warwick; Dr. D. W. Matthaei, Fessenden; Drs. J. L. Devine, M. J. Fardy, A. J. McCannel, W. A. McCannel, R. W. Peice, F. E. Wheeler, and T. N. Yeomans, of Minot; and S. M. Johns, of Velva.

I am sure great good will come of joint meetings such as have just been held, and I am anxious to see more of them not only with the other districts of our state, but also with our neighbors on all sides of us.

Sincerely,

A. J. McCANNEL,
Minot, N. D.

PROGRAM OF THE NORTHERN MINNESOTA MEDICAL ASSOCIATION

Brainerd, Minnesota

MORNING SESSION—August 24

- 8:00-8:40 A. M.—Eye, Ear, Nose and Throat Clinic. Dr. C. G. Nordin, Brainerd, and Dr. N. H. Gillespie, Duluth.
- 8:40-9:20 A. M.—Neurological and Mental Clinic. Dr. W. S. Patterson, Fergus Falls, and Dr. Joseph Nicholson, Brainerd.
- 9:20-10:00 A. M.—Surgical Clinic. Demonstration of Operated Fracture Cases. Dr. J. A. Thabes, Brainerd.
- 10:00 A. M.—General Clinic. Dr. J. B. Derauf, Brainerd, and Dr. A. W. Ide and Staff, St. Paul.

MONDAY EVENING SESSION

Banquet at Breezy Point at 7:00 p. m. Address by President E. L. Tuohy, Duluth. Musical Numbers—Vocal and Instrumental—Dancing.

MORNING SESSION—August 25

- 8:00-8:40 A. M.—Pediatric Clinic. Dr. M. P. Gerber, Brainerd, and Dr. O. W. Rowe, Duluth.
- 8:40-9:20 A. M.—Genito-Urinary Clinic. Dr. Gilbert Thomas, Minneapolis, and Dr. R. A. Beise, Brainerd.
- 9:20-10:00 A. M.—Special Clinic. Dr. Carl Hedblom, Madison, Wis.
- 10:00-10:40 A. M.—General Clinic, Involving Roentgen Presentations. Dr. M. J. Kern, St. Cloud, and Dr. J. C. McMillan, Winnipeg, Manitoba, Canada.
- 10:40-12:00 M.—Clinic on Diabetes. Dr. Russell M. Wilder, Mayo Clinic, Rochester, and Dr. Fred Stangl, St. Cloud, Minn.

PAPERS FOR THE AFTERNOON SESSIONS

1. Surgery in the Home with Some Interesting Surgical Reports—Dr. R. G. Christie, Long Prairie.
2. Some phases of Renal Diagnosis and the Classifications of Renal Discases from the Medical standpoint—Dr. F. J. Hirschboeck, Duluth.
3. Chronic Backache: Some Applications of Orthopedic Knowledge to the problems involved in relief from a Common Disorder—Dr. J. R. Kuth, Duluth.
4. Colon Irritability—Dr. E. L. Gardner, Minneapolis.
5. Diabetes, in Private Practice—Dr. Fred H. Stangl, St. Cloud, Minn.
6. The Treatment of Unilateral Pulmonary Tuberculosis with Associated Empyema—Dr. Carl A. Hedblom, Madison, Wisconsin.
7. The Value of X-Rays as a Therapeutic Agent—Dr. A. U. Desjardins, Rochester.
8. The Management of Sinusitis in Children—Dr. Roy A. Barlow, Madison, Wis.
9. Inguinal Hernia—Dr. George Earl, St. Paul.
10. The Value of History-Taking in General Disease and Gastro-intestinal Disease Particularly—Dr. George B. Eusterman, Rochester.
11. The Radiological Findings in Some of the More Common Diseases of the Colon—Dr. J. C. McMillan, Winnipeg, Manitoba, Canada.
12. Peripheral Vascular Changes in Disease—Dr. G. H. Brown, Rochester.
13. Diathermia in General Practice—Dr. O. V. Johnson, Sebeka.
14. Fractures—Dr. C. W. More, Eveleth.
15. The Fundamental Principles Involved in Successful Cancer Surgery—Dr. Wm. A. Ground, Superior, Wis.
16. Mercurochrome in Acute Infections of the Central Nervous System—Dr. W. H. Hengstler, St. Paul.

Minneapolis Office Space for Rent

In 630 Syndicate Building on Nicollet Ave. side. Either oculist and aurist or pediatrician. Three other doctors in suite.

Substitute Work Wanted

By a 1901 graduate of the Medical School of the University of Minnesota. Available at once. Address 253, care of this office.

Practice for Sale in Northern Minnesota

A \$6,000 cash practice in village of 800; unopposed; insurance and railroad appointments; fine fishing and hunting. Price \$500. Address 252, care of this office.

Wanted

Substitute work or an assistantship by an experienced physician, a Canadian graduate, who has practiced a good deal in the States. Address 247, care of this office.

Location Wanted

By a thoroughly capable physician, able to do first-class surgery and x-ray work. Graduate of Class A school and can furnish the best of references. Protestant and Mason, married. Address 240, care of this office.

Substitute Work Wanted between July 15 and September 1.

By a Minnesota graduate (1924) now engaged in medical college work (Department of Bacteriology). Address 243, care of this office.

Location Wanted

By general practitioner of wide experience. Prefers a country practice in good territory with a mixed population. Address 255, care of this office.

Position Wanted

With surgeon or well-established clinic, or a good location with hospital facilities in South Dakota by a young physician who is well qualified and experienced. Address 254, care of this office.

Minneapolis Office Space for Rent

In Physicians and Surgeons Building, Minneapolis, with two doctors. Privileges of thoroughly equipped laboratory and x-ray facilities. Address 256, care of this office or telephone Geneva 2887.

Practice for Sale

In central part of Minnesota in a very rich territory. Fine village of 500 people. Good schools and modern improvements in village. A splendid opening. Address 251, care of this office.

Locum Tenens Wanted

For one month beginning August 1st or earlier. Contract practice; work light; cool climate. \$200, furnished house and extras. Address C. C. Smith, M.D., South Agnew Location, North Hibbing, Minn.

Substitute Work Wanted

Due to just having burned out, I would like locum tenens work. Graduate of University of Illinois, class of 1911; registered in North Dakota. Available at once. Address 242, care of this office.

Practice For Sale

Unopposed practice in live Southeastern South Dakota town. Fine practice, fine location. Can make money from first day. For details and terms, address 259, care of this office.

Practice for Sale in South Dakota

A \$7,000 unopposed practice in a town of 600. Large territory. Price of equipment and introductions, \$1,000; terms; accredited schools; fine churches; good roads; near hospital. Address 235, care of this office.

For Sale

Complete drug store with building in Northern Minnesota town. Large territory; no competition. Excellent place for physician who is a registered druggist. Reason for selling, poor health. Address 239, care of this office.

Physician Wanted

Dr. Biornstad wants young, aggressive M.D. at his Clinic. Must be interested in physiotherapy and have surgical inclinations. Scandinavian preferred. Excellent prospects and future for right man. Address Dr. Biornstad's Clinic, 831 Second Avenue South, Minneapolis, Minn.

Good Minneapolis Location Offered

A doctor will find a fine opening at 3805 Nicollet Ave., with offices in the new building at that point. No other doctor on this corner. Will make a liberal concession to a good man. Inquire at 3858 Stevens Ave. or telephone Colfax 2754.

Minnesota Practice Wanted

Well-qualified and experienced general practitioner wants a good Minnesota practice or location offering wide scope. Scandinavian or German community preferred. Address 262, care of this office.

Practice For Sale in Minnesota City of 10,000

I am going to the Pacific Coast and will sell my practice at a very low price, on satisfactory terms. The best of references given. Shall sell at once. Address 266, care of this office.

Fine Practice for Sale

In southern Minnesota, beautiful county-seat \$15,000 cash practice. Scandinavian physician could easily double the practice. Established 24 years. General practice and complete physiotherapy clinic; latest modalities, Burdick air watercooled and deep therapy lamps, high-tension diathermia, Morse wave-generator. Valuable appointments transferable. No real estate; equipment, practice and one month's introduction, \$5,000. Specializing abroad. Address 267, care of this office.

Specialist For Relief Work Wanted

Eye, ear, nose and throat specialist for relief work in well-established Clinic in South Dakota city for two months beginning August 5. State full particulars, including salary wanted. Address 260, care of this office.

Technician Wants Position

Experienced woman technician in x-ray, laboratory work, and physiotherapy wants position in doctor's office or hospital. Also experience in office work. Has executive ability and initiative. Good references. Address 257, care of this office.

Fine Practice For Sale

Good practice in a county-seat town of 700 in Southwestern Minnesota. Good farming community. Plenty of work and good pay. Good residence, completely modern. Good reason for selling out. Terms very reasonable. Address 258, care of this office.

Physician's Office in Fine Location in Minneapolis

Over drug store, corner of Penn Ave. and Fiftieth St. at end of the Oak and Harriet car line. Location unsurpassed. District growing rapidly. Dentist across the hall. Nearest physician nearly one mile. Rent, \$35 a month with heat. Inquire at Rood's Pharmacy, 2300 West 50th St. (telephone Walnut 2413), or telephone to owner, Hyland 3129.

PHYSICIANS LICENSED AT THE JULY (1925) EXAMINATION TO PRACTICE IN THE STATE OF NORTH DAKOTA

| Name | College and Year of Graduation | Address |
|------------------------|--------------------------------|--------------------|
| Bottolfson, Bottolf T. | U. of Minnesota, 1916 | Moorhead, N. D. |
| Budd, Garnett J. | U. of Manitoba, 1924 | Ambrose, N. D. |
| Graber, Rex E. | Rush Medical College, 1924 | Bismarck, N. D. |
| Hardy, Nigel A. | U. of Manitoba, 1925 | Minto, N. D. |
| Jenson, August F. | N. W. University, 1925 | Willow City, N. D. |
| Johnson, Donald W. | Rush Medical College, 1923 | Jamestown, N. D. |
| Johnstone, Robert H. | Rush Medical College, 1925 | Grand Forks, N. D. |
| Koenisderger, Charles | U. of Michigan, 1910 | Edgeley, N. D. |
| Larson, Leonard W. | U. of Minnesota, 1922 | Bismarck, N. D. |
| Liebeler, Wilbert A. | U. of Illinois, 1924 | Grand Forks, N. D. |
| McGuire, Frank A. | U. of Manitoba, 1924 | Inkster, N. D. |
| McGauvran, Theodore E. | U. of Manitoba, 1925 | Wales, N. D. |
| McKague, David H. | U. of Manitoba, 1924 | Maddock, N. D. |
| Rasmussen, R. Carl | U. of Minnesota, 1924 | Harvey, N. D. |
| Salsbury, Carmen R. | Queens University, 1924 | Drayton, N. D. |
| Sinamark, Andrew | U. of Nebraska, 1917 | Minot, N. D. |
| Stacey, John W. | U. of Manitoba, 1925 | St. Thomas, N. D. |
| Thompson, Andrew M. | N. W. University, 1925 | Havana, N. D. |
| VanVleit, William B. | U. of Manitoba, 1923 | Petersburg, N. D. |
| Waldschmidt, Ruben H. | U. of Minnesota, 1923 | Bismarck, N. D. |

In the appeal taken by W. R. Shortridge, Flasher, N. D., from the decision of the Board for revoking his license January, 1925, a hearing was had in Court before the District Judge at Grand Forks, June 30. The action of the Board in the revocation of the license of Dr. Shortridge was sustained.

G. M. WILLIAMSON, M.D.,
Secretary.

THE JOURNAL-LANCET

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A Year, \$2.00

TRANSACTIONS OF THE NORTH DAKOTA STATE MEDICAL ASSOCIATION—1925

OFFICERS AND COMMITTEES

PRESIDENT

JOHN H. RINDLAUB, M. D. Fargo

PRESIDENT-ELECT

N. OLIVER RAMSTAD M. D. Bismarck

FIRST VICE-PRESIDENT

THOMAS MULLIGAN, M. D. Grand Forks

SECOND VICE-PRESIDENT

W. F. SIHLER, M.D. Devils Lake

SECRETARY

ALEX. J. McCANNEL, M. D. Minot

TREASURER

WILLIAM W. WOOD, M. D. Jamestown

COUNCILORS

FIRST DISTRICT—CASS AND RANSOM COUNTY SOCIETIES

P. H. BURTON, M. D. Fargo

SECOND DISTRICT—DEVILS LAKE DISTRICT SOCIETY

G. F. DREW, M. D. Devils Lake

THIRD DISTRICT—GRAND FORKS DISTRICT SOCIETY

G. M. WILLIAMSON, M. D. Grand Forks

FOURTH DISTRICT—NORTHWESTERN DISTRICT AND KOTANA SOCIETIES

E. M. RANSOM, M. D. Minot

FIFTH DISTRICT—SHEYENNE VALLEY AND TRAILL- STEELE COUNTY SOCIETIES

F. L. WICKS, M. D. Valley City

SIXTH DISTRICT—SIXTH DISTRICT SOCIETY

F. R. SMYTH, M. D. Bismarck

SEVENTH DISTRICT—STUTSMAN COUNTY SOCIETY

P. G. ARTZ, M. D. Jamestown

EIGHTH DISTRICT—SOUTHERN DISTRICT AND RICHLAND COUNTY SOCIETIES

L. B. GREENE, M. D. Edgeley

NINTH DISTRICT—TRI-COUNTY SOCIETY

CHARLES MacLACHLAN, M. D. New Rockford

TENTH DISTRICT—STARK COUNTY AND SOUTHWEST- ERN DISTRICT SOCIETIES

J. W. BOWEN, M. D. Dickinson

HOUSE OF DELEGATES

CASS AND RANSOM COUNTY SOCIETIES

H. W. MILLER, M. D. Casselton

K. E. DARROW, M.D. Fargo

DEVILS LAKE DISTRICT SOCIETY

W. D. JONES, M.D. Devils Lake

GRAND FORKS DISTRICT SOCIETY

G. J. GISLAYSON, M.D. Grand Forks

M. B. RUUD, M.D. Grand Forks

KOTANA COUNTY SOCIETY

C. S. JONES, M.D. Williston

NORTHWESTERN DISTRICT SOCIETY

H. M. ERENFELD, M. D. Minot

ANDREW CARR, M.D. Minot

RICHLAND COUNTY SOCIETY

W. M. LANCASTER, M.D. Wahpeton

SHEYENNE VALLEY SOCIETY

E. A. PRAY, M. D. Valley City

STARK COUNTY SOCIETY

A. P. NACHTWAY, M.D. Dickinson

SIXTH DISTRICT SOCIETY

C. E. STACKHOUSE, M. D. Bismarck

H. A. BRANDES, M. D. Bismarck

SOUTHERN DISTRICT SOCIETY

F. W. FERGUSON, M. D. Kulm

STUTSMAN COUNTY SOCIETY

G. P. ARTZ, M.D. Jamestown

SOUTHWESTERN DISTRICT SOCIETY

O. C. MAERCKLEIN, M.D.....Oakes

TRI-COUNTY SOCIETY

H. VAN DE ERVE, M.D.....Carrington

TRAILL-STEELE COUNTY SOCIETY

SYVER VINJE, M.D.....Hillsboro

COMMITTEES**COMMITTEE ON MEDICAL EDUCATION**

H. E. FRENCH, M. D.....University

G. J. McINTOSH, M. D.....Devils Lake

H. H. HEALY, M.D.....Grand Forks

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F. W. FERGUSON, M. D.....Kulm

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COMMITTEE ON PUBLIC POLICY AND LEGISLATION

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F. R. SMYTH, M. D.....Bismarck

A. W. GUEST, M. D.....Jamestown

H. E. FRENCH, M. D.....University

COMMITTEE ON MEDICAL HISTORY OF THE STATE

GEO. M. WILLIAMSON, M. D.....Grand Forks

JAMES GRASSICK, M. D.....Grand Forks

H. G. WOUTAT, M. D.....Grand Forks

PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE NORTH DAKOTA STATE MEDICAL ASSOCIATION

FIRST SESSION—MONDAY, MAY 18, 1925

The first meeting of the House of Delegates of the thirty-eighth annual session of the North Dakota State Medical Association was called to order at Hotel Gardner, Fargo, at 12:30 P. M., on Monday, May 18, 1925, by the President, Dr. W. C. Fawcett, Starkweather.

The Secretary called the roll of the Delegates and Councilors.

The President announced that a quorum was present and the House duly constituted for the transaction of business.

The Secretary stated that as the minutes of the last meeting had been published in full in THE JOURNAL-LANCET he would not read them, but would give a condensed outline.

On motion of Dr. H. M. Erenfeld, Minot, duly seconded and carried, the minutes were adopted as published.

REPORT OF THE SECRETARY

Dr. A. J. McCannel, Minot, presented the following report:

In beginning I wish to thank the secretaries of the local societies for their loyal co-operation in the work of the Secretary's office. Their work has been hard because it is the practice of many societies to change their secretaries yearly, and the new men have to learn by experience the work that has to be done. I would recommend to the local societies that the present secretaries be continued from year to year so that they may become proficient in the work.

Chapter VI, Section 4, of our By-Laws makes it the duty of the State Association Secretary, with the co-operation of the secretaries of the component societies, to 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. This index I have made in the last eight months. It is impossible to get and keep it absolutely complete, but I have endeavored to make it approximately so. I have one file showing all members in good standing, one showing those whose dues are not yet paid, a third showing practitioners who are not members, and a fourth file showing ex-practitioners of the state.

Our membership as reported at the annual meeting last September was 365. Fifteen more were added to the list before December 31, 1924, making a total for the calendar year of 380. Our present membership is 371, with twenty-five others in arrears. Of the local societies, Kotana, Sheyenne Valley, and Tri-County show gains over the 1924 membership. Cass County, Devils Lake, and Stark County are up to their 1924 totals, while Grand Forks, Northwest District, Richland, Sixth District, Stutsman County, Southern District, and Traill-Steele show a falling off in paid-up memberships.

No expense has been incurred in the past year in the defense of malpractice suits. The case of Mabel Neil vs. Dr. Z. P. King is still pending and, if tried, will have to be defended.

The Constitution and By-Laws provide that the Council shall consist of ten members, and that the House of Delegates may divide the counties of the state into Councilor Districts. As at present divided some of the Districts are very small and others are entirely too large. A rearrangement would seem advisable in the interest of efficiency.

Last November I received from the Aetna Insurance Company the Group Insurance Policy which, by its terms, protected "A Group of Members of the North Dakota State Medical Society." On checking it over I found it to contain the names of twenty-nine men who were not at that time members of our Society, and at least one who was not licensed to practice medicine in our state. After consulting with one member of the Committee

on Medical Defense I returned the policy for correction, but to date have not received the corrected policy. The matter has been called to the attention of the Committee on Medical Defense in the hope that at this meeting a plan may be adopted that will prevent confusion in the future.

THE JOURNAL-LANCET has been very ready to publish Society notes and other news items of interest to the profession of our state. I have tried to keep them supplied with whatever news I could obtain. Every local society should, through its secretary or other member, keep THE JOURNAL-LANCET informed of all news items and in that way stimulate interest among our members.

I had hoped to visit many of the component societies but have been able to visit only one in addition to the one to which I belong. In company with President Fawcett and Councilor E. M. Ransom I visited the Kotana Society in Williston, where a very pleasant and profitable evening was spent.

Respectfully submitted

A. J. McCANNEL, Secretary.

On motion of Dr. Charles MacLachlan, seconded by Dr. Erenfeld, this report was accepted as read.

REPORT OF CHAIRMAN OF COUNCIL

Dr. F. R. Smyth, (Bismarck): Several of the reports from different Councilors have not been sent to me, and I think it would be well to let those who are here give us their reports personally.

As Councilor of the *Sixth District* I have the following report to make:

There are three local societies in this District, but in two the membership is small and rather widely scattered so that it is difficult to have regular meetings.

Stark County Medical Society—The Secretary reports thirteen members and four meetings held during the past year. The membership has increased by one since the last report.

Southwestern District Medical Society—This Society has a membership of ten active and one honorary member. Seven meetings have been held during the past year, and there has been a gain of four members since the last report.

Sixth District Medical Society—The Sixth District Medical Society now has forty-five members in good standing, which is the smallest membership for several years. This Society has always been active and held meetings regularly, but for some reason, which has not been explained, there has been only one meeting since the election of officers in December, 1924. This is unfortunate, as membership in a medical society is of benefit only when there is opportunity for free exchange of opinions and experiences. When meetings are suspended at the beginning of the fiscal year it makes it harder for the Secretary to collect dues, as he does not have an opportunity of making a personal appeal to the members.

It has always been the custom in this Society to give notice to members of the approaching State Association meeting, and an opportunity has been given to present papers. The By-Laws of the Society provide that: "All members shall be equally privileged to attend all meetings and take part in all proceedings," and the failure to recognize this

right, and confining the privilege of presenting or discussing papers at the State Association meeting to a very few has caused considerable dissatisfaction. This has not been diminished by the fact that, owing to the failure to hold meetings, members have been deprived of the right to protest and, if necessary, to appeal to the State Association.

Respectfully submitted,

F. R. SMYTH, Councilor.

Dr. Smyth moved the adoption of his report. Motion seconded and carried.

REPORTS OF COUNCILORS

Tri-County Society—Dr. Charles MacLachlan, New Rockford, presented the following report, and moved its adoption:

The Tri-County Medical Society, comprising Eddy, Foster and Wells Counties, and parts of Benson and Sheridan Counties, has experienced a very satisfactory year's work. Our meetings, ten in all, in the last year have been held at five different towns in the District. One-half of the entire membership is in New Rockford, two members in Carrington, one each in Fessenden, Bowdon, and Harvey. The average attendance has been in the neighborhood of 50 per cent of the total membership.

The programs for the year included a symposium on tuberculosis, but the greatest interest usually centers in the recital of clinical experiences, which is provocative of much interesting discussion.

We are fortunate in possessing a very efficient Secretary in the person of Dr. Hubert Van de Erve, of Carrington, whose records of cases cited and treatment pursued are most complete. An informal banquet follows the meeting and helps sustain a harmonious Society.

We have not lost any members during the year, either by removal or death, and have added two to our membership, in the persons of Dr. R. H. Matson, formerly of Warren, Minnesota, now of New Rockford, and Dr. Josephine Stickleberger, of Oberon. Dr. Critchfield, formerly of Maddock, has removed to Fessenden, within the District. Otherwise there have not been any changes.

Respectfully submitted,

CHARLES MACLACHLAN,
Councilor for Tri-County.

Dr. MacLachlan's motion to adopt was seconded and unanimously carried.

Devils Lake District—Dr. G. F. Drew, Devils Lake, presented the following report:

The Devils Lake District Society has had about an average year. We have had four fairly good meetings, and now have twenty-four members in good standing out of thirty-six doctors in the District.

We have a new Secretary, Dr. J. A. Carter, of Warwick, who succeeds myself. This is the first change of Secretaryship for thirteen years.

We expect to hold our mid-summer meeting in conjunction with the Northwestern Society at the State Sanitarium at Dunseith some time in July.

Respectfully submitted,

G. F. DREW,
Councilor for Devils Lake District.

Dr. Drew moved the adoption of his report. Motion seconded and unanimously carried.

Grand Forks District—Dr. George M. Williamson, Grand Forks, presented the following report and moved its adoption:

We have had, as usual, a very successful year in our District. To be sure, some of the fellows failed to send in their dues. We have changed the plan of our meetings. We have abandoned the monthly meetings for the year and will have quarterly programs, for the reason that we have two meetings of the hospital staff and with the medical meeting it makes three meetings a month. We think the quarterly plan will be better. Our attendance has been good and our programs interesting.

Respectfully submitted,

GEORGE M. WILLIAMSON,
Councillor for Grand Forks District.

Dr. Williamson's motion to adopt was seconded and unanimously carried.

Northwestern District—Dr. E. M. Ransom, Minot, presented the following report:

As Councillor for the Northwestern District and the Kotana Medical Societies I have one or two items of interest to report, in addition to statistics of the Society membership, meetings, etc.

Northwestern District Society has fifty-six members in good standing at the present time. Ten men who were members last year are not members this year. Of this number five have removed from the state, two have joined the Kotana Society, and three have failed to pay their dues thus far. During the year we added six new members, so that our total number of active members is only four short of our last year's membership. There have been no deaths in our Society. Fifteen physicians live in our District who are not members.

During the year we held six meetings, two of which were special meetings. Six papers were read, and two talks were given during the year. Meetings were very well attended, averaging twenty men to the meeting.

On October 17th we had the pleasure of listening to Dr. C. N. Callander of Fargo, who gave a very interesting talk on "Bone Tumors."

On November 6 our State Association President, Dr. W. C. Fawcett, of Starkweather, met with us and gave an inspiring address on ideals and methods of building up and stimulating interest in our medical societies.

Of the two special meetings held during the year one was for the purpose of taking some concerted action in reference to House Bill No. 204 and Senate Bill No. 237, which bills aimed at taxing all hospitals which would not admit to practice within their walls all quacks and shysters of any creed or color who, self-styled or otherwise, go by the title of "Doctor." Although it was decided at this meeting to send letters and telegrams to our representatives and senators, this action was not put into effect because we received word from our State Senator that the bill had failed of passage.

Another of our special meetings was held to discuss the advisability of starting some action aiming at a state-wide protest against a Federal narcotic agent, one Mr. Post, whose treatment of and insults to the physicians of the District were con-

sidered unwarranted. It was the sentiment of the men present that Federal officials should be apprised of Mr. Post's actions and tactics, but after considerable discussion it was deemed advisable to defer any formal protest until a later date.

Following Dr. Fawcett's visit to the Northwestern District Medical Society, Dr. Fawcett, Dr. McCannel, and Dr. Ransom made a trip the following day to Williston to investigate the demise of the Kotana Medical Society, which from the last report was dead but did not seem to know it. A meeting was held in Williston that evening. All but two of the Williston physicians attended, and several out of town men were rounded up, so that, all told, about a dozen men were present. To the credit of those men of the Kotana Society who were present at this meeting be it said that they showed themselves to be "live ones," and we believed that with the available material a living, active society could be made to thrive at Williston.

I believe that as a result of this visit new life and new inspiration were instilled into Kotana Medical Society, because since then it has been very much alive. From a Society with three paid-up members a year ago, they now have eleven members in good standing, a net gain in membership of three hundred and sixty-six and two-thirds per cent. We take off our hats to Kotana Medical Society. May its enthusiasm continue and its membership increase! Dr. C. S. Jones, who is Secretary of the Society, has sent in his report, which I shall read shortly.

I do not feel that we should pass by this rejuvenation of the Kotana Society without giving a big share of the credit to our present State Secretary, Dr. A. J. McCannel. Dr. McCannel has been an untiring and faithful worker for this Society which at our last meeting had not been heard from in any way. Even letters from their Councillor and the State Association Secretary went unanswered for months. Through the wizardry of Dr. McCannel's approach, and his zeal, this Society has come to life again in no mistakable fashion.

Respectfully submitted,

E. M. RANSOM,
Councillor for Northwestern District
and Kotana Societies.

Dr. Ransom then read the following report from Dr. Carlos S. Jones, Williston:

The Kotana Society at the present time has eleven members, all in good standing.

There has been one death in the Society this year, Dr. W. R. Claybough, of Grenora.

We have one new member in the Society, Dr. J. D. Halliday, of Grenora. Dr. Halliday is a recent graduate, coming from the University of Manitoba. He has taken Dr. Claybough's practice at Grenora.

Two meetings have been held this year, with fair attendance. At these meetings papers were given by members of the Society. We plan to hold a meeting in June, but have not arranged the date of meeting yet on account of uncertainty of the dates when outside doctors who have promised to read papers can manage to be here.

It is expected that we can keep up the interest of the members through the year.

(Signed) CARLOS S. JONES.

Dr. Ransom moved the adoption of his reports. Motion seconded and unanimously carried.

SHEYENNE DISTRICT

Dr. F. L. Wicks, Valley City, presented the following report and moved its adoption:

During the past year, or since our last State Association meeting, our Society has held several meetings, all of which have been interesting and profitable. In each instance the meeting was held in connection with a dinner given in the evening. One meeting was a combined meeting of medical and dental men.

Our programs usually consist of interesting clinical reports which are freely discussed. Subjects receiving considerable consideration have been diabetes, respiratory diseases, trachoma, and goiter, the last named with especial reference to the survey being made by the United States Public Health Service Department, and our men are rendering all possible aid in making this survey worth while.

Dr. Smyth met with the men of our city, medical, county, state, and city officials on April 6 to discuss the venereal disease problem as it affects local communities.

For the first time in many years our ranks have been broken by the death of a member. Dr. C. L. Brimi, of Cooperstown, a valued and respected man, a pioneer of our territory, passed away on January 19.

We have at present eighteen members which constitutes the number of regulars in our District. The following gentlemen serve as our officers:

- President—DR. P. M. KELLOGG,
- Vice-President—DR. E. B. CROSBY,
- Secretary-Treasurer—DR. W. H. MOORE,
- Delegate—DR. E. A. PRAY,
- Alternate—DR. S. A. ZIMMERMAN,
- Censors—DR. M. D. WESTLEY,
- DR. C. E. SPICER,
- DR. A. C. MACDONALD.

Respectfully submitted,
F. L. WICKS,
Councilor for Cheyenne District.

Dr. Wicks' motion to adopt was duly seconded and carried.

Southern District—Dr. L. B. Greene, Edgeley, made the following report:

I have been interested in the reports of the other Councilors and am sorry mine cannot be of the same quality. The Southern District is made up of small towns and counties. Most of the towns have only one doctor in them, and we have been unable to get up the proper amount of enthusiasm among them. Our Secretary has worked hard but has been unable even to get replies to the notes he sends out. The last time we attempted to hold a meeting I called up the men, in addition to the notes that were sent, with the result that only the Secretary and myself were present.

We have fifteen members at present, where ten years ago we had more than thirty. These men pay their dues, but that is all we hear from them.

On motion, duly seconded and carried, the report was adopted as given.

Traill-Steele County—Dr. Syver Vinje, Hillsboro, made the following report:

We have a membership of ten. Two men left us this year, one going to Mayville and one to the western part of the state. We have three new doc-

tors in our part of the state. One of them has sent a statement to the effect that he wishes to be transferred from the Devils Lake District to our District, and the others have said they would send in their applications for membership in the Society.

We have had three meetings in the past year and have tried to have a regular program. We had one paper on bone tumors and one on diseases of children, and a dentist gave us a paper just recently. Our attendance is good, and all the members seem to be interested in the Society.

On motion duly seconded and carried the report was adopted as given.

REPORT OF THE TREASURER

The Secretary stated that Dr. Wood had notified him that he would be unable to be present before Tuesday but that he had sent his report, which he then presented as follows:

TREASURER'S ANNUAL REPORT

September 5, 1924 to May 14, 1925

Assets and Receipts:

| | | |
|---|-------------------|-------------------|
| Balance General Fund, September 5, 1924 | \$ 965.53 | |
| Savings Account | 847.02 | |
| Interest on Savings Account..... | 25.87 | |
| Liberty Bonds (2) Dep. J. R. Nat'l Bank | 1,000.00 | |
| Interest Liberty Bonds | 42.50 | |
| Dues Received from Secretary..... | 1,895.00 | |
| Total | \$4,775.92 | \$4,775.92 |

Disbursements:

| | | |
|--|-------------------|------------------|
| Fourteen (14) checks numbered 122 to 135 | \$ 979.96 | |
| Exchange, ninety-five cents (\$95) on checks | .95 | |
| Total | \$ 980.91 | \$ 980.91 |
| Balance | \$3,795.01 | |

Distribution of Funds at Present Time:

| | |
|---|-------------------|
| General Fund Balance | \$1,879.62 |
| Savings Account to May 11, 1925.. | 915.39 |
| Liberty Bonds (2) in James River Nat'l Bank | 1,000.00 |
| Total | \$3,795.01 |
| Total Balance | \$3,795.01 |

While the receipts for the past year showed a decrease of ninety-seven dollars and twenty-five cents (\$97.25) over those of the year previous, expenditures for the past year also showed a decrease of one thousand eight hundred and thirty-one dollars and sixty-four cents (\$1,831.64), making a net gain in assets for the past year of one thousand seven hundred and thirty-four dollars and thirty-nine cents (\$1,734.39).

There was also received, in November, 1924, a Receiver's Certificate of Proof of Claim from the Commercial State Bank of Carrington, North Dakota, acknowledging the State Association's claim for eighty dollars (\$80.00), this sum representing the check of the Tri-County Medical Society, which was not cashed in 1923, on account of the closing of the bank.

Respectfully submitted,
WILLIAM W. WOOD, Treasurer.

This report was automatically referred to the Council.

REPORTS OF COMMITTEES

COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Dr. Charles MacLachlan stated that he had the report ready for presentation, but that it contained nothing new, and moved that it be adopted without reading and published with the minutes.

Motion seconded and carried.

The report follows:

There was no bill sponsored by the North Dakota State Medical Association introduced at the last session of our Legislature; at least the legislative committee had no notification that any medical legislation was to be asked for by our Association.

Senate Bill No. 81, known as the Compulsory Vaccination Bill, was intended to amend and reenact Section 425 and repeal Chapter 236 of the laws of North Dakota for the year 1919.

The main features of the bill were as follows: To permit no person to teach in any private, parochial or public school, within the State of North Dakota, unless he shall have been successfully vaccinated against smallpox or shall have had such disease; vaccination of all pupils is required before admission to any of the public, private, or parochial schools within the state, as a preventive of smallpox. In case of an epidemic or threatened epidemic all persons who have not been successfully vaccinated will be compelled to submit to vaccination whenever and wherever it is deemed necessary to the preservation of the public health and safety. This was the only medical bill not directed against our profession or against the hospitals. Representatives of the cults, and of the "League of Medical Freedom" were on hand to explain how much nicer it would be to die of smallpox than to have the pure, healthy blood of our children contaminated by injecting putrid pus obtained from foul sores on bodies dead from smallpox. The same old hue and cry of "medical graft" was given as the reason for attempting to re-establish compulsory vaccination. The bill failed to pass.

Senate Bill No. 237 was intended to place on the tax list any hospital used wholly or in part for public charity that would refuse its privileges to any regular licensed practicing physician in the state, or would discriminate between the different physicians who wish to use said hospital, or refuse to allow any patient in said hospital the services of any physician whom said patient might desire.

This bill would take away the authority of the hospital management to control the class of work demanded of members of its staff. Any licensed physician, regardless of his qualifications or experience, could attempt without question the most difficult medical or surgical treatment of patients and shift the responsibility for his incompetency upon the hospital management. Furthermore, no hospital with such conditions existing could meet the requirements of the Hospital Standardization Committee of the American College of Surgeons without the penalty of paying exorbitant taxes, regardless of the amount of the charity work done by the institution.

House Bill No. 204 took another whack at the hospital pocketbook, in that any hospital whose management would not permit any physician, surgeon, doctor, or chiropractor holding a license to practice in this state, to enter or practice in said hospital, would be subject to taxation the same as any other private institution.

House Bill No. 243 was to amend the law relating to the manner of determining qualifications of persons desiring to practice medicine or surgery in North Dakota. Graduates of reputable medical schools either of the United States or of foreign countries who graduated prior to December 31, 1913, were to be permitted to practice in North Dakota without taking any examination, upon presentation of their diplomas and evidence that they had been in continuous practice since the time of such graduation.

The usual freak bills were introduced, such as "Any physician, surgeon, chiropractor or doctor who shall refuse to aid and attend a woman at childbirth, or a child in bodily distress, shall be deemed guilty of a misdemeanor and upon conviction thereof shall have his license revoked."

Here is another: "It shall be lawful for any person who is twenty-one years of age and of good moral character to practice and apply the Kaliptic Treatment in any case of rheumatism or nervous disease. By the term "Kaliptic Treatment" shall be meant the discovery and treatment as practised and applied by James Kalil, of Williston, North Dakota."

All the bills introduced concerning hospitals or the practice of medicine failed to pass. Senate Bill No. 327 which was to place hospitals on the tax list was fought hard in the Committee, and one of the facts brought out was that if hospitals were compelled to pay taxes they would have to pass it on to the patient by increasing their rates, or else close their doors. The discovery of this possible recoil was an important factor in killing the bill.

The average legislator is well-meaning and honest, and it is his desire to pass laws that are fair to the greatest number of our citizens. In order to do this he should have some means of ascertaining the merits or demerits of proposed legislation. Medical bills are the least understood by the layman and therefore by the average legislator. Every member of our Association should make it a duty to become personally acquainted with the representatives of his district and gain their friendship and confidence, so that they may feel free to ask or accept advice from you in all matters pertaining to medical legislation.

All bills introduced affecting the practice of medicine and surgery, the regulation of hospitals, etc., should be sponsored by the State Association and reported to the Committee on Public Policy and Legislation. Respectfully submitted,

V. J. LAROSE,
W. H. PORTER,
CHAS. MACLACHLAN.

REPORT OF COMMITTEE ON MEDICAL EDUCATION

The Secretary reported that the Chairman of this Committee was unable to be present but had submitted his report, which he then presented as follows:

Your Committee on Medical Education can report upon the medical education of students in exactly the same words that have been used in other years. In brief, that the School of Medicine at the University continues to operate on the two-year, or half-school, plan. It enjoys satisfactory recognition from various rating bodies, and it has a greater demand for registration than it can take care of on account of limited room and equipment.

As a start in an organized effort to improve popular health education, your Committee would recommend that the State Medical Association maintain a subscription to *Hygiea* in each public library in the state, and that the District Societies be requested to consider the possibility of their maintaining a copy of the same journal in each of the high school libraries in their respective districts.

Respectfully submitted,

H. E. FRENCH, Chairman.

Dr. McCannel moved the adoption of the report. Motion seconded and carried.

COMMITTEE ON NECROLOGY

Dr. F. M. Smyth presented the following report:

The deaths of five physicians in our state have been reported since our last meeting. It is worthy of note that they all died in the prime of life and whilst actively engaged in the arduous duties of country practice.

Dr. C. L. Brimi, Cooperstown, member of Sheyenne Valley Medical Society. Born April 9, 1876; graduated from Rush in 1897; licensed in North Dakota, in 1898; Fellow American Medical Association.

Dr. Brimi, one of the best known and respected physicians in the state, was a supporter of organization in the profession and at one time was Secretary of the State Association. Active at our meetings, his advice and suggestions were appreciated by all. He died on January 19, 1925, of heart trouble.

Dr. W. R. Claybough, Grenora, member of Kotana Society; graduated from Illinois University Medical School in 1903; licensed in 1904; fellow American Medical Association; born October 26, 1875; died January 1, 1925, of cerebral hemorrhage.

Dr. Per Oyen, Fessenden, a non-member; graduated from the Medico-Chirurgical of Philadelphia in 1894; licensed in 1894. Born December 6, 1870; died December 7, 1924, of angina pectoris.

Dr. Lewis Schulz, Minnewaukan, non-member; graduated from Louisville Medical College in 1896; licensed in 1896; died April 11, 1925, at the age of fifty. While making a country call in December, 1924, he had his feet frozen, and gangrene set in, but on account of the presence of diabetes it was thought inadvisable to amputate. The immediate cause of death was septicemia.

Dr. Albert Harry Shimp, Minto, member of Indiana State Medical Society; graduated from Indiana Medical College in 1906; served in the Medical Corps of the United States Army in the World War, with the rank of Captain; died March, 1925, at the age of forty-one.

Respectfully submitted,

F. M. SMYTH, Chairman.

Dr. MacLachlan moved the adoption of this report. Motion seconded and carried.

COMMITTEE ON MEDICAL HISTORY OF THE STATE

Dr. George M. Williamson, Grand Forks, made the following report:

You will all doubtless remember the appointment of the special committee on the Medical History of the State of North Dakota by Dr. Grassick. We hoped to have it ready by this time, but it has been delayed because of illness. It will probably be ready next October. I have sent blanks for subscription to all the men I know of, and a hundred and fifty have sent subscriptions. I want to get another one hundred subscriptions at this meeting and if we do that we can put it over nicely. I am sure the men do not look at the blanks carefully enough, and they are tossed aside because they are not considered important.

I think it might be a good plan to leave a blank at every man's plate at the banquet tonight, asking him to sign the blank. Perhaps in that way I can get the hundred subscriptions tonight.

The book will be very valuable in the future, and this Association is under a great debt to Dr. Grassick for the work he has done on it. It will be a splendid thing for North Dakota. Charlie MacLachlan's Society is in 100 per cent, and the Society is paying for the subscription.

On motion duly seconded and carried this report was accepted as made.

APPOINTMENT OF COMMITTEES

NOMINATING COMMITTEE

The President appointed the following gentlemen to serve as a Nominating Committee:

DR. W. D. JONES, Devils Lake,

DR. H. W. MILLER, Casselton,

DR. CHAS. MACLACHLAN, New Rockford.

As this concluded the business before the House of Delegates at this time, on motion duly seconded and carried the meeting adjourned, to reconvene at the close of the morning session on Tuesday.

SECOND SESSION—TUESDAY, MAY 19

The second meeting of the House of Delegates was called to order in the Knights of Columbus Hall, at 12:15 P. M., on Tuesday, May 19, 1925, by the President, Dr. W. C. Fawcett, Starkweather.

The Secretary called the roll of Delegates and Councilors.

The President announced a quorum present and declared the House duly constituted for the transaction of business.

The Secretary read an abstract of the minutes of the previous meeting, which, upon motion duly seconded and carried, was accepted as read.

REPORT OF COMMITTEE ON TUBERCULOSIS

In the absence of Dr. Lamont the following report was presented by Dr. James Grassick, Grand Forks:

The past year's work of this Committee has been on the average fairly satisfactory. An educational campaign was undertaken along the lines followed in previous years and providing also for an extension program. Lecturers were kept in the field attending club meetings, fairs, and church assemblies, and using other means of platform publicity. The nursing service, although somewhat restricted as compared with previous years, was used to good advantage in several parts of the state.

Work was also undertaken in school clubs, following educational health lines and supplying necessary health literature.

The very important Traveling Health Clinic, which has been so successful in previous years, gave good service, chiefly in the western part of the state, where there is a constant dearth of medical advice and nursing service. The Clinic has just now started out for another campaign of usefulness to counties west of the Missouri River.

An endeavor has been made through all health agencies to enlist sentiment favoring institutional care of active tuberculosis patients and providing for their support.

Co-operation with other health agencies has been a keynote of the past year's campaign, and so far as possible the Tuberculosis Association has endeavored to shape its activities in order not to conflict with the other important health agencies in the field.

The State Sanatorium this year is to be congratulated in securing an appropriation from the Legislature for the building of a \$40,000.00 Tuberculosis Hospital for children. This building will combine the care of active tuberculosis cases with the Preventorium and Open-air School. It is hoped that by using the very best model of up-to-date children's hospitals the building can be made a very valuable asset in the prevention of the active tuberculosis so common in later life, as well as the proper treatment of active tuberculosis in children. The Sanatorium has had an average of about 100 patients during the past two years. Only 13 per cent of the cases sent to this institution can be classed as incipient, and all of these patients are back at work in their usual occupations after a term of residence. About 30 per cent of the moderately advanced cases were discharged as arrested, and approximately 45 per cent were discharged as improved. Out of 329 patients admitted, 143 had far advanced or hopeless cases, a rather sad commentary upon early hospitalization.

The officers of the institution desire to thank the profession generally for past co-operation, and to request a continuance of this co-operation during the coming years.

Respectfully submitted,

DR. J. G. LAMONT,
DR. FANNIE DUNN QUAIN,
DR. JAMES GRASSICK.

Dr. Grassick moved the adoption of this report. Motion seconded and carried.

COMMITTEE ON PUBLIC HEALTH

Dr. A. A. Whittemore, Bismarck, presented the report of this Committee.

Dr. F. R. Smyth moved that the report be published in THE JOURNAL-LANCET without reading, in order to save time.

Motion seconded and carried.

SELECTION OF MEETING PLACE FOR 1926

Dr. Andrew Carr, Minot, presented an invitation to the Association to meet in Minot, stating that he had the unanimous membership of the District Medical Society back of him, as well as the good citizens of Minot, and guaranteeing to take care of the meeting to the best of their ability. The Secretary read an invitation which has been received from the Commercial Club of Grand Forks.

Dr. George M. Williamson: In view of the fact that the Minot friends have promised to give us such a rare good time out there, I move that the invitation from Grand Forks for next year be withdrawn.

Motion seconded and carried.

Dr. F. R. Smyth, Bismarck, moved that the invitation to meet in Minot be accepted.

Motion seconded and carried.

Dr. James Grassick brought up the time of the meeting.

Dr. Carr stated that any time would suit them that would suit the majority of the members of the Association, but he thought the latter part of May was as good a time as any.

Dr. P. H. Burton thought it well to wait until the date of the meeting of the American Medical Association was settled before deciding upon a date.

Dr. Smyth moved that it be the sense of the House of Delegates that the meeting should be held between May 15 and June 15.

Motion seconded and carried.

MISCELLANEOUS BUSINESS

Dr. Andrew Carr, Minot: There is an old member of our Association present who has left the state and is residing elsewhere at present. Although I have not time to enter into any eulogy of his services you are all familiar with them. I believe it is due him to be elected an honorary member of our Association for life. I refer to Dr. H. J. Rowe and I move that this be done.

Motion seconded and unanimously carried, and the President declared Dr. Rowe duly elected to honorary membership.

Dr. Rowe briefly expressed his appreciation.

Dr. Paul H. Burton, Fargo: I have noticed that on many occasions when other states have invited guests on their program they are made honorary members of the Society, simply as an act of courtesy.

I move that the men from outside the state who have come here and given their time and money to appear upon the program be made honorary members of the Association.

Motion seconded and unanimously carried, and the following gentlemen were declared duly elected to honorary membership:

DR. DEAN LEWIS, Chicago, Illinois
 DR. F. C. RODDA, Minneapolis, Minn.
 DR. W. F. BRAASCH, Rochester, Minn.
 DR. ARTHUR S. HAMILTON, Minneapolis, Minn.
 DR. JOHN BUTLER, Minneapolis, Minn.
 DR. J. P. SCHNEIDER, Minneapolis, Minn.
 DR. H. WINNETT ORR, Lincoln, Nebraska
 DR. W. H. LONG, Rochester, Minn.

REPORT OF NOMINATING COMMITTEE

In the absence of the Chairman of this Committee the Secretary presented the following report:

Your Committee on Nominations beg leave to present their report as recommending the following named members as officers of this Association for the coming year, the President already elected being Dr. John H. Rindlaub of Fargo.

President-Elect, Dr. N. Oliver Ramstad, Bismarck.
 First Vice-President, Dr. Thomas Mulligan, Grand Forks.

Second Vice-President, Dr. W. F. Sihler, Devils Lake.

Secretary, Dr. A. J. McCannel, Minot.
 Treasurer, Dr. Wm. W. Wood, Jamestown.

Councilors:

Second District, Dr. G. F. Drew, Devils Lake.
 Seventh District, Dr. P. G. Arzt, Jamestown.
 Eighth District, Dr. L. B. Greene, Edgeley.

For the Fifth and Tenth Districts we offer a recommendation that they be combined as the Fifth District under the Councilorship of Dr. F. L. Wicks, Valley City, whose term of office as Councilor for the Fifth District as now constituted does not expire until 1927.

We further recommend that Stark County Society and the Southwestern Society be combined as the Tenth District, with Dr. Jesse W. Bowen, of Dickinson, nominated as its Councilor.

For the Committee on Medical Defense we recommend that Dr. R. W. Pence, Minot, and Dr. H. W. F. Law, Grand Forks, be re-elected.

As a member of the Committee on Medical Education we recommend that Dr. H. E. French be re-elected.

Your Committee recommends for the Governor's appointment on the State Board of Examiners the re-appointment, for a second term, of

DR. GEORGE M. WILLIAMSON, Grand Forks,
 DR. PAUL H. BURTON, Fargo,
 DR. W. A. GERRISH, Jamestown.

All of which is respectfully submitted,
 CHAS. MACLACHLAN, M.D.
 W. D. JONES, M.D.
 H. F. MILLER, M.D.

Dr. F. R. Smyth moved that the report be adopted and that the President cast a ballot for the gentlemen recommended by the Nominating Committee.

The President reported the ballot cast and declared the gentlemen duly elected.

NEW BUSINESS

The Secretary stated that there were two or three items he wished to bring up. He regretted that there was no report from the Committee on Medical Defense. In connection with the group policy insurance, the agents had gone out and written policies on anyone who said they were members of the Association, and had written them on several who were not members. A number of the men were members but were in arrears three years in their dues, but the insurance company still carried them as members of the group. The policy provided that it became null and void when the man ceased to be a member, but did not provide for suspension. It was suggested that some action be taken to decide when a man should be dropped definitely from the Association for non-payment of dues. Then he would have to look out for his insurance in some other way or would have to come back into the membership.

Dr. George M. Williamson stated that if the dues were not paid by April 1 a man ceased to be a member of the Association.

Dr. H. J. Rowe asked for permission to introduce a representative of the Aetna Life Insurance Company, who explained the plan of the insurance, and stated that there was nothing in the By-Laws which terminated a man's connection with the Association, and that they could be reinstated at any time by paying their back dues. He further stated that arrangements should be made to notify the Company at once when a man became ineligible for insurance.

Dr. Williamson asked if it would not be possible to so arrange matters that the policies would all expire on April 1 of each year. Then each member should present to the Company a receipt for his dues in order to renew his insurance. This allowed three months for the payment of dues, and the Secretary could send a list of the members who were in arrears at that time to the Company, showing that they were not entitled to a renewal of their policy.

Dr. Weston, the representative of the Company, thought this would not be practical as

some of the men wanted their insurance to come due on October 1 or 15 or some other time.

Dr. McCannel asked if men applying for membership during the year could not be insured for the remaining portion of the year.

Dr. Weston agreed, but suggested that the House of Delegates adopt a resolution that on a certain date the Secretary should notify the Insurance Company who had paid their dues and who had not, making the date any one they wished, and give the agent of the Insurance Company an opportunity to assist them in securing the dues.

Dr. Williamson stated that Section 5 of Chapter I of the By-Laws covered the entire thing, and gave notice of an amendment to change this By-Law so that all insurance would be made to come due at the same time.

He moved that this be done.

Motion seconded and carried.

REPORT OF AUDITING COMMITTEE

Dr. E. M. Ransom reported that the Finance Committee of the Council had audited the books of the Treasurer and found everything correct.

Upon motion duly seconded and carried the report was adopted as given.

Dr. Ransom further stated that the Council recommended that the President's Address be entered in the proceedings of the Association and published in THE JOURNAL-LANCET.

Dr. MacLachlan moved the adoption of this recommendation.

Motion seconded and carried.

NEW BUSINESS

The Secretary introduced the subject of correspondence relating to the care of the grave of Dr. J. S. Weissert in Jamestown, and read one letter which he had received.

The President stated that he had received several letters regarding the matter.

Dr. Smyth moved that it be referred to the Council to report at the next meeting.

Motion seconded and carried.

Dr. Williamson moved that the official stenographer be retained and that the Secretary be instructed to make the arrangements as soon as possible in order to avoid conflicting engagements.

Motion seconded and unanimously carried.

INSTALLATION OF PRESIDENT

Dr. Fawcett requested the new President, Dr. John H. Rindlaub, to come forward and introduced him to the Members of the House of Delegates, amidst applause.

Dr. Rindlaub: It was not my intention to have anything to say at this time, but I thought that perhaps this afternoon I would express my appreciation to the Committee that has had charge of this meeting.

I feel highly honored that the members have elected me as President and shall do all I can to make the next meeting a grand success. As most of you know, I had an over-dose of cold steel and an enforced vacation of four months. I was on the Scientific Committee but do not care to take any credit for the splendid meeting we have had here. Most of the credit should go to Dr. Paul H. Burton and the other men who had charge of the clinics.

I thank you most heartily and will look to each of you for your co-operation in helping us make the Association a really live one.

COUNCIL MEETING

Dr. F. R. Smyth stated that he would call a last meeting of the Council, and moved that a President and a Secretary of the Council be elected.

Dr. Ransom moved that Dr. Smyth be continued as President of the Council for the ensuing year.

Motion seconded and carried.

Dr. Ransom then moved that Dr. George M. Williamson be retained as Secretary for another year.

Motion seconded and carried.

Dr. Williamson stated that it might be necessary to have a little money for the publication of the Medical History of North Dakota, as they had not yet obtained enough subscriptions to cover the entire cost although they still hoped to do so. He suggested that a sum amounting to \$300.00 be granted by the Council.

Dr. MacLachlan moved that this Committee be allowed to draw not to exceed \$300.00.

Motion seconded and unanimously carried.

Dr. Ransom recalled the suggestion of President Fawcett that a certain sum of money be set aside each year to help out societies that were in difficulties. He thought the recommendation a good one and asked that some action be taken.

Dr. Fawcett stated that some of the local societies were in financial straits and were not holding meetings. If they invited the President or the Secretary of the State Association to attend a meeting it was of great benefit. He wished that someone could be sent down to the Southern and the Southwestern Districts to help them to get reorganized, but he did not believe that the President and Secretary should be compelled to spend their own money for these trips. He felt that their traveling and hotel expenses should be paid, although this was without refer-

ence to the trip he had made. Dr. Rindlaub was connected with a Clinic so that he could get away for a few days at intervals, and Dr. Fawcett was sure it would add greatly to the Association if the officers could get out among the local societies in the State and meet with them. He saw possibilities for great good in this plan.

Dr. Rindlaub stated that he was not in favor of this. If the Council cared to make an appropriation for some others to go with him on such trips he would be glad, but he would be happy to assume his own expenses.

Dr. Williamson thought the expenses of these trips should be paid by the Association and that the men making the trips should submit their bills.

The Secretary read the portion of the By-Laws governing the payment of expenses.

Dr. Ransom stated that according to this the matter had to go through the House of Delegates, as it did not allow a free hand to the Council.

Dr. Williamson thought it would be well to have the bills submitted so that the House of Delegates could decide upon them.

As this concluded the business of the Association, on motion, the Council and the House of Delegates was declared adjourned *sine die* at 1:15 P. M.

PROCEEDINGS OF THE SCIENTIFIC MEETINGS OF THE ASSOCIATION

FIRST SESSION—MONDAY, MAY 18

MORNING SESSION

The first session of the thirty-eighth annual meeting of the North Dakota State Medical Association was called to order in the Knights of Columbus Hall, Fargo, on Monday, May 18, 1925, at 8:30 A. M., by the President, Dr. W. C. Fawcett, Starkweather.

Dr. Fawcett requested the First Vice-President, Dr. N. O. Ramstad, Bismarck, to take the chair while he delivered the presidential address, entitled "Medical Organizations, History and Success."

Dr. Ramstad appointed a committee consisting of Dr. E. A. Pray, Valley City; Dr. W. H. Bodenstab, Bismarck; and Dr. E. M. Ransom, Minot, to go over the address of the President and make recommendations as to its publication.

The President then resumed the chair.

Dr. N. O. Ramstad, Bismarck, read a paper on "The Diagnosis and Treatment of Gall-Bladder Disease." Discussed by Drs. J. W. Bowen,

Dickinson; Ralph E. Weible, Fargo; and in closing by Dr. Ramstad.

Dr. F. C. Rodda, Minneapolis, Minnesota, presented a paper on "Acrodynia." Discussed by Drs. A. M. Brant, Bismarck; E. A. Pray, Valley City; and, in closing, by Dr. Rodda.

Dr. L. W. Meyers, Fargo, presented a paper on "Sinus Disease in Children." Discussed by Dr. Rolfe Tainter, Fargo.

Dr. Dean Lewis, Chicago, addressed the Association on "The Diagnosis of Abdominal Lesions." Discussed by Dr. Martin W. Roan, Bismarck.

Dr. Arthur S. Hamilton, Minneapolis, Minnesota, read a paper on "Syphilis of the Central Nervous System." Discussed by Dr. William M. Hotchkiss, Fargo, and, in closing, by Dr. Hamilton.

Dr. W. F. Braasch, Rochester, Minnesota, addressed the Association on "The Recognition and Treatment of Urinary Infection." Discussed by Dr. Frederick H. Bailey, Fargo, and, in closing, by Dr. Braasch.

As this completed the program for the morning session, on motion, duly seconded, the Association adjourned at 12:15 to reconvene in clinical session at 1:15 P. M.

AFTERNOON SESSION

The afternoon session was called to order at 1:30 by the President, Dr. W. C. Fawcett, Starkweather.

This session was entirely devoted to dry clinics, which were given by the following physicians:

Surgical Clinic—Dr. H. Winnett Orr, Lincoln, Nebr.

Neurological Clinic—Dr. Arthur S. Hamilton, Minneapolis, Minn.

Surgical Clinic—Dr. Dean Lewis, Chicago, Ill.

Pediatric Clinic—Dr. F. C. Rodda, Minneapolis, Minn.

Urologic Clinic—Dr. W. F. Braasch, Rochester, Minn.

As this completed the program for the afternoon, on motion, duly seconded, the Association adjourned at 5:15 P. M. to reconvene Tuesday at 8:00 A. M.

EVENING SESSION

The annual banquet was held on Monday evening at the Commercial Club, and the following program was carried out with Dr. Frank I. Darrow as toastmaster:

Remarks—Dr. W. C. Fawcett, Starkweather, President, North Dakota State Medical Association.

The Medical Profession—Dr. Willard L. Bur-
nap, Fergus Falls, Minnesota.

Medically Speaking—Mr. George E. Benson,
Fargo, N. D.

The Full-Time Surgical Chair at Johns Hop-
kins University—Dr. Dean Lewis, Chicago, Ill.

Music was furnished throughout the evening
by Bierman's orchestra.

MORNING SESSION—TUESDAY, MAY 19, 1925

The morning session of the second day was
called to order at 8:20 by the President, Dr.
W. C. Fawcett, Starkweather.

The following gentlemen presented a Sympo-
sium on X-ray:

Dr. Frank I. Darrow, Fargo, presented a paper
on "Technic in X-Ray Work."

Dr. A. J. Clay, Fargo, presented a paper on
"X-Ray Treatment."

Dr. T. P. Rothnem, Fargo, demonstrated a
series of lantern slides of x-ray films.

Dr. H. Winnett Orr, Lincoln, Nebraska, pre-
sented a paper on "Mechanical vs. Chemical
Methods in the Treatment of Wounds." Dis-
cussed by Dr. C. N. Callander, Fargo, and, in
closing, by Dr. Orr.

Dr. John Butler, Minneapolis, Minnesota, ad-
dressed the Association on "Eczematoid Ring-
worm of the Skin," and demonstrated a series of
lantern slides.

Dr. George M. Williamson, Grand Forks, pre-
sented a paper entitled "Pregnancy in Abnormal
Situations." Discussed by Dr. William W.
Wood, Jamestown; Dr. L. B. Greene, Edgeley;
and, in closing, by Dr. Williamson.

Dr. J. P. Schneider, Minneapolis, Minnesota,

addressed the Association on "The Differential
Diagnosis and Treatment of Chronic and Recur-
ring Arthritis." (Lantern slides.)

Dr. W. H. Long, Rochester, Minnesota, pre-
sented a paper entitled "The Prevention of Heart
Disease."

As this completed the program for the morn-
ing, on motion duly seconded the Association ad-
journed at 12:10 to reconvene at 1:15 p. m. in
clinical session.

AFTERNOON SESSION

The afternoon session was called to order at
1:20 by the President, Dr. W. C. Fawcett, Stark-
weather.

This session was entirely devoted to dry clinics,
which were given by the following physicians:

Dermatologic Clinic—Dr. John Butler, Minne-
apolis.

Arthritis Clinic—Dr. J. P. Schneider, Minne-
apolis.

Heart Clinic—Dr. W. H. Long, Rochester,
Minn.

Pediatric Clinic—Dr. F. C. Rodda, Minne-
apolis.

At the close of the program, President Fawcett
expressed the appreciation of the Association for
the splendid program which had been arranged,
and for the generous hospitality of the Fargo
members, and in a few well chosen words intro-
duced the newly elected President, Dr. John H.
Rindlaub, of Fargo.

Dr. Rindlaub accepted the office in a brief ad-
dress and upon motion, duly seconded, the As-
sociation adjourned to meet in Minot in 1926.

DISTRICT AND COUNTY ROSTER

CASS COUNTY MEDICAL SOCIETY

| | | | | | |
|-------------------------|---------------|-------------------------|-----------|---------------------------|-------------|
| PRESIDENT | | Gronvold, F. O. | Fargo | Oftedal, Arne | Fargo |
| Hanna, J. F. | Fargo | Gustuson, E. V. | Fargo | Oftedal, Axel | Fargo |
| SECRETARY | | Hanna, J. F. | Fargo | Oftedal, Sverre | Fargo |
| Evans, L. J. | Fargo | Haynes, Geo. H. | Lisbon | Owens, P. L. | Buffalo |
| Aylen, J. P. | Fargo | Hendrickson, Gilbert .. | Enderlin | Patterson, T. C. | Lisbon |
| Baillie, W. F. | Fargo | Hoffman, P. E. | Fargo | Platon, L. S. | Fargo |
| Bakke, Hans | Lisbon | Hotchkiss, W. M. | Fargo | Richter, E. H. | Hunter |
| Bayard, W. D. | Chicago, Ill. | Hougen, Hans | Fargo | Rindlaub, Elizabeth P. .. | Fargo |
| Bohnsack, E. M. | Fargo | Huntley, H. B. | Leonard | Rindlaub, J. H. | Fargo |
| Brown, W. G. | Fargo | James, J. B. | Page | Rindlaub, M. P. | Fargo |
| Burton, Paul H. | Fargo | Joistad, A. H. | Fargo | Rostel, Hugo | Fargo |
| Callander, C. N. | Fargo | Kaess, A. J. | Fargo | Rothnem, T. P. | Fargo |
| Carpenter, Geo. A. | Fargo | Kilbourne, B. K. | Fargo | Rowe, H. J. | Minneapolis |
| Clay, A. J. | Fargo | Larson, G. A. | Fargo | Sand, Olaf | Fargo |
| Darrow, F. I. | Fargo | Lewis, T. H. | Fargo | Skelsey, A. W. | Fargo |
| Darrow, Kent E. | Fargo | Limberg, A. M. | Fargo | Tainter, Rolfe | Fargo |
| Dillon, J. G. | Fargo | MacGregor, Murdock .. | Fargo | Tronnes, N | Fargo |
| Evans, L. J. | Fargo | Miller, H. W. | Casselton | Wadel, K. A. | Fargo |
| Fortin, H. J. | Fargo | Morris, A. C. | Fargo | Wands, E. E. | Lisbon |
| French, Wm. J. | Fargo | Myers, L. W. | Fargo | Watson, E. M. | Fargo |
| Gowenlock, H. J. | Gardner | Nichols, A. A. | Fargo | Weible, R. E. | Fargo |
| | | Nichols, Wm. C. | Fargo | Weyrens, P. J. | Sheldon |

DEVILS LAKE DISTRICT MEDICAL SOCIETY

PRESIDENT
 McGurrien, C. J. Devils Lake
 SECRETARY
 Carter, J. A. Warwick
 Arneson, A. O. McVille
 Call, A. M. Rugby
 Carter, J. A. Warwick
 Drew, G. F. Devils Lake
 Emert, H. F. Sarles

Engesather, J. A. D. Brockett
 Fawcett, W. C. Starkweather
 Floew, A. T. Harvey
 Hayhurst, J. O. Rolette
 Horsman, A. T. Devils Lake
 Jones, W. D. Devils Lake
 Lamont, J. G. San Haven
 Lees, H. D. Minneapolis
 McGurrien, C. J. Devils Lake

McIntosh, G. J. Devils Lake
 Nicholson, E. G. Lawton
 Roberts, F. J. Cando
 Sihler, W. F. Devils Lake
 Smith, Clinton Devils Lake
 Sorenson, A. R. Rugby
 Swenson, A. W. Bisbee
 Verret, B. D. Rolla
 Vigeland, J. G. Brinsmade
 Widmeyer, J. P. Rolla

GRAND FORKS DISTRICT MEDICAL SOCIETY

PRESIDENT
 Miller, J. P. Grand Forks
 SECRETARY
 Benwell, H. D. Grand Forks
 Allaire, J. Anamoose
 Arneberg, J. G. Grand Forks
 Beek, R. H. Lakota
 Beeson, H. B. Grand Forks
 Bennett, C. E. Aneta
 Benwell, H. Grand Forks
 Campbell, Robt. D. Grand Forks
 Countryman, J. E. Grafton
 Dean, A. C. Grand Forks
 Deason, F. W. Grafton
 Eggers, Aug. Grand Forks
 Engstad, J. E. Grand Forks
 Evans, R. M. Minto
 Field, A. B. Forest River
 French, H. E. Grand Forks
 Gislason, G. J. Grand Forks

Glaspel, C. J. Grafton
 Glaspel, G. W. Grafton
 Grassick, Jas. Grand Forks
 Haagenson, E. C. Grand Forks
 Halldorson, M. B. Winnipeg
 Hamilton, J. S. Bathgate
 Harris, C. B. Pembina
 Healy, H. H. Grand Forks
 Hetherington, J. E. Grand Forks
 Irvine, V. S. Park River
 Jelstrup, Christian Kindred
 Landry, L. H. Walhalla
 Law, H. W. F. Grand Forks
 Lommen, C. E. Fordville
 Mahon, Ruth Grand Forks
 McLean, R. N. Gilby
 McQueen, W. W. Langdon
 Miller, J. P. Grand Forks
 Moore, J. H. Grand Forks
 Mulder, J. L. Cavalier
 Mulligan, T. Grand Forks
 O'Keefe, Henry Grand Forks

Panek, A. F. Milton
 Peake, F. Margaret Grand F'ks
 Porter, W. H. Calvin
 Peterson, O. T. Minot
 Ruud, M. B. Grand Forks
 Rystad, O. H. Grand Forks
 Smith, J. C. Thompson
 Spannare, C. I. Mayville
 Stromberg, G. E. Langdon
 Suter, J. C. Grafton
 Taylor, J. D. Grand Forks
 Thompson, A. Y. Larimore
 Wagar, W. D. Michigan
 Waldren, H. M. Drayton
 Weed, F. E. Park River
 Welch, W. H. Larimore
 Westeen, A. A. Grand Forks
 Wheeler, H. M. Grand Forks
 Williamson, G. M. Grand Forks
 Witherstine, W. H. Grand Forks
 Woutat, H. G. Grand Forks
 Wylie, A. R. T. Grafton

SIXTH DISTRICT MEDICAL SOCIETY

PRESIDENT
 Arnson, J. O. Bismarck
 SECRETARY
 Henderson, R. W. Bismarck
 Arnson, J. O. Bismarck
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PRESIDENT'S ADDRESS: MEDICAL ORGANIZATIONS: THEIR HISTORY AND SUCCESS*

By WILLIAM C. FAWCETT, M.D.

STARKWEATHER, NORTH DAKOTA

"One can only speculate as to when the first medical society was organized. The high attainment of medicine in the days of Hippocrates justifies the belief that conferences must have frequently occurred amongst his followers. It may also be assumed that the contemporaries of Galen were wont to meet and discuss medical problems. During the reign of the dark ages and the period of the alchemists there was no attempt at organization worthy of the name."

Dr. Wynn refers to the widespread tendency of the 17th and 18th centuries to form organizations for friendly intercourse, mutual improvement, and for the purpose of stimulating scientific investigation, medicine included, and then says:

"Such were the German Scientific and Medical Association, founded in 1652; the Academy of Sciences in France 1665; and the Academy of Medicine, 1720; in America, the Massachusetts State Medical Society, 1781, and the Philadelphia College of Physicians and Surgeons, 1787. All these organizations continue an honorable existence, fulfilling in the highest degree the noble aims and purposes of their founders."

"The medical society as we know it is a product of modern times—one of the fruits of the diffusion of knowledge, and the spread of democracy. In the very nature of things, therefore, medical organization of the rank and file of the profession has attained larger growth in America than anywhere else in the world."

Fielding H. Garrison, in his recent extensive book on the "History of Medicine," says that among the important Scientific Societies one was founded in Edinburgh in 1737; one in London in 1773 and in Paris 1776; and the Royal College of Surgeons in London in 1800.

Garrison says, with regard to medical societies in America, that the following were organized in the 18th century: A medical society was organized in Boston in 1735; in New York City, 1749; Philadelphia, 1765, again in New York City about 1769; and in Philadelphia the first American Medical Society was organized in 1773, and soon thereafter State Societies were founded in many of the New England states.

"Of these, the Massachusetts Medical Society (1781), the College of Physicians of Philadelphia (1787), and the Medical Faculty of Maryland (1789), are remarkable for solid performance, as well as for ancient lineage and continuous descent."

Concerning two of the most important medical societies, and what they have accomplished he says:

"The British Medical Association was organized on July 19, 1832, in the board room of the Worcester Infirmary, at the instance of the late Sir Charles Hastings, who was then Physician to the Infirmary. Since its foundation, meetings have been held in different cities of Great Britain each year, and the Association now has many home and colonial branches. Its published transactions (1832-53) and the *Provincial Medical and Surgical Journal* (1853-57) were also its organs until the *British Medical Journal* was founded in 1857. As representing the united profession of Great Britain, the Association has played an important part in the development of English medicine in the modern period, particularly in medical reform, looking after parliamentary bills relating to public health legislation and poor laws, and in the exposure and censure of quackery, patent nostrums, and other frauds. In 1909 it published 'Secret Remedies,' a convenient directory of current nostrums.

"In 1847 the American Medical Association was organized, owing its inception to a national convention of delegates from medical societies and colleges called by the Medical Society of New York State, largely through the efforts of Nathan Smith Davis, to improve the then disgraceful status of medical education in the United States. During the first fifty years of its existence its activities were confined to discussion rather than accomplishment, and its membership was limited to specially elected delegates. Since its reorganization, in St. Paul, in 1901, membership in the Association has been based upon membership in the state medical societies, which are again based upon membership in the county societies. Both state and national organizations have a specially elected House of Delegates to transact business, which welds the whole profession of the country into an efficient organized body, capable of ac-

*Presidential Address presented at the thirty-eighth annual meeting of the North Dakota State Medical Association, at Fargo, May 18, 1925.

complishing things. Under the earlier dispensation the aims of the Association were restricted mainly to the narrower problems of medical ethics; its present purpose is largely the direction of public opinion in regard to public hygiene and medical education. In spite of much opposition, the Association in the last twelve years of its existence, has accomplished many important things, first and foremost, in checking, through its Council on Pharmacy and Chemistry, the exploitation of the medical profession by patent medicine makers and the swindling of the people by quacks and quackery, special records of 'New and Non-Official Remedies,' proprietary medicines, diploma-mills, and other frauds being kept and published for public use. It has vastly improved the status of the state medical societies as to increase in membership and efficiency, so that where formerly the state societies published meager volumes of transactions at rare intervals, there were, by 1910, some twenty-two state society journals, a great improvement in the centralization of periodical literature. The Council on Medical Education (1904) has, through its propaganda in the last eight years, done much to decrease the number of low-grade medical schools and, consequently, of incompetent or unscrupulous physicians. It has also done much to secure four-year courses and 'full-time' professors for the more scientific subjects. Finally, through its Council on Health and Public Instruction, the Association has now public speakers in practically every state of the Union, who instruct the people directly in regard to infectious diseases."

An interesting book of early date is J. Collins Warren's "Medical Societies: Their Organization and the Nature of Their Work," published in 1881. For numerous details the reader is referred to this book. The author briefly refers to a few typical examples of national medical associations in foreign countries, saying that, for a number of years, medical societies have assembled in various parts of Europe, Switzerland being the first to hold a meeting of medical men, and France and England followed her example. As early as 1839 Italy had a gathering of physicians at Pisa. At the annual meeting of the French Congress at Bordeaux, in 1865, it was proposed to hold an International Congress at Paris during the great exhibition of 1867, and Professor Bronillard, the president of the Congress at Bordeaux, was authorized on his return to Paris to organize an executive committee to prepare for the coming meeting. Since that first medical meeting of foreign nations at Paris,

Warren says that the second one was held in Florence, in 1869; the third, in Vienna, in 1873; and one at London in 1881.

T. E. Satterthwaite, of New York, writing on the subject of, "Some of our Larger Societies and Their Fields of Usefulness," describes the methods and aims of the American Medical Association as follows: "Notwithstanding the adverse criticisms that have from time to time been launched against it, it is certainly the most influential medical body in the United States, probably in the world, and is an accepted mouthpiece for the majority of our profession."

Again, it may be stated without fear or contradiction that the American Medical Association, with the support of its component county and district societies and its state associations has done more to raise the standards of education in our medical schools; more to further post-graduate medical work; more to promote the aims and ideals of physicians everywhere; more to awaken medical and public interest in public health matters; and more to further human health and consequently human efficiency than any other single agency in human history.

Now, what of our own State Association? It was organized at Larimore, in 1887, and its first President was Dr. Millspaugh. Then in 1888 a permanent organization was completed, of which Dr. J. E. Engstad, of Grand Forks, was treasurer.

This organization drafted a constitution and by-laws which were presented to the meeting in 1889 and were there adopted. In 1903 the constitution and by-laws were revised in conformity with the recommendations of the American Medical Association. Then again, in 1918, the constitution and by-laws were revised, and it is under this last revision that we are now operating.

The North Dakota State Medical Association has met annually ever since its organization, this being the 38th session of this body. As a society of medical men we may not have accomplished very many big things or created any new national medical history; but, on the other hand, where would we have been as doctors in this big state if we were not linked together by this state organization?

I shall mention a few things that we have accomplished: We put over the present medical practice act. We have brought a good many men of prominence into the state for our programs. To me the greatest accomplishment has been to influence the doctors against the idea of helping in the bringing of mal-practice suits. The County Society, as well as the State Association, has helped materially in developing many of our men,

some of whom are in demand at big medical meetings in other states. We have a uniform fee schedule for the whole state. Again, we have a live committee at Bismarck, at every session of the Legislature, who are there to lend their aid and influence to further the passage of good bills, as well as to work against poor and vicious measures. An example of this was the "Hospital Bill," which was introduced this last winter and was killed. I could mention many many more things that we have accomplished, but time will not permit.

Every state in the Union and each of the territories of the United States have a constituent medical society. There are 54 of these state and territorial societies, and, with one or two exceptions, they are all organized on the basis of the county as the component unit. In Massachusetts the district plan is in effect. There are 3,047 counties in the United States, and there are approximately 2,050 component county medical societies. In a number of instances, two or more counties are included in one county organization. For instance, in some of the western states some county societies have in membership the eligible physicians of several different counties. In a number of other instances, two or three adjacent counties combine to maintain a single county medical society.

The plan of organization of the medical association and its constituent and component units, as has been said above, makes the county the basic unit. The states are divided into councilor districts; and in some instances district societies, composed of the members of county societies in the various districts, have been organized and function actively. The tendency seems to be toward further organization of district societies. These are not supposed to supplant the county society, but rather to supplement it. The county society is naturally the governing organization within its own territory. This is a fundamental provision of our scheme of medical organization.

The history of organized medicine reads like a romance, the heroes of organized medicine are legion; the victories of organized medicine have been more productive of good than have been the victories of all the armies participating in all the battles of history. The victories of organized medicine have made possible the victories of the armies, and the victories of organized medicine have greatly increased the longevity of men. By destroying plagues and teaching men how to remain well, organized medicine has added much to the efficiency of humanity and thus made possible the industrial and commercial victories oth-

erwise impossible—as an example, we are all familiar with the history of the building of the Panama Canal. Are we not? We recall that several attempts were made to build it, but they all failed, and why? Because that territory was so unhealthy that men sent there to work soon succumbed to the native diseases. But in 1904, Col. Gorgas, a member of organized medicine, took charge and within a single year he transformed the whole area so as virtually to banish yellow fever, and within five years he converted one of the most unhealthy spots on earth into one of the healthiest. Members of organized medicine discovered that malaria and yellow fever were transmitted by the mosquito; and organized medicine discovered that the rat transmits the black plague. It is also true that organized medicine discovered that typhoid fever is spread through water and food supply.

In making nations, states, cities, and hamlets safe for the habitation of man, medical science and medical men are called upon to clear the way and to clean the air, soil, water, and food of the vegetable and animal parasites pathogenic to mankind. In training men for armies, in protecting men for battles, in restoring them after disastrous casualties, it is medical science and medical men, members of this and other unit societies, the world over, who are called upon, respond, and serve unto death that the human race may be preserved and that peace and good order may again the sooner return to disorganized, shattered society.

The enforcement of medical laws is of as much importance as their enactment, and too much emphasis cannot be laid upon the necessity of general organization of the members of the medical profession in order to secure their enforcement. Most of the quackery and fraud in its protean aspects against the people and much of the evils with which the profession of this country is affected, are the results of apathy and lack of organization. Organization will give confidence to make an effort, and with this confidence apathy will vanish.

Organization is a distinguished mark of civilization. It is as essential for the advancement of science, of education, of social and industrial reform, and of philanthropic endeavor as for the promotion of commerce. With the remarkable progress of medical science, especially during the last three decades, man's power to control disease has been vastly increased, and the sphere of usefulness of the physician has been correspondingly widened and, with advancing knowledge, will continue to expand. The skill and knowl-

edge of the physician have acquired a new and ever-increasing importance and significance in the movements for social amelioration, for improvement of the condition of labor and of living, for the conservation and most efficient utilization of the productive energy of the world, and for the reclamation of regions now yielding no return to civilization.

Among the organized forces for advancing the prosperity, the happiness, and the well-being of the people of this country, the American Medical Association, the North Dakota State Medical Association, and your own local society have each an important part to play. We are justified in the confidence that, with the united support and loyalty of the profession, these associations, broadly representative and standing for the best ideals of medical science and art and for professional and civic righteousness, will contribute a beneficial share to the working out of our national destiny.

Let us, therefore, forget our own selfish ends and unite in our medical societies, local, state district, and national, for the purpose of developing every member to his greatest capability, for the purpose of protecting the interest of the public whose health is placed in our hands and thus make the medical profession what it should be, the greatest altruistic profession in the world.

BOOK NOTICES

INFECTION, IMMUNITY AND INFLAMMATION. By Fraser B. Gurd, B.A., M.D., C.M., F.A.C.S., Lecturer in Applied Immunology and in Surgery, McGill University; Associated Surgeon, Montreal General Hospital; Consultant in Surgery and Surgeon in charge at St. Anne's Hospital, Department of Soldier's Civil in Re-establishment.

Cloth. Pp. 329, St. Louis: C. V. Mosby Company. Copyright, 1924.

The first chapters are devoted to a summary of the principles of bacteriology, including the laboratory methods of making studies. It is in no sense a hand-book of bacteriologic methods, but gives the reader an idea of the manner in which conclusions have been reached.

The body of the book is given over to the phenomena of anaphylaxis, desensitization and tolerance. The allergic reaction is discussed in detail, and the laboratory experiments on animals are described as a basis for understanding the processes in the human being.

The application of immunity principles in the prevention and cure of infectious diseases occupy the later chapters. The newest sera and antitoxins are discussed, though rather briefly, in the case of those not yet fully accepted, as the antipneumococcus serum.

The book is interestingly written, with a not too voluminous list of authors quoted. The effort is made to give principles and conclusions instead of leading the reader through all the intricate processes by which the conclusions are reached. No case histories are given (except in connection with a few rare examples of death from anaphylaxis in man) and no attempt is made to suggest dosage or methods of administration of biologics in man.

A readable and not too technical summary of the effects obtained and the reasons for these effects in the clinical application of bacteriological knowledge has been produced.

—OLGA S. HANSEN, M.D.

APPLIED PATHOLOGY IN DISEASES OF THE NOSE, THROAT AND EAR. By Joseph C. Beck, M.D., F.A.C.S. Associate Professor of Laryngology, Rhinology and Otolaryngology, University of Illinois, College of Medicine, Chief of Staff, Otolaryngology, North Chicago Hospital, Chicago. 274 pages. 268 original illustrations, 4 color plates. Price \$7.00. C. V. Mosby Co., St. Louis, Mo.

This is a very practical and instructive book, filling a long want, going into the etiology symptoms, diagnosis and prognosis and finally arriving at a rational basis for treatment.

—DOUGLAS F. WOOD, M.D.

THE JOURNAL-LANCET

Represents the Medical Profession of
Minnesota, North Dakota, South Dakota and Montana
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The Hennepin County Medical Society
The Soo Railway Surgical Association
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SPASTIC PARALYSIS

For some months past the public press has heralded the treatment of spastic paralysis by a new method devised by Norman D. Royle and John I. Hunter, of Sydney, Australia. The result has been more or less disconcerting on account of the expectancy of the suffering parietic. Every case within the range of spasticity has hoped that the new remedy will prove a complete success, while the originators of the operation disclaim any such expectations. They have made a careful survey of the situation as they see it, and have demonstrated to their own satisfaction and to the satisfaction of others that they have a possibility in the relief of various forms of spastic paralysis, so called. They came to this country and have visited the various large clinical cities, have demonstrated their operation, which they choose to call "sympathetic ramisection," which means to separate the sympathetic ganglia from their outgoing band of fibers, or to resection the entire ganglia itself. They have resected the ganglia from the cervical sympathetic region by incisions behind the sternocleidomastoid muscles. They have gone down into the trunk of the body and resected the ganglia from the thoracic region of the cord and still further into the abdomen and pelvis and have resected the lumbosacral ganglia.

This treatment has been suggested for many different forms of spasticity, including the rigid-

ity of paralysis agitans, the occasional rigidities in cerebral lesions, hemiplegias, and diplegias (which embraces Little's disease), and the other forms of spastic conditions, which exist with anterolateral sclerosis. Very naturally this heralding of a new thing has demanded that experiments be employed in various types of disease. Dr. Royle, who is an orthopedist, has given muscle movements his earnest attention and he is able to direct the movement of various muscles of his own body with apparent ease, and that probably few other men could imitate. Dr. Hunter is a research anatomist. Together they have devised this method of surgical approach for the relief of spastic conditions.

Dr. Royle makes it plain that no method of treatment can have much effect in restoring the action of spastic muscles in the absence of definite cerebral control. And he further approaches his problem to make effective the existing cerebral control as a preliminary to educative or re-educative processes. He cites many instances in which this might be done. His principal contention is that double enervation of striated muscles is the fundamental condition behind the muscle-tone proposition. This theory has been denied by many, and it has certainly not proved satisfactory to the neurologists who have watched Royle's and Hunter's work.

It is difficult to understand just how this condition of muscles can be directed or controlled by the sympathetic nervous system, and many points will have to be cleared up before the theory can be accepted. Dr. Royle believes that the division of the sympathetic nerves is effective upon "decerebrate rigidity," whatever that means. Dr. Royle is rather conservative in his method of approach and naturally would hesitate about making too positive statements. If anyone cares to look up the subject thoroughly he will find excellent articles in the December number of *Surgery, Gynecology and Obstetrics*, by both of the men mentioned above.

One of the embarrassing features of this new method is that it has been so generally heralded as a safe method of treatment, together with reasonably sure methods of cure. Many patients have implored surgeons to take their cases into consideration, and they are perfectly willing to have an operation performed for the cure of their otherwise incurable disease. The result has been that many cases of paralysis agitans have been operated on, and so far as one can ascertain the results have been negligible if not especially contra-indicated. Many other spastic cases have been operated on, too, and but few have been

benefited. These operations have been carried out under the tutorship of Dr. Royle or Dr. Hunter by men in New York, Boston, Chicago, and Rochester, and in doubtless many other centers, and the conclusion seems to be drawn that only occasionally can there be found a suitable case for this surgical procedure.

Dr. Adson, of Rochester, a neurological surgeon, has operated on eighteen cases of various forms of spasticity, and he says frankly that it is only the occasional case that can be benefited. He demonstrated in a talk before the Minneapolis Surgical Society that one of his cases of Little's disease had been markedly improved, so that from being helpless the boy could feed himself and could write. The rest of the cases were not improved, except in one instance where they thought there was some improvement because they had followed up their operation by massage and re-education of the muscle. Dr. Adson felt that a good many of these people were willing to be operated on, and if they were not improved they were discouraged because they expected that their disease would disappear. This fact he emphasized very strongly, that the patient expected that all of his symptoms would clear up. Consequently, when he was operated on and found that he was in practically the same condition as before he thought nothing had been accomplished.

It is rather early, from our knowledge of the operation and from the selection of cases, to decide whether this is going to be a lasting theory and whether in practice it will turn out as satisfactorily as its promoters have hoped. The writer had the pleasure of seeing moving pictures of cases that showed the conditions before and after operation, not only in paralysis agitans but in hemiplegias from cerebral disease and in the typical forms of spastic paralysis. And in the moving picture exhibition there seemed in one or two cases to show some slight improvement; in other cases none at all. And in one case of post-hemiplegic rigidity there seemed to be a relaxation of the muscle rigidity. The following day, on seeing the patients, the writer was not much impressed with the permanency of the results from the operation. We as physicians should be extremely cautious about making any promises to these unfortunates until we can demonstrate to them some kind of benefit that will be worth while. Perhaps it is just these things in medicine or surgery that throw the burden of blame upon the surgeon when he attempts to do things that are not always practicable. People lose confidence, not because the surgeon is not a good operator, but because they themselves are disap-

pointed in the outcome of the operation. It seems unnecessary to suggest that the operation should be done only by the most expert and only after a consideration of the case by more than one physician, because we know so little about muscle tone and whether the muscles are supplied from one or more sources and also because our knowledge of the sympathetic system is so vague that we cannot be very definite in our conclusions.

POLIOMYELITIS

It is quite evident that poliomyelitis is on the way back to us and that large numbers of cases are reported from the country, or, at least, are found in the country; whether they are reported or not is a question, but in many localities they are. Poliomyelitis exists, not only throughout the state of Minnesota, and particularly in the northern section and in the small towns and cities, but exists to a considerable degree in western Wisconsin. And the probabilities are now that many of these cases will migrate, or be brought to the larger cities, because of their peculiar type.

As has been said before, isolated cases of poliomyelitis are found on farms, and some are members of a family where the history shows there has been no contact with a town or its people in any way, hence the difficulty in tracing the method of the carrier. How is it carried, and how does it get there? Is it carried by the air? That seems quite likely, for in many instances no other source of contagion can be determined.

In Bassoe's "Nervous and Mental Diseases, Practical Medicine Series for 1923," he reports that the physician may be the carrier of the contagion and notes that from Sweden an instance is reported in which it appears possible to exclude all other sources of contagion. A child one and a half years old had been a ward patient for a month and had had no visitors; there had been no visitor of any description in the ward for three weeks prior to the onset of typical poliomyelitis in the child. Seventeen days before the onset the child had come under the care of a physician who up to that day had been attending several cases of poliomyelitis in another hospital building. This may account for an occasional case, but there are other sources of contagion. It has been reported, too, that more than one case has developed in a family, showing it is more or less contagious, or, at least, both members of the family were infected through the same source. Medical men in the cities, and doubtless in towns and in the country, are describing

"colds" that occur in children and in members of families and because of the innumerable cases the physician is quite apt to say, "Well, it is only one of these colds that is going about and unless something happens in twenty-four hours there is no necessity of a visit." As a matter of fact this is the common way for a poliomyelitis to start, and perhaps neither parent nor physician is looking for a paralysis of a group of muscles, and the result is that nothing is discovered for three or four days, and then suddenly the diagnosis is made because it is quite apparent.

Cases of paraplegia, foot-drop, and the superior or bulbopontine forms of poliomyelitis have been seen. In spite of the epidemic, however, many of these cases have been light, and they make rather speedy recoveries. A spinal form still is the selective type of poliomyelitis, just as the cerebral form is the selective type of encephalitis. Consequently there are comparatively few cases of the bulbopontine form and of the meningitic type.

The most interesting feature of the whole situation is the care and treatment. Deformities result in a large percentage of the cases, perhaps 50 per cent, and eventually some of these cases become operative cases after the deformity has existed for a long time. Tendon lengthening, muscle stretching, astragalectomy, subperiosteal separation, tenotomy, loop operation, tarsectomy, Gallie operation, arthrodesis, and the Hoke operation are among the subsequent operations performed. In order to prevent many of these deformities, the treatment of the child when first taken sick should be given the preference. These children should be kept in bed from the time of onset of a cold, because one finds by experience that after three or four days the diagnosis is clarified—as to whether it is a cold or a poliomyelitis. Hydrotherapy has been found beneficial, particularly after the acute symptoms have subsided. The child is taught to exercise while in a warm tub bath; then very mild massage, muscle training, and other movements may be ordered, keeping in mind constantly that the treatment must not be overtiring. The electrical treatment, of course, has been tried in innumerable cases, but it is very uncertain in its results. If possible all these children should be under the care of trained experts, that is, those who are accustomed to giving muscle training. But the majority of cases are at home, and are treated by mothers or other members of the family. It will be found that the mother is very easily instructed and very often proves to be sufficiently intelligent to carry out the methods of the trained

operator, particularly if she can be assisted by the visiting nurse. Naturally the serum treatment of poliomyelitis comes to the foreground, that is, among those who have experimented with it and who still believe that they have finally found the grade of streptococcus, but the end-results have not been finally settled. In spite of the experiments of many of our leading men, the serum treatment has not been strongly advocated.

Dr. Bassoe suggests that sometimes an intravenous hypertonic solution in conjunction with intraspinal convalescent serum has a favorable influence on the course of experimental poliomyelitis. This effect is augmented by the intravenous injection of convalescent serum at a time corresponding to the compensatory increase in passage of fluid from the circulation of the central nervous system tissue. A daily repetition of a hypertonic sodium chloride solution is associated with danger of respiratory failure. Bassoe also refers to a case where the paralysis was complete in the legs, and the arms and trunk muscles were partly so, and the facial muscles were becoming affected, but the introduction of 20 c.c. of human convalescent serum, intraspinaly, prompted a recovery.

There seems to be no question but what there is an edema of the cord—how much or how little we do not know; and very often a lumbar puncture or even a puncture higher up will relieve a situation which seems alarming. If the other sera cannot be used it has been found in some instances that the intravenous injection of urotropin and sodium iodide relieves the situation.

This epidemic of poliomyelitis is not to be looked upon lightly on account of the large number of cases which become permanently disabled. Consequently, the first attention is at the first visible sign of a probable poliomyelitis.

The Vermont State Board of Health has published a book on "Infantile Paralysis in Vermont," covering an epidemic beginning in 1894 and lasting until 1922. It is published by the State Department of Public Health in Burlington.

THE UPLIFTER

A very frank and very readable article appears in the August number of the *American Mercury*, written by Bishop Charles Fiske, of the Methodist Church, entitled "Bringing in the Millennium," and the writer can do no better than to quote freely from the article in order to make his attitude toward the uplifter understood.

"Even a conservative, cautious ecclesiastic may feel bound in honor to record his misgivings—

misgivings which many another parson frequently shares. He sees in all churches hundreds of his brethren 'seeking refuge from the difficulties of thought in the opportunities for action.' He sees scores of his friends resigning an inspirational ministry to accept ecclesiastical positions as field secretaries or swivel-chair reformers. He sees churches abandoned to the unrestrained energy of social uplifters who are experts in politics of every type, from the common garden variety upward. He sees the slow and patient process of reforming the world through reforming individuals give way to the more popular process of compelling the nation and the world to be good by statutory enactment. He finds among Protestant ministers and their leading laymen a new type of spiritual enthusiasm—though it is as old as Puritanism, older, indeed, and seems new only because it has become as prevalent as an epidemic. He finds these fervent followers of the new righteousness determined to mold all men in one pattern, and resolved, at any cost and with the expenditure of any amount of force, to make it impossible for other people to be sinners in their own way, while blissfully unaware that bigotry, religious hatred, and pious cant may be worse sins than many of the offenses already listed in the statute-books."

"Take, for example, the present passion for social service. Organized, as the welfare movement is, on a thoroughly professional and commercialized basis, it has become one of the chief sins—and one of the worst pests—in America to-day. No one could possibly estimate the harm that has been done to all movements for social betterment by the paid uplifter. He is a general nuisance, and many a good cause has been ruined by his pernicious activity. Nowhere has the evil of such commercialized service been more serious than in the churches." * * * * "These experts were hired and fired. Most of them had to make their own jobs (and in endeavoring to magnify their office they stuck busy fingers into other people's pies until the patience of the synods and conventions which engaged them was tried to the limit.) Often they were parlor Socialists or doctrinaires who plunged their ecclesiastical organizations into unauthorized action in legislative halls and committed them to poorly digested programs of social, economic and industrial reform. Ecclesiastical counselors to State legislatures, amateur advisers in industrial relations and youthful critics of the present economic order were so numerous that one could not shake a stick at them collectively, much less hit them with it individually on the head. * * * They have hung

like hornets about the heads of legislators until the better type of politician has retired to private life, and men of the baser sort have been pushed into the making of laws which they themselves do not obey and in whose real worth they have never had any faith."

The Bishop thinks that "the curse of commercialized service lies in the fact that most of us want to see necessary reforms enacted and necessary works of betterment performed; but paid experts who are obliged to magnify their office or lose it have defeated the very purpose of social service—first, by attempting so many things that nothing is done well and many things are attempted which ought not to be done at all; second, by increasing overhead expense through conventions, conferences, local and general offices and the multiplication of organization, until overlapping in work is the rule rather than the exception; and, lastly, by making such exorbitant financial demands for all these things that the charitably disposed are giving up in despair."

Not only the preacher but the doctor has fallen into this same trap, and he struggles like a caged animal, sometimes, to get out of it only to be confronted by another uplifter. The daily mail is full of circulars so full of unimportant things that the secretary of a busy man does not let him see one-half of it that comes into the office—most of it uninteresting circulars and appeals for money. It is well known, too, that both clergymen and doctors are easy prey to the uplifter, to the advertiser, and particularly to the man who has something to sell. Consequently, if a man wants to do clerical or professional work he has to put all this aside, and he finds it infinitely better for himself and for his congregation or his patients to devote himself to his occupation and not be led astray by all this ill-sorted, needless advertising.

Some of the social workers are so ignorant of what social service means that they are attempting to deprive individuals of their liberty on the ground that they are feeble-minded, rather than on the ground that they are "naughty" and ought to be spanked and sent to bed or to the workhouse. They create endless trouble in hospitals and other places, thrusting themselves in where other visitors would not dare to go—reminding us of the old saying, "fools rush in where angels fear to tread." If professional men are special victims of these pests, what must the politician be? He probably gives way just as often as the professional man because he thinks only of his political future, and he knows perfectly well that the resolutions that are handed

to him were "framed by a select little gathering of earnest and ignorant ladies of leisure, urged thereto by some paid enthusiast, and that the appeals and instructions represent a few more or less faithful attendants at club meetings and not the thousands of members for whom they claim to speak." Sometimes, worse than all of these, the "mail bag and the social worker," the plague is the early morning telephone call which is used by some of these individuals without restraint, and without hesitancy, at any time that suits their convenience. Men and women are called from their beds to answer an insipid request to attend a certain meeting or attend a certain function. * * * "Even a saint of the placid type depicted in stained-glass windows would lose his temper if he lived in modern days, and during breakfast time, or before, were called to the telephone morning after morning to take down fifty-word night letters. These urgent messages come from paid secretaries who are sending out a last appeal for aid in the Near East, or a hurry call for an oriental hospital, or a request for the use of one's name on a petition to purify the movies, or an eleventh hour summons to attend and, perchance, address and pray for a conference of uplifters in a neighboring city. All of them good causes? Certainly. But why prejudice the cause by dragging its victim out of bed or away from the breakfast table? Why not trust to the slower processes of the morning mail?" Most men are not fit to live with until they have had a cup of strong coffee and a cigar; then they are at peace with the world, fortified with the spirit, and kindly disposed toward all men. That is the time to nab them, to drain their pocket books and to get them to attend a fool's meeting.

"Minnesota reports that over 75% of its births are cared for by midwives." According to the records of the Division of Vital Statistics of the Minnesota State Board of Health prepared from the original birth certificates, less than 6% of the births occurring in this state are attended by midwives.

During the summer of 1923, a survey of the midwife situation in Minnesota was made by the Division of Child Hygiene. A reprint of this survey is enclosed. In Table 8 on page 19 of this reprint are given the Total Living Births in the state, outside of the three large cities, graded according to the statement. The percentage of births attended by physicians, midwives and reported by informant are given for the five year period 1918-1922. This table shows a definite increase in the number of births attended by physicians during this five year period, in 1922 over 85% of the births having medical attendants. There is also a proportionate decrease in the number of births attended by midwives or with no attendant. The results of this survey have made us feel, that because of the fact that most of the midwives are older women and are not being replaced by young women, and the fact that the absolute and relative amount of work they are doing is decreasing, that our midwife problem in Minnesota is practically negligible.

In a recent study made by Dr. F. L. Adair and Dr. C. O. Maland, of Minneapolis, of the births occurring in Minneapolis and St. Paul from 1913-1923, it was found that 65% of the deliveries in these cities occur in hospitals.

Respectfully yours,

A. J. CHESLEY, M.D.,
Executive Officer.

CORRESPONDENCE

THE MIDWIFE SITUATION IN MINNESOTA

TO THE EDITOR—

My dear Sir:

Your attention is respectfully called to a misstatement concerning the number of births reported by midwives in Minnesota which occurs in Dr. S. Josephine Baker's recent book on "Child Hygiene" published by Harper and Brothers in 1925.

In Chapter V. on page 120 of this book, in a discussion of the status of the midwife in the United States, the following statement is made:

NEWS ITEMS

Dr. J. Ulric Joffrion has moved from Parkers Prairie to Plummer.

Dr. C. F. Crain has moved from Aberdeen, S. D., to Redfield, S. D.

Dr. G. G. Mueller has taken over the practice of the late Dr. F. R. Weisler, at Windom.

Dr. A. C. Dean, of Grand Forks, N. D., is now located at 701 No. Michigan Ave., Chicago.

Dr. F. W. Behmler, of Appleton, has formed a partnership with Dr. Iver Benson at Montevideo.

Dr. E. G. Hutterer has moved from Cold Spring to Duluth, and has offices at 315 Second Ave. E.

Dr. E. W. Fahey, of St. Paul, formerly of Duluth, has been re-elected supreme physician of the Knights of Columbus.

Dr. O. G. Frink, of Southshore, S. D., died in May, at the age of 62. Dr. Frink was a graduate of Rush, class of '91.

Dr. Frederick M. Gibson has resumed practice in Minneapolis, in eye, ear, nose, and throat work, with offices at 506 Yeates Building.

The 1925 graduates of the Medical School of the University of Minnesota (50 in number) have pledged \$1,000 to the endowment of the School.

Dr. J. Horton Daniels, who has been spending the summer in Minneapolis, has returned to his post in Nanking, China, where he is doing medical missionary work.

Dr. Richard Bardon, a graduate of Northwestern, who took his internship at St. Mary's Hospital, Minneapolis, has joined the staff of the More Hospital of Eveleth.

Dr. C. A. Strunck, a recent graduate of the University of Minnesota, who has practiced the past year at Mapleton, has become associated with Dr. Archa Wilcox, of Minneapolis.

Dr. Joseph Nicholson, who has practiced for a number of years in Brainerd and was one of the founders of the Northwestern Hospital at that place, has moved to Los Angeles, Calif.

Dr. Paul F. Meyer, who has been associated with Dr. Von Bohland at Belle Plaine for a couple of years, has purchased a practice at Faribault, and will move to that city next month.

In some parts of North Dakota physicians are failing to make proper birth registrations. The State Health Officer, Dr. A. A. Whittemore, may be compelled to enforce the law with its rigid penalties.

Dr. Russell R. Noice, of Minneapolis, has been appointed physician of Hennepin County to succeed the late Dr. Hugo Hartig. Dr. Noice is a graduate of the University of Minnesota Medical School, class of '15.

Dr. Walter H. Miller, who has been connected with the Shaw Hospital at Buhl for the past two years, has gone to Portland, Oregon, to take up

practice. Dr. Edward Peterson, of St. Paul, takes Dr. Miller's place in the Shaw Hospital.

Dr. R. W. Phelps has resigned the superintendency of the Minnesota State Hospital at St. Peter, and will be succeeded by Dr. George H. Freeman, Superintendent of the State Hospital at Willmar. Dr. Phelps has been connected with Minnesota State Hospitals for forty years, twenty-eight years at Rochester and twelve at St. Peter. He now retires on account of ill health. Dr. George H. Baskett, first assistant superintendent of the St. Peter Hospital, becomes superintendent of the Willmar Hospital.

The program of the annual meeting of the Inter-State Post Graduate Assembly of America is now ready for distribution. The meeting will be held in St. Paul, on October 12-16, 1925. During the five days' session over one hundred papers and clinics will be presented by men from all parts of America and some from Canada and Europe. The foreign guests include the following: Lane, of London; Bell, of Liverpool; Putti, of Bologna, Italy; Franklin, of London; McKisack, of Belfast; and Parkes, of Auckland. The managing director of the Assembly is Dr. William B. Peck, of Freeport, Ill.

Wants to Buy Practice

In a good North Dakota town; county-seat town preferred. Address 275, care of this office.

Position Wanted as Secretary and Stenographer

In hospital, clinic, or doctor's office. Has had five years' experience in medical and surgical dictation. Best of references. Address 275, care of this office.

Practice For Sale

Unopposed practice in live Southeastern South Dakota town. Fine practice, fine location. Can make money from first day. For details and terms, address 259, care of this office.

Position Wanted

With surgeon or well-established clinic, or a good location with hospital facilities in South Dakota by a young physician who is well qualified and experienced. Address 254, care of this office.

Location Wanted

Location in city of about five thousand. Have several years experience in surgery and x-ray. Am graduate of Minnesota; 37 years old; married, mason. Address 277, care of this office.

Practice for Sale

In central part of Minnesota in a very rich territory. Fine village of 500 people. Good schools and modern improvements in village. A splendid opening. Address 251, care of this office.

Physician Wanted

Good opening for doctor in good country town. Good Scandinavian community. Nearest competition 10 miles. Three closeby towns without doctor. T. T. Sundal, Druggist, Hills, Minn.

Minneapolis Office Space for Rent

In Physicians and Surgeons Building, Minneapolis, with two doctors. Privileges of thoroughly equipped laboratory and x-ray facilities. Address 256, care of this office or telephone Geneva 2887.

Laboratory and X-ray Technician wants Position

Applicant is an undergraduate nurse with hospital experience of one year in a high-grade small hospital. Will give faithful service. Best of references. Age, 27. Address 276, care of this office.

Minnesota Practice Wanted

Well-qualified and experienced general practitioner wants a good Minnesota practice or location offering wide scope. Scandinavian or German community preferred. Address 262, care of this office.

Position Wanted as X-Ray and Laboratory Technician

By a young man with university education and over two years in present position in such work, near Chicago. Desires position in the Twin Cities or vicinity. Address 270, care of this office.

Specialist For Relief Work Wanted

Eye, ear, nose and throat specialist for relief work in well-established Clinic in South Dakota city for two months beginning August 5. State full particulars, including salary wanted. Address 260, care of this office.

Practice for Sale in South Dakota

A \$7,000 unopposed practice in a town of 600. Large territory. Price of equipment and introductions, \$1,000; terms; accredited schools; fine churches; good roads; near hospital. Address 235, care of this office.

Desirable Minneapolis Office for Rent

At 26th and Central Avenues N. E., over a well-patronized drugstore. Offices modern and in a fine location for a doctor and a dentist. For full information telephone Dinsmore 0522, or address 269, care of this office.

For Sale

Complete drug store with building in Northern Minnesota town. Large territory; no competition. Excellent place for physician who is a registered druggist. Reason for selling, poor health. Address 239, care of this office.

Laboratory Position Wanted

Well trained graduate technician wants position in a hospital or clinic. Capable of doing all routine laboratory work including blood counts, urinalysis, Wassermann, blood chemistry, differentiating and culturing of bacteria, preparation of antogenous vaccines, milk and water analysis, and all clinical microscopy. Available at once. Address 265, care of this office.

Locum Tenens Wanted

For eight or nine months from about September 15, in a South Dakota town of 275 population. Good roads and good crops and fine people. Well-equipped man can do well. Address for particulars 271, care of this office.

Assistant Wanted

Assistant to Eye, Ear, Nose, and Throat firm in Middle West. Young man who has had some experience and will remain at least a year. Send credentials, photograph and amount expected. Address 272, care of this office.

Good Minneapolis Location Offered

A doctor will find a fine opening at 3805 Nicollet Ave., with offices in the new building at that point. No other doctor on this corner. Will make a liberal concession to a good man. Inquire at 3858 Stevens Ave. or telephone Colfax 2754.

Technician Wants Position

Experienced woman technician in x-ray, laboratory work, and physiotherapy wants position in doctor's office or hospital. Also experienced in office work. Has executive ability and initiative. Good references. Address 257, care of this office.

Fine Practice For Sale

Good practice in a county-seat town of 700 in Southwestern Minnesota. Good farming community. Plenty of work and good pay. Good residence, completely modern. Good reason for selling out. Terms very reasonable. Address 258, care of this office.

Associate and Prospective Successor Wanted—An unusual Opportunity

Have practiced over 30 years in a German and Scandinavian community in a village of 1300 population 50 miles from the Twin Cities. No better community in Minnesota. I shall soon retire on account of failing health, and must have a good man to take up my work. Will make satisfactory terms with the right man. Address 274, care of this office.

For Sale

Late Type 120 Kilovolt Acme International X-ray Generator complete with Filament Control for 220 Volt Alternating Current. Also Acme International Combined Radiographic Fluoroscopic Table for both horizontal and vertical fluoroscopy. Two Coolidge Tubes. Complete Dark Room Equipment. Also have some office equipment to sell. Splendid buy for someone who is just installing an x-ray department. Address 273, care of this office.

Fine Practice for Sale

In southern Minnesota, beautiful county-seat \$15,000 cash practice. Scandinavian physician could easily double the practice. Established 24 years. General practice and complete physiotherapy clinic; latest modalities, Burdick air watercooled and deep therapy lamps, high-tension diathermia, Morse wave-generator. Valuable appointments transferable. No real estate; equipment, practice and one month's introduction, \$5,000. Specializing abroad. Address 267, care of this office.

PHYSICIANS LICENSED AT THE JUNE (1925) EXAMINATION TO PRACTICE IN THE STATE OF MINNESOTA

BY EXAMINATION

| Name | School and Date of Graduation | Address |
|-----------------------------|-------------------------------|---|
| Affeldt, Daniel Ernest | U. of Minn., M.B., 1925 | Wykoff, Minn. |
| Anderson, Edwin Rudolf | U. of Minn., M.B., 1925 | Montevideo, Minn. |
| Anderson, Leslie Percival | U. of Minn., M.B., 1925 | 603 Delaware St. S. E., Minneapolis |
| Arnold, Duma Carroll | U. of Pa., M.D., 1920 | Mondovi, Wis. |
| Benell, Otto E. | U. of Minn., M.B., 1925 | University Hospital, Minneapolis |
| Cardle, Archibald Evans | U. of Iowa, M.D., 1923 | General Hospital, Minneapolis |
| Carlson, Lawrence | U. of Minn., M.B., 1925 | 3813 Elliot Ave., Minneapolis |
| Craven, John Patrick | U. of Minn., M.B., 1925 | General Hospital, Minneapolis |
| Davidson, Magni | U. of Ill., M.D., 1925 | Ancker Hospital, St. Paul, Minn. |
| Delougherty, Jos. Thos. | U. of Minn., M.B., 1925 | 544 Temperance St., St. Paul, Minn. |
| Ditmore, David C. | U. of Minn., M.B., 1925 | City Hospital, St. Paul, Minn. |
| Donaldson, Chas. Scott | U. of Minn., M.B., 1925 | 808 Phys. & Surg. Bldg., Minneapolis |
| Duryea, Marbry | U. of Minn., M.B., 1924 | 2314 Bryant Ave. N., Minneapolis |
| Farnham, Marynia Foot | U. of Minn., M.B., 1924 | General Hospital, Minneapolis |
| Fetter, Mary | U. of Minn., M.B., 1925 | 1043 Lincoln Ave., St. Paul, Minn. |
| Froats, Chas. Wesley | Northwestern, M.D., 1925 | Eveleth, Minn. |
| Gelber, Maksymiljan Robert | U. of Minn., M.B., 1925 | Gen. Hospital, Rochester, New York |
| Glesne, Otto Neil | U. of Minn., M.B., 1925 | Detroit Receiving Hos, Detroit, Mich. |
| Goff, Charles Weer | U. of Ill., M.D., 1924 | 130 Oxford St., Duluth, Minn. |
| Good, Hoff Daniel | U. of Minn., M.B., 1925 | Swedish Hospital, Minneapolis |
| Gratzek, Frank Roman Edmund | U. of Minn., M.B., 1925 | N. P. Hospital, St. Paul, Minn. |
| Hartfiel, Wm. Fred | U. of Minn., M.B., 1925 | Miller Hospital, St. Paul, Minn. |
| Hartwell, Shattuck Weilman | U. of Minn., M.B., 1925 | 962 Osceola Ave., St. Paul, Minn. |
| Hathaway, Joseph C. | U. of Minn., M.B., 1925 | 1308 5th St. S. E., Minneapolis |
| Hawkinson, John Philip | U. of Minn., M.B., 1925 | 329 Union St., Minneapolis |
| Hawkinson, Lloyd Francis | Georgetown, M.D., 1923 | Litchfield, Minn. |
| Hayden, Edward Martin | U. of Minn., M.B., 1925 | 629 Wash. Ave. S. E., Minneapolis |
| Heck, Frank Joseph | U. of Minn., M.B., 1925 | 418 Rice St., St. Paul, Minn. |
| Hultkrans, Rudolph E. | U. of Minn., M.B., 1925 | 1608 Van Buren St., St. Paul, Minn. |
| Johnson, Hobart Clemens | U. of Minn., M.B., 1925 | 228 Harvard St. S. E., Minneapolis |
| Kliman, Frank E. | U. Manitoba, M.D., 1924 | St. Mary's Hospital, Duluth, Minn. |
| Lillehei, Elmer Julius | U. of Minn., M.B., 1924 | 4655 Grand Ave. S., Minneapolis |
| Lundeberg, Karl Rosenius | U. of Minn., M.B., 1925 | University Hospital, Minneapolis |
| Madden, John Francis | U. of Minn., M.B., 1925 | General Hospital, Kansas City, Mo. |
| Madsen, August H. | Rush, 4 yr. Cert. Med., 1924 | Ancker Hospital, St. Paul, Minn. |
| Mattson, Hamline Ang. Nath. | U. of Minn., M.B., 1925 | 5320 Clinton Ave. S., Minneapolis |
| May, James Alan | U. of Minn., M.B., 1925 | 629 Wash. Ave. S. E., Minneapolis |
| Meier, Henry Van | U. of Minn., M.B., 1925 | Abbott Hospital, Minneapolis |
| O'Rourke, Randall Michael | U. of Minn., M.B., 1925 | 749 Portland Ave., St. Paul, Minn. |
| Ostergaard, Erling | U. of Minn., M.B., 1925 | Tyler, Minn. |
| Perry, Oliver Hazard | U. of Minn., M.B., 1925 | St. Joseph Hospital, St. Paul, Minn. |
| Pierce, Willard Benjamin | U. of Minn., M.B., 1925 | U. S. Naval Hosp., League Island, Philadelphia. |
| Rabwin, Marcus Hymond | U. of Minn., M.B., 1925 | General Hospital, Los Angeles, Cal. |
| Rice, Carl O. | U. of Minn., M.B., 1925 | General Hospital, Minneapolis |
| Saffert, Cornelius A. | U. of Minn., M.B., 1925 | General Hospital, Minneapolis |
| Sherwood, Kenneth Kyler | U. of Minn., M.B., 1925 | University Hospital, Minneapolis |
| Sloan, Leonard Norman | U. of Minn., M.B., 1925 | 1715 8th Ave. N., Minneapolis |
| Soderlind, Ragnar Theo. | U. of Minn., M.B., 1925 | 1501 Wash. Ave. S., Minneapolis |
| Sorkness, Joseph | U. of Minn., M.D., 1924 | 317 Oak Grove St., Minneapolis |
| Swanson, Wm. Walfred | U. of Minn., M.D., 1925 | 159 Arthur Ave. S. E., Minneapolis |
| Swenson, Paul Christian | U. of Minn., M.B., 1925 | Ancker Hospital, St. Paul, Minn. |
| Vories, Ruth Elizabeth | U. of Minn., M.B., 1925 | General Hospital, Cincinnati, Ohio |
| Webber, Fred L. | U. of Minn., M.B., 1925 | 462 Beaumont St., St. Paul, Minn. |
| Weber, Harry M. | U. of Minn., M.B., 1925 | 629 Wash. Ave. S. E., Minneapolis |
| Weissgerber, Louis Arthur | Toronto, M.B., 1921 | Coleraine, Minn. |
| Wenner, Waldemar Thos. | U. of Minn., M.B., 1925 | 629 Wash. Ave. S. E., Minneapolis |
| West, Anne | U. of Minn., M.B., 1925 | 406 5th St. S. E., Minneapolis |
| Williamson, Geo. Albert | U. Manitoba, M.D., 1924 | 14 Church Club, St. Paul, Minn. |
| Youngren, Everett R. | U. of Minn., M.B., 1925 | Ancker Hospital, St. Paul, Minn. |

THROUGH RECIPROcity

| | | |
|--------------------------|--------------------------|--------------------------------------|
| Anderson, Alan Ramseur | U. of Pa., M.D., 1923 | Rochester, Minn. |
| Cowin, Abe Wilbur | Marquette, M.D., 1925 | 627 University Ave., St. Paul, Minn. |
| Lancaster, Wm. Ewart G. | Toronto, M.B., 1922 | Abercrombie, N. D. |
| Martin, Thomas Philip | U. of Mich., M.D., 1902 | Gary, S. D. |
| McLain, Liva Chas. | Rush, M.D., 1915 | Bakersfield, Cal. |
| Moquin, Marie Antoinette | P. & S. Wis., M.D., 1911 | Lowry Building, St. Paul, Minn. |
| Toomey, John M. | Hah. Pa., M.D., 1923 | 5701 Grand Ave., Duluth, Minn. |

THE JOURNAL LANCET

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SANOCRY SIN, THE NEW GOLD CURE FOR TUBERCULOSIS: A REVIEW OF THE LITERATURE*

BY ERNEST S. MARIETTE, M.D.

Superintendent of the Glen Lake Sanatorium

From the Department of Medicine, University of Minnesota, and the Glen Lake Sanatorium, Oak Terrace, Minnesota

OAK TERRACE, MINNESOTA

The Asiatic Greek chemist, Geber, who was supposed to have died about 765, A. D., considered gold dissolved in strong acids a universal medicine, even potent enough to ward off old age.

Paracelsus (1493-1541), professor of physics, medicine and surgery at the University of Basel, claimed that gold was valuable in all ailments including consumption and that it was also a specific in the diseases of the heart.

Between the times of Paracelsus and Koch gold was used by many physicians in an attempt to cure tuberculosis, and gold came to be recognized as one of the lesser specifics in syphilis. Lupus and scrofula were commonly treated by methods which were of value in the treatment of syphilis.

One of the most interesting figures of this interim is Samuel Hahnemann, the father of homeopathy, who, with ten others just one hundred years ago, tried out the action of gold salts on themselves. Their report indicates that gold salts have a definite poisonous effect in large doses and a stimulative effect in small doses.

According to DeWitt, "Koch, in 1890, reported that gold cyanide when incorporated into media in the strength of 1 to 1,000,000 prevented the growth of the tubercle bacillus. He failed to note any such action, however, when he injected

the gold cyanide into animals suffering from tuberculosis."

In 1894 an American, J. D. White, claimed much more favorable results than Koch. He used a combination of gold chloride and magnesium iodide, and claimed that he could prolong life and that there was an improvement in symptoms. Following this report the gold treatment had a short run of popularity.

"Buck and Gluck, in 1913, reported favorable results in twenty-one cases, mostly of lupus, treated with gold potassium cyanide alone or in combination with tuberculin. This apparent success was supposed to be due to the fact that gold salts caused a dilatation of the blood vessels so that the tuberculin could act upon the lesion." Evidently they ignored the fact that there are no blood vessels in the tubercle.

Simple gold compounds such as chloride of gold are exceedingly poisonous for human beings. This is due partly at least to the ease with which these gold salts ionize in solution, producing gold ions and chlorine ions, and the gold ions are extremely toxic to the human body. When the gold is united to complex coal-tar products containing a high proportion of carbon, ionization takes place slowly, thus making it less poisonous to the body.

Spieß and Feldt prepared two complex gold

*Presented before the Hennepin County Medical Society, May 6, 1925.

compounds based on this principle. One known as "Aurocantan" is a gold cyanide salt of cantharidinethylenediamine, the other known as "krysolgan" is a sodium salt of para-amino-gold-phenol carbonic acid. It was claimed that these salts had a direct action upon the tubercle bacillus. They were tested out in over one hundred animals and then in over one hundred patients. They were used alone or in combination with tuberculin and ultraviolet rays, and the combined treatment seemed to give better results than the simple treatment, most of the patients noting an immediate subjective improvement. Other workers who reported favorable results claimed that the improvement in the patient's subjective condition was due to the formation of connective tissue as a result of local irritation. This subjective improvement, however, was only temporary and served to verify the well-known fact that tuberculosis is an extremely variable disease, and the treatment soon fell into disuse.

DeWitt's work on gold therapy covered a period of two years and was carried on exclusively on tuberculous guinea-pigs. Her experiments were begun with the ordinary gold cyanide, and her work showed that life was not prolonged, that the disease was not checked as compared with the control animals. DeWitt also carried on some experiments with the Aurocantan used by Spiess and Feldt. She found that life was shortened, that the extent of the disease was greater in the treated than in the untreated animals. This was true in spite of the fact that there was an increase in weight of the animals treated with gold, which usually continued until just a short time before death. (This temporary increase in weight is also noted in patients treated by ordinary methods. I mention this here merely to emphasize the fact that a gain in weight is not always accompanied by an improvement in the tuberculous process, and, therefore, that too much stress must not be laid upon it in estimating the prognosis of the disease.)

"A careful analysis of the tissues showed that there was a wide distribution of gold found in the body in greater concentrations than that necessary to kill tubercle bacilli in a test tube. The tuberculous organs, however, contained less gold than the normal organs. Therefore, it follows that gold has no special affinity for the tuberculous organs."

Professor Holger Moelgaard, of Copenhagen, the most recent experimenter with gold salts, justifies his renewed interest in gold therapy by the following premises:

1. That the bactericidal properties of gold are greater than of any other heavy metal.

2. That previous investigators have ignored two important facts in the pathology of the tubercle bacillus, i. e., the specific resistance of the tubercle bacillus, due to its waxy capsule, and the peculiar structure of the tubercle, due to its lack of blood vessels. The first is rather hard to believe because, in 1913 and 1914, according to DeWitt, Arthur Mayer reported on the use of gold cyanide either alone or combined with borocholin, which was believed to dissolve the fatty capsule of the tubercle bacillus. The second claim implies that the previous investigators ignored the fact that the tubercle contained no blood vessels and so failed to seek a compound which when introduced into the body would yield a gold ion which would diffuse rapidly in an aqueous solution and penetrate the avascular tubercle.

3. That the previous investigators also ignored the principles of Ehrlich as applied to chemotherapy, which are, briefly, that the bacilli are killed only by chemicals which are able to enter into a chemical combination with them.

Moelgaard claims that his product, known under the trade name of "Sanocrysin," which is a double salt of gold and sodium thiosulphate ($\text{Au}_2\text{S}_2\text{O}_3, \text{Na}_2, \text{S}_2\text{O}_3$) and which was discovered in 1845 by Fordas and Giles, but which has been greatly purified by him, conforms to all of these conditions and has the following bacteriotropic properties:

1. It inhibits completely the growth of the tubercle bacilli in strength of 1 to 100,000 while in strength of 1 to 1,000,000 it retards the growth only.

2. That it renders the fatty capsule which protects the tubercle bacillus penetrable to the hydrogen ion, although it does not destroy it. This is proven by the fact that the tubercle bacilli lose their acid fastness when subjected to concentrations of Sanocrysin of 1 to 1,000 at 40° C. for half an hour, but that when they are treated with sodium bicarbonate Na_2CO_3 their color returns. Further, many of the bacilli are granulated and diminished in size, and some are blackened. This is interpreted to mean that the gold-containing ion of Sanocrysin is traveling in the body of the tubercle bacillus.

3. That the urine contains traces of gold for from four to six days after an intravenous injection, and, therefore, in order to avoid an accumulative reaction, the interval between injections should never be less than four days.

4. That it can be injected intravenously in doses of one to two centigrams per kilo live weight without any injurious effects upon the normal organism, but that, when the dose is increased over certain limits, which vary with the individual, an intoxication develops which resembles metallic poisoning very closely. He cautions one against using Sanocrysin when any infectious disease, other than tuberculosis, is present and also claims that arsenious acid given in small amounts is injurious to patients treated with Sanocrysin.

5. That Sanocrysin injected directly onto the infected area was able to prevent generalized tuberculosis in guinea-pigs.

Having fulfilled all of these conditions Moelgaard thought that he was warranted in conducting animal experiments. He himself is very conservative and does not assert his claims with any more dogmatism than have others who have reported on gold cures in recent years. However, the results of his experiments are not particularly satisfactory because of the violent reactions which accompany the treatment and the small number of animals used and the shortness of time which has elapsed since the experiments were completed.

Moelgaard claims that the reactions which occur in tuberculous animals, but which are absent in normal animals, are due to the destruction of the tubercle bacillus by the gold ion and the liberation of an endotoxin.

As reported by Secher, in Moelgaard's book, there is a great similarity between the response of the body to injections of Sanocrysin and tuberculin, although the supposed actions of the two differ. Tuberculin is supposed to produce an irritative reaction resulting in an encapsulation of the process, while Sanocrysin is supposed to diffuse through the tubercle and kill the tubercle bacilli, the endotoxin thus liberated giving rise to an inflammatory process which may result in steril cicatricial changes.

Long offers the following explanation of this similarity and classes gold as an endotheliotoxin: "Extensive capillary hemorrhages have been observed following the injection of gold salts. If this occurred in the neighborhood of the tubercle it would be followed by an absorption of some of the poisonous products of the dead tissues of the tubercle and thus we would have a 'tuberculin reaction.'"

Another possibility of even greater significance is the tuberculin-like action of the colloidal metals upon the tuberculous individual. This colloidal

metal effect is very interesting in view of the fact that common tuberculin is also a colloidal preparation. This suggests the possibility that gold and other heavy metals and tuberculin all owe their action to some common property, which certainly cannot be the chemical composition of these so different substances but rather their colloidal nature."

The principle features of the reaction are albuminuria, erythema, a drop in temperature, a toxic myocarditis, and a fall in blood pressure. If the reactions are severe enough, i. e., if the animal is unable to neutralize the toxine liberated by the destruction of the tubercle bacillus, death follows. Moelgaard claims that this reaction is a true tuberculin shock and that it must be counteracted by the use of a special prepared horse serum similar to diphtheria antitoxin, which is supposed to neutralize the endotoxin. If this is not done, more than 50 per cent of the seriously infected animals will be killed by shock.

His experiments on animals were not particularly convincing. All of the guinea-pigs treated with intravenous injections of Sanocrysin died from shock. The post-mortem examination revealed exactly the same condition as in guinea-pigs killed by tuberculin. The balance of his experiments were carried on in calves, goats, and monkeys. In most of his experiments with calves he did not use over three animals, usually only two, one of which was a control, so that his conclusions in each experiment are based on the effect of Sanocrysin on only one or two calves.

In this connection I cannot help but think that the words of Krause concerning the work of Calmette and his bile-attenuated bacilli are very pertinent: "One thinks at once of the thousands and tens of thousands of cattle which had to be employed and closely followed for ten years or more before a proper balance could be struck on the value of preventive inoculation devised by men who are among our greatest names. And there can be no doubt that until Calmette's method has had a similar trial the merits of his BCG must remain *sub judice*."

His experiments on goats included seven only. Two of these were controls, leaving five, three of which died from extensive tuberculosis, and the other two showed tuberculosis present upon autopsy. His work on monkeys includes only two naturally infected monkeys, and in these the treatment appears to be successful. However, there is no means of knowing at this time whether the results are to be permanent or only temporary.

Moelgaard claims that there was evidence of less tuberculosis in the treated than in the untreated animals, but he admits that many deaths have occurred in the treated animals due to shock, but he also claims that this can be controlled in a large measure by the use of his serum. His results seem to be better than those of DeWitt, but one must remember that hers were carried on with tuberculous guinea-pigs, which, according to Moelgaard, do not tolerate Sanocrysin very well, as he lost all of his five, due to tuberculin shock.

Moelgaard summarizes his results as follows:

1. Sanocrysin prevents growth of tubercle bacilli in culture.

2. It renders the fatty system which protects the tubercle bacillus penetrable to hydrogen and metallic ions.

3. It prevents guinea-pigs from getting generalized tuberculosis when injected directly onto the tuberculous infection.

4. Injected into the tuberculous organisms it produces all of the reactions which one would expect to follow an injection of a substance which has a bactericidal influence on the tubercle bacillus.

5. Injected into non-tuberculous organisms in doses employed in therapy, it produces no reaction.

(The last two of these partake very much of a tuberculin reaction).

6. That a complete sterilization probably does not occur, but that one must be content with a clinical cure.

In November, 1923, K. Secher felt that the laboratory experiments had proceeded far enough to warrant the use of Sanocrysin clinically. His action was followed by other sanatoria physicians, six of whom report their results in Moelgaard's book, and this paper covers the clinical experience of seven physicians, in as many different sanatoria. They all agree that Sanocrysin is not a cure-all to be used promiscuously in every case of tuberculosis, but that the cases must be carefully selected and should be carefully observed before, during, and after the treatment, which, because of the severe reactions and complications accompanying it, must be carried on in a hospital where there are adequate facilities for observing the patient carefully. They insist upon a four-hourly temperature record for four or five days preceding the injection and a daily urinalysis during the treatment.

The reactions accompanying the treatment can be divided into three types, general, focal, and

immediate. The main symptoms of the general reaction are temperature curve, the erythema, the albuminuria, and a toxic myocarditis.

I. General:

(a) A temperature curve is a very important feature of the treatment, and, therefore, Sanocrysin should not be given in the presence of fever. One should wait until the temperature has become stabilized under the ordinary methods of treatment or until it has been controlled by the use of Moelgaard's serum, which should be given two days before the injection of Sanocrysin.

There are five different types of temperature response:

1. The temperature may reach its maximum in two to three hours after the injection and is often accompanied by chills. This is followed by a drop in temperature, which continues for about twenty-four hours and indicates an impending collapse.

2. The temperature may rise steadily throughout the entire day, and if this follows each injection the patient will become exhausted, and death follows. This type of temperature curve occurs in miliary tuberculosis.

3. In some cases the maximum temperature is not reached for three or four days following the injection after which it falls gradually. This temperature reaction is often accompanied by erythema and albuminuria. This occurs chiefly in the chronic fibroid type of case, and is due to the fact that Sanocrysin has been able to act only gradually upon the tubercle bacillus. This usually occurs only once in any patient and usually after the second or third injection. After that one may get reactions of types one and two.

4. The fourth type of temperature reaction is characterized by a constantly increasing temperature and is a sign of exceedingly poor prognosis. It occurs where the patient has very little resistance to the tubercle bacillus and is unable to neutralize the toxin, and death frequently results.

5. In some cases there may be no temperature response at all. The cause of this is unknown, but in such cases albuminuria has occurred.

(b) Erythema is the second manifestation of the general reaction, and this usually presents a multiform picture. It usually appears during the height of the fever reaction and is accompanied by albuminuria. It is explained upon the basis of a toxemia. There is no definite location, but it is usually seen first upon the joints, then the throat, and then over the entire body. It is fully developed within twenty-four hours after it appears and usually disappears in two days, al-

though it may last four or five. Usually it causes no discomfort, and the patient is not aware of its presence, but occasionally it manifests itself as an urticaria accompanied by itching. It may also be accompanied by mouth changes which resemble metallic stomatitis.

(c) Albuminuria is the third main complication, and this varies in amounts from a faint trace to 22 per cent and is accompanied by hyaline and granular casts. This usually lasts from one to two days and produces no permanent renal changes. This also depends upon the toxemia and occurs during the height of the reaction. The use of serum has prevented the occurrence of albuminuria.

It is characteristic of the reaction that, as the treatment progresses, the temperature response diminishes, while the albuminuria increases.

When collapse occurs it usually follows a drop in temperature and is accompanied by toxic myocarditis and tachycardia, the pulse often going to 120 or 130. In such cases the heart must be supported with digitalis, camphor, caffeine, and morphine.

Faver claims that the danger of collapse is increased if the interval between the injections is too short, i. e., if the temperature has not become stabilized, and also that collapse occurs more readily in patients who were febrile when the treatment was started.

Moelgaard claims that shock can be prevented by the intramuscular injection of 20 to 40 c.c. of his antitoxic serum if it is given when the collapse is impending. This is explained on the basis of a toxin, antitoxin neutralization reaction.

II. Focal:

The focal reaction consists of increased activity around the area of disease and in pulmonary tuberculosis is indicated by increased cough and expectoration, chest pains, dyspnea, and, in a few cases, cyanosis. In intestinal tuberculosis it is expressed by nausea, loss of appetite, vomiting, and diarrhea. This would be due to direct action upon the tuberculous focus in the bowels.

III. Immediate reaction:

There is also another type of gastro-intestinal reaction which seems to accompany the injection or to immediately follow it. This consists of nausea, vomiting, and, in severe cases, hiccoughs. This occurs so soon after the injection that it hardly seems possible that the gold has had time to act upon the tuberculous focus, and so this is thought to be due to a direct action upon the central nervous system. Marked nervous symptoms and functional disorders are common oc-

currences in connection with Sanocrysin treatment.

There is also a marked decrease in weight, sometimes two to three kilograms per week. This may occur even though there has been an improvement in the pulmonary condition of the patient.

Effect upon the sputum.—This, of course, will vary with the type of case and with the resistance of the individual, and even when a sputum has become negative one must not be too enthusiastic about the prognosis because this may be only temporary and the bacilli may reappear in a sputum which has been negative for months.

Types of cases.—As their experience with Sanocrysin increases they are becoming more and more conservative in the type of case used. They have all agreed, however, that the early case offers the best opportunity for success and that chronic fibroid cases where there is already some evidence of fibrosis or resistance to the tubercle bacillus, are also good risks. Far-advanced toxic cases are poor risks, and naturally the physician should exclude all such cases which are unfit for treatment. Many are advocating that Sanocrysin be used as a prophylactic measure in latent or concealed tuberculosis, and include pleurisy and cases of glandular tuberculosis in that group.

Surgical tuberculosis.—Intravenous injections of Sanocrysin have had practically no effect in surgical tuberculosis. However, the men are still hopeful and are experimenting with its use there.

Childhood tuberculosis.—The pathology of tuberculosis in childhood is different from that in adults because it occurs chiefly in the glands, and, theoretically at least, there are not as many bacilli present. Such cases stand the treatment much better than the average adults and offer a most excellent prognosis; in fact, they might be compared to the prophylactic cases in adults. In cases of tuberculous meningitis or miliary tuberculosis, however, there is not much difference in the response of adults or children. Here the results are poor.

SUMMARY

All of the men claim that the aim of the Sanocrysin treatment is complete sterilization of the tuberculous focus. They admit, however, that in many cases this does not occur and attribute it to the fact that the pathology of tuberculosis is extremely variable and that the individual may not be able to "stand" the marked reaction which would follow a dose sufficient to sterilize the lesion in his particular case. Some of them are

beginning to admit that the improvement has been only temporary and not permanent as they had hoped. In fact the improvement may have been purely psychic, lasting for a few weeks or months and then relapsing again.

The percentage of cured and improved patients is no greater than that obtained by those who have used gold salts in the past. Only a few of the advanced cases received any benefit from Sanocrysin treatment, and in many cases death was hastened, due to an extension of the disease, as well as to shock. Many of the early cases were considered to have been cured in six months, but there are records of many spontaneous cures in the same length of time under ordinary methods of treatment, so no definite conclusions can be reached.

Many of the investigators claim that their early failures were due to too small doses and too long an interval between treatments. This is explained on the theory that small doses act as an irritant, exciting the tuberculous process to a rapid progression. So now they advocate as large doses as the patient can stand at a four-to-five-day interval. They admit at the same time that they have no way of determining just how large a dose can be tolerated or neutralized by the patient.

RESULTS

Dr. Secher's records are not clear and so my interpretation of his results may not be correct.

BISPEBJERG HOSPITAL—Dr. K. Secher

| No. Bact. | F. F. S. | Imp. | Exac. |
|------------------|----------|----------------------------|-------|
| 9 | 6 | 3 (?) | |
| Bact. P. 3 | 3 | | |
| Severe Cases 7 | | 7 (Treat. only Palliative) | |
| Advanced Cases 8 | | | 8 |
| Miliary T. B. 3 | 1 | 1 | 1 |
| 30 | 10 | 11 | 9 |

ORESUND HOSPITAL—Dr. Wurtzen

| Total Cases | F. F. S. | Imp. | U. I. |
|-------------|----------|---------|-------|
| 55 | 5-2 (?) | 6-2 (?) | 40 |

FREDERESBERG HOSPITAL

By Dr. G. E. Permin

| Total Cases | F. F. S. | Imp. | U. I. or Dead |
|-------------|----------|------|---------------|
| 17 | | 4 | 13 |

VEJLEFJORD SANATORIUM—Dr. Gravesen

| Total Cases | F. F. S. | Imp. | U. I. |
|---------------|----------|------|-------|
| Advanced 21 | 3 | 5 | 13 |
| Early Cases 2 | 1 | | 1 |

These cases were combined with collapse therapy. The work is still in the experimental stage.

CHILDREN—Drs. V. Bie, K. Secher, Wurtzen

| Age | F. F. S. | Imp. | U. I. |
|------|----------|------|-------|
| 0-5 | 5 | 4 | 6 |
| 5-15 | 13 | 8 | 3 |

SURGICAL TUBERCULOSIS

Dr. Ole Chievitz

| Total Cases | Healed | Imp. | U. I. | Worse |
|-------------|--------|------|-------|-------|
| 35 | 3 | 3 | 27 | 2 |

"The three healed cases will carry no conviction."

Legends—

Bact.—Bacteria

F. F. S.—Free from symptoms

Imp.—Improved

Exac.—Exacerbated

U. I.—Unimproved

We who are in tuberculosis sanatoria realize that a patient can be rendered free from symptoms without much of any improvement in the tuberculous process.

The element of time, which is so necessary in determining whether the benefit is permanent or only temporary, is of course entirely lacking; and, therefore, their claims are, to say the least, a little premature.

CONCLUSIONS

K. Secher summarizes the indications for Sanocrysin as follows: "All types of pulmonary tuberculosis in either adults or children are suitable for treatment. The dose must be varied according to each case.

"In early cases when, according to the table of doses and combined with serum treatment, these cases can be carried through without danger to the patient.

"In the more advanced case the treatment is perilous.

"The far-advanced case offers little hope for recovery.

"It has no value in surgical tuberculosis.

"In lupus the temporary results are striking."

It seems then that this limits the field of

Sanocrysin to the early cases. Also Sanocrysin has been in use for less than two years, and, therefore, it is entirely too early to say much about permanent results.

Trudeau Sanatorium reports 61 per cent of their cases well and working one to ten years following their discharge. Their report covers mostly early and moderately advanced cases.

Pratt of Boston who deals with the more-advanced case who is too ill to go to the State Sanatorium at Rutland, reports 56 per cent well and working in one to ten years after discharge.

It is a matter of common record that 90 per cent of the early cases recover under the present-day methods of treatment and that this occurs without the dangers associated with Sanocrysin treatment.

Therefore I believe that Sanocrysin will be proven to have a rather limited field in tuberculous therapy. "The final proof must, of course,

come from a long period of study and observation, and if there is anything to Moelgaard's method we shall continue to hear of it. If not, it will die the natural death which has been the fate of the scores of tuberculosis cures in the past."

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THE FALLIBILITY OF SERUM TREATMENT OF TETANUS*

By PAUL M. KELLOGG, M.D.

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In the past sixty days I have been called upon to treat four cases of tetanus, a rather unusual occurrence in a general country practice. Of these cases, two recovered and two died. There was nothing unusual about the symptoms or the course of the condition in any of them. The disease progressed along the well-known lines of such infection. The most noticeable thing was their remarkable similarity. The rational serum treatment was employed and was the same in each as far as conditions would permit. I do not intend to discuss these cases at any length, but, in order to bring out certain points, I shall give a brief history of each:

CASE 1.—A boy, aged 12. While attempting to operate a corn-binder got his foot caught in the gears, causing a deep and ragged punctured wound on the inner aspect of heel. No physician was called, and the wound was dressed by his mother and apparently caused little inconvenience. Twelve days later I was called and found the boy presenting typical symptoms. On the preceding day he had complained of a soreness in the muscles and severe headache. Examination disclosed a small discharging wound which had almost entirely healed. The teeth could be separated about one-half inch. The muscles of the back of the neck

were tense. The reflexes were exaggerated, there was no Kernig's sign. The boy had vomited several times. The wound was opened freely, cleansed, and cauterized. A small piece of leather from the shoe was removed from the bottom of the wound. The surrounding tissues were infiltrated with serum. Twenty thousand units were given intravenously and 20,000 intraspinally. On the following day there was slight but noticeable improvement. Forty thousand units were given intravenously and on the evening of the second day, 20,000 units intraspinally. The boy vomited several times during the night and was slightly convulsive. A hypodermic of morphin was given at this time. On the third day there was decided improvement. Ten thousand units were given intraspinally and 20,000 intravenously. On the fourth day there was a distinct relaxation of the back and the neck muscles, and the jaws could be opened about an inch. He still complained of severe headache. On the fifth day there was further improvement, and no serum was given. Within a week the patient was practically normal save for a general muscular soreness and exaggerated reflexes. One hundred and forty thousand units were used in this case.

CASE 2.—A boy, aged 11. Thirteen days before he stepped on a nail, running it practically through the foot, although not puncturing the skin on the dorsum. He was wearing tennis shoes at the time. The wound was tended at home, no physician being called. A piece of fat pork was applied for several days during which time the foot pained considerably and was swollen. After the first few

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days, and inasmuch as the boy did not complain, the foot was considered well. Two days before my visit the boy had complained of headache and had been sent home from school. That evening he had some difficulty in chewing his food and still complained of headache and backache. On the third day I found a small punctured wound on the sole of right foot surrounded by induration. A small amount of seropus could be pressed from the wound. On the back of the foot there was an area of redness, slightly indurated, about an inch across. The jaws were tightly locked. The muscles of the back were rigid, but those of the neck relaxed, and the boy could bend the chin almost to the sternum. Kernig's sign was present. All reflexes were exaggerated, and there was distinct spasticity of all muscles. The wound was opened freely, and through-and-through drainage was established. The surrounding tissues were infiltrated with serum, 5,000 units being used. A small piece of rubber from the tennis shoe was removed from the incision on the back of the foot. Twenty thousand units were given intraspinally and 20,000 intravenously. That day the patient complained of severe headache and backache and was distinctly convulsive. The jaws remained tightly locked. That night he had a severe convulsion. A hypodermic of morphin was given, and on the morning of the second day 20,000 units were given intraspinally and 20,000 intravenously. The neck and back muscles were rigid, and opisthotonos was apparent. The jaws were still tightly locked. Morphin hypodermically and chloral per rectum were given to relieve pain and spasticity. On the third day there was slight relaxation, and the jaws could be moved slightly, but not opened. Twenty thousand units were given intravenously and 10,000 intraspinally. On the fourth day the jaws could be opened about one-half inch, and the muscular rigidity was distinctly less. On the fifth day there was marked improvement, and no serum was used until the evening when the rigidity seemed to increase. Twenty thousand units were given intravenously. On the sixth day there was further improvement, and no serum was given. From then on the improvement was rapid, and no more serum was used. One hundred and thirty-five thousand units were used in this case over a period of five days.

CASE 3.—A boy, aged 14. While cleaning his bicycle he got the right index finger caught, causing a ragged and punctured wound at base of the nail. The wound was dressed at home and not considered serious. Twelve days later the boy complained of difficulty in opening his jaws to the full extent and noticed some headache and a suggestion of soreness in all the muscles. This was not severe and caused little anxiety. On the following day the stiffness in the jaws had increased, and he had a rather severe backache. At times while eating the jaws would clamp tightly for a few seconds before he was able to open them. That night he was nauseated and vomited once, being unable to sleep on account of the backache. On the following day all symptoms worse, and his parents brought him to me, but I was away at the time. On the following day he was distinctly worse and unable to get out of bed. I was immediately called. His condition was apparent. The jaws were locked. The neck and back muscles were rigid. There was a

distinct suggestion of opisthotonos, and he held himself with the chest protruding and the head well back. All the reflexes were exaggerated, and he was suffering severely. Examination showed a ragged discolored puncture at the base of the nail, with considerable swelling and induration in the surrounding tissues. A portion of the nail had been embedded deeply in the wound, and the bone was fractured. Examination was extremely painful. Chloroform was administered, and I quickly amputated at the first joint. Twenty thousand units of serum were given intravenously and 20,000 intraspinally. On the following morning his condition was the same, and 20,000 units were again given by each route. That evening distinctly worse, and 40,000 units were given intravenously. That night he had two severe convulsions. Morphin was used and chloral per rectum. On the following day his condition was desperate, and 40,000 units were given intravenously and 20,000 intraspinally. The convulsions increased in number and intensity, and he died that night. There was no noticeable improvement at any time, and the serum apparently had not the slightest effect on the tetanus infection.

CASE 4.—A boy, aged 9. While swimming the patient stepped on a clamshell, causing a slight wound between the great and second toes. The wound was of so slight importance that the boy did not mention it to his parents. Eight days later they noticed he refused to eat and complained of pain in the stomach, and he said he ached all over. He vomited several times and seemed to be unable to speak plainly. A dose of castor oil was administered, and liniment was used on various joints. That night he was delirious at times and complained bitterly of headache. Towards morning he had a slight convulsion. During the next day he seemed somewhat better, but refused to eat and still complained of headache and general soreness of muscles. That evening he had another convulsion, and the family became sufficiently alarmed to call me. His condition was plainly grave. The jaws were tightly closed, and there was a general rigidity about the muscles. During the examination he had a severe convulsion lasting about three minutes. I completed the examination and dressed the wound under chloroform. The small cut showed no sign of healing or that any attention had been given it for several days. It was thoroughly cauterized and the adjacent tissues infiltrated with serum. Twenty thousand units were given intraspinally and 40,000 intravenously. That day the boy had several convulsions in spite of morphin and chloral. During the night 20,000 units were given intravenously and on the following morning 20,000 intraspinally. There was no improvement, and he died that night in a convulsion.

In reporting these cases I have intentionally omitted the details of the course of the tetanous infection. All were boys of approximately the same age, sons of farmers of foreign birth, with little or no education, absolutely unaware of the gravity of the condition or of the import of the early symptoms. The family history and the results of the physical examination were in all cases negative so far as the immediate condition

was concerned. Three of the wounds were on the foot, and three contained foreign bodies. In the one case it is interesting to note that the amputation removed the area of infection, but in no way favorably influenced the course of the disease. The treatment was as near the same in each case as conditions would permit, and the serum used was practically the same in amount, in the manner of its administration, and in its source of manufacture.

In considering these cases the question naturally arises: Why did two cases prove fatal, while two others, practically similar in every way, recover; and what is the reason that antitetanic serum is not more effective than it has been proved to be? The method used in these cases follows the rational method laid down by the best observers in the treatment of this condition. The intraneural injection, while considered by some as beneficial, has been rejected to a large extent. The intraspinal route is generally considered as the most efficient, and, while there is always the possibility of a serum meningitis, which may be of alarming proportion, it still remains the method of choice.

In attempting to explain the results in these cases it becomes necessary to review the actual method of infection in this particularly fatal disease. We know that the toxins of tetanus are among the most virulent of all toxins. The symptoms of the disease are caused by the action of these toxins on the ganglion cells of the cord. It is generally conceded that the organism does not enter the general circulation or the lymph stream, but remains at its point of entry, the toxins alone traveling with considerable rapidity along the course of the motor nerves. A toxin which enters the general circulation is diffused through the capillaries and later brought in this way to the motor nerve endings. Its action on these cells causes the spasm and stiffness of the muscles characteristic of this disease.

Permin, of Copenhagen, was able to determine by experiment that tetanus antitoxin, no matter how introduced into the body, probably has no effect whatever on the toxins already within the ganglion cells. It does, however, neutralize the toxins which remain free in the blood stream and lymph channels, and does this most effectively and quickly when introduced into the general circulation by the intravenous route. Apparently the antitoxin does not reach the toxin already within the cells of the brain and cord. He was, moreover, able to produce tetanus by injecting the toxin directly into the nerves, although the

animal had been previously thoroughly immunized by antitoxin.

In applying this test to the four cases cited, two conclusions can be drawn: first, that the number of antitoxic units was insufficient to neutralize the toxins already in the blood and lymph stream, or that the amount of destruction to the central nervous system was so great that the neutralizing of the free toxins could in no way influence the eventual fatal outcome. This becomes more apparent when we consider the first fatal case where the port of entry and all the surrounding tissues were completely removed by amputation. If we are to grant that the toxins are formed only at the point of entry and that the bacillus does in no case enter the general circulation, then we are forced to conclude that the administration of the antitoxin is of avail only when used very early. This conclusion is borne out in considering the two cases which recovered. In one the serum was injected within eighteen hours, and in the other within twenty-four hours, whereas in the two fatal cases the serum in one case was used five days after the first symptoms manifested themselves and in the other three days.

Hence the ineffectiveness of the serum treatment must be due to the failure in beginning the treatment early enough, as its action is essentially preventive, in the use of an insufficient number of antitoxic units, and in a failure to choose the most effective point of its introduction.

The principal cause of failure in the use of antitetanic serum is due to the lack of recognition of its limitations. We are in no way justified in questioning its usefulness if we are at all cognizant of these limitations. Statistics have shown us that it is of unquestionable value when it is used properly and in early cases, and that the mortality has been reduced over 20 per cent. Its chief value lies, of course, in its use as a prophylactic. The failure to use it in all cases of wounds in any way contaminated with street dirt would be culpable negligence. Granting that, as a specific cure for the disease, it has fallen far below our expectations, nevertheless the importance of its early use in liberal quantities and properly introduced cannot be doubted.

DISCUSSION

DR. ERNEST V. SMITH (Fond du Lac, Wis.): I reported three cases of tetanus before this Association in 1920. I want to repeat my conclusions drawn at that time:

1. From a review of the literature and an experience with three cases of tetanus successfully

treated it appears that tetanus antitoxin has a definite value when given intravenously and in sufficient dosage.

2. In determining the dosage the severity of the case should be taken into consideration. For the adult and a severe case it may require from 150,000 to 200,000 units; however, many cases are reported cured with doses ranging from 60 to 100,000 units.

3. The intravenous method is the method of choice, and should always be employed in an acute case. It may be advisable to give 5,000 to 10,000 units into the spinal canal at the same time the initial dose is given.

4. The prophylactic dose of tetanus antitoxin should be at least 2,000 units.

5. If there is an open discharging wound or a healed wound which is sore and painful, the local focus should receive thorough treatment. If the original wound is completely healed and the scar is not painful, I can see no advantage in its treatment.

Symptoms requiring stimulants or sedatives should be treated as the indications arise. If the cause of the disease is thoroughly treated, the symptoms will take care of themselves.

All of the three cases treated successfully received very large doses of antitoxin. All of them were treated rather early. The first case reported was that of a boy, eight years of age, who developed symptoms nine days after a slight injury to his chin produced by a buckle from his overall. He came in with locked jaws, rigid muscles of the back, and all the characteristic symptoms of tetanus except convulsions.

The other two cases were given very large doses intravenously, but none intraspinally. The symptoms were very clear-cut. Both patients recovered.

There seems to be a definite relationship between the period of incubation and the severity of the case. It is definitely agreed that those cases in which the incubation period is short, thereby indicating that the tetanus germ is of great virulence, are apt to be severe and not to be controlled by any method or treatment. When the incubation period is prolonged over nine days, perhaps two weeks or sometimes a month, that case is apt to be mild, and any one of a number of different methods of treatment may save the patient.

Persons who have had tetanus and recovered and who for some cause require an operation later, involving the original field of infection, should always receive a prophylactic dose of antitoxin preceding the operation.

DR. DEAN LEWIS (Chicago, Ill.): A word about tetanus developing after the prophylactic dose of antitoxin has been given: The case in point relates to a captain operated on during the war, about the second case I operated on in France, the 9th of July, 1918. He was head of a battalion that was caught in a box barrage; a shell struck him and knocked him out. He had a fracture of the right femur with the right knee-joint exposed; he had a high explosive wound of his left thigh in which the muscles on the anterior surface were removed. He was given a prophylactic dose of antitetanic serum, and on the second day I thought he was going to die, but he had a lot of nerve, which helped him out apparently. He recovered and was sent to a fracture hospital. I heard from him from time to

time, as he happened to be a brother of a moving picture man in "The Birth of a Nation," and I kept track of him. In January, 1919, the Base Hospital to which he had been sent was closed, and he was to be sent to Paris for further treatment of his fracture, but while on the way he developed tetanus, apparently from the jolting of the French train. They did a thigh amputation while he was in Paris, and he recovered.

In the case of a child that I saw in consultation a year ago a prophylactic dose of serum was given and tetanus developed three years later. Therefore the prophylactic dose does not protect very well if the germ is still present. In the army an order was in effect at all general hospitals in this country that any patient who was operated on subsequently to a previous operation for injury was to have a prophylactic dose of serum, and we had to see if the patient was sensitized to the serum. Some of them developed severe anaphylactic shock. In injecting a patient under anesthesia there is not much danger of anaphylaxis. Therefore if a patient has to be reinjected with antitetanic serum it is better to have it done while he is under anesthesia in order to avoid the development of anaphylactic shock.

DR. F. GREGORY CONNELL (Oshkosh, Wis.): I would like to call attention to a case of tetanus that occurred at St. Mary's Hospital following the removal of a common-duct stone. A drainage-tube was inserted through the common duct into the duodenum and removed about the seventh day. On the tenth day the patient developed tetanus and died in forty-eight hours despite very large doses of serum given intramuscularly, intravenously, and intraspinally. The catgut used in this case was prepared by the hospital. I wonder if anybody else has had such an experience. We know that after rectal cases have been operated on tetanus may develop. Therefore it would be interesting to know if in upper intestinal or stomach surgery tetanus has developed sufficiently often to lead us to believe that this infection came from the gastro-intestinal catgut.

DR. ROGER T. VAUGHAN (Chicago, Ill.): When I first studied bacteriology, we were taught that the serum was of value as a prophylactic agent in tetanus, but that it had no value after the disease had developed. Later, when the work of the Germans came out advocating enormous dosages, there was an improvement in results. Some of the staff of the Cook County Hospital took up the treatment of tetanus with these large doses, 100,000 units, 150,000 units, etc.; 100,000 units cost the county \$125, and that seemed like a lot of money to spend on one patient. Therefore some six years ago, at the request of the hospital authorities, Dr. Irons investigated the subject of dosage in connection with the use of antitoxin in tetanus. He collected our statistics, some cases treated by antitoxin and some that had not received any treatment prior to entering the hospital, and the figures which he made out were approximately these: That the untreated cases showed a mortality rate around 75 per cent; that those cases which had been treated with other methods showed a mortality down to as low as 50 per cent, but that the patients who had been treated with tetanus antitoxin, 15,000 units or more, within twenty-four hours of their admission, had a mortality rate of only a little more than 25 per cent; those that received the larger doses perhaps did a

trifle better but the difference was not great between the cases which had 25,000 units and those that received very large doses. Therefore the staff officially recommended to itself and through itself to the internes, that tetanus antitoxin be administered at once or as soon as possible after the patient came in, and that not less than 15,000 units be given; and in the main Dr. Irons' recommendations have been followed ever since. The patient immediately received a substantial dose, 5,000 units intravenously, 5,000 units intraspinally, and 5,000 units subcutaneously, in the gluteal or lumbar region, which is absorbed more slowly than by either of the other methods. I have to dole out the antitoxin to the internes, and we generally give 20,000 units intravenously. That is for the initial dose. If the relatives can be induced to buy more I see no harm, but after that the internes are instructed to give intraspinal treatment every other day for not more than two additional doses. We figure that if we get past the fourth day we are, as a rule, pretty safe.

Bearing these points in mind in the four cases reported I believe Dr. Kellogg should not be disappointed in the results obtained with the serum treatment.

I am inclined to give the moderate rather than the large doses, on account of the danger of anaphylactic shock. With a large dose, then another big dose, etc., the patient has some asthmatic effect, and he develops an urticaria, which is an irritation that should be spared a tetanus patient. I have seen no deaths, however, from even the largest doses, but the anaphylactic reaction to the larger doses is sometimes quite a burden to the patient.

DR. JOHN H. RISHMILLER (Minneapolis, Minn.): We know that tetanus is caused by the toxin of bacillus tetani acting on the nervous system. The toxin ascends from the wound to the spinal cord along the motor nerves by way of the axis cylinders and by way of the lymphatic channels in the epineurium and perineurium. It also passes along innumerable other motor nerves as the toxin is carried by the blood stream to the other parts of the body and the toxin is easily absorbed by any motor end-plate with which it may be brought into contact. This explains the general development of tetanus (opisthotonos), that is, when the toxin is carried in the blood from one part of the body to another, as opposed to local tetanus (trismus).

It is interesting to study laboratory animal experimentation and learn in what part of the body the first symptoms of tetanus appear. Thus, if we compare the period of incubation in animals, whose peripheral nerves vary in length, we find that the period of incubation in the mouse is eight to twelve hours; in guinea-pigs, thirteen to eighteen hours; in rabbits, eighteen to thirty-six hours; in the cat, twenty-eight to seventy hours; in the dog, thirty-six to thirty-eight hours; and in the horse, five days. It is interesting to know that the horse is more susceptible than other animals, and it is also interesting to know that the horse is used for the manufacture of antitoxin for commercial purposes.

The average period of incubation is from ten days to two weeks, depending on the position of the wound. One naturally queries, why such a long incubation period? In man and in large animals it takes considerable time for the toxin to travel up

the long nerves, from the hand or foot where the infected wound is usually located. The nerves to the muscles of the face, neck and the back are so much shorter than the nerves to the extremities that the toxin reaches the motor cells of these nerves before it has time to affect those of the limbs.

This, therefore, explains why the facial muscles, being mainly supplied by the short seventh nerve, are the first to evidence tetanus; next the muscles of the abdomen and back are brought into tonic spasm; and finally the arms and legs.

Chronic tetanus is, as a rule, due to delayed germination of the spores which, under certain conditions, are brought to activity, such as by manipulation, operative interference, or by transporting the patient from one hospital to another.

Leishman and Smallman (*Lancet*, Vol. 192, No. 1, 1917, p. 132) state as follows: "The interval which elapsed between the wound and the first evidences of tetanus was recorded in 157 cases. The average incubation period of all cases was 12.03 days. Of the fatal cases, 115 in number, the average period was 10.07 days, and of the 42 recoveries it was 14 days. This confirms once again the general experience that the shorter the interval between the wound and the attack the poorer the chance of the patient."

The tetanus bacillus is obligatory anaërobic and cannot thrive in the presence of oxygen, but does grow in an atmosphere of hydrogen, that is, the bacillus flourishes only in tissues which do not communicate with the external air. On this morphological character of the tetanus bacillus depends the proper character of wound dressing. Dry gauze dressing or dressing which permits air to come in contact directly with the wound surfaces is indicated, while occlusive or wet dressing is contra-indicated. The more experience a surgeon has in traumatic surgery the more apt he is to dress his wounds along lines of a non-infective character; in other words, the surgeon should remove all questionable and devitalized tissue by débridement and close the wound as an ordinary incised wound. A tetanus-infected wound is hardly ever free from other organisms, some anaërobic and some aërobic. If one looks up the mortality statistics of the World War he will be convinced that all fatal tetanus cases had mixed infections, such as gas gangrene, etc.

DR. HERBERT H. LEIBOLD (Parkers Prairie, Minn.)

A month ago, at a meeting of our local society, the members thoroughly discussed this subject, and a number of questions came up which were rather interesting. Some of them no one seemed able to answer satisfactorily, therefore I am going to put them up to you. A paper was read in which the essayist reported the case of a boy who had a punctured wound, and he gave him a prophylactic dose of serum. The boy came within a hair of dying in a few minutes. The doctor stated that in view of this experience he did not know whether he would want to give every patient with a punctured wound antitetanic serum. There was also reported the case of a school teacher to whom two of the men present had given a prophylactic dose. She died within a few minutes. Then this question came up from the medicolegal standpoint: Are we responsible if we give in these cases of punctured wound a prophylactic dose of antitetanic serum,

and if a patient with a trivial punctured wound should die from anaphylaxis due to the administration of tetanus antitoxin, what responsibility would we bear for the patient's death? On the other hand, if we do not give the serum, and the patient subsequently develops tetanus, are we responsible? With reference to this last question we seemed to be unable to decide which course was right.

DR. VAUGHAN: I would ask if any of those patients with wet dressings applied subsequently developed tetanus?

DR. RISHMILLER: Relative to Dr. Vaughan's query, I desire to state that I never have had a case of tetanus developing in a patient under my care and for that reason I expect to continue to use dry dressing.

The following statistical data reveal that the stereotyped dosage, as reported by Dr. Vaughan, used at Cook County Hospital, must not be taken as a criterion without tacit criticism:

Leisman and Smallman (LANCET, Vol. 192, No. 1, 1917, p. 134) state as follows: "As will be seen (in France), those in which the total dosage had been below 20,000 units, comprise 116 cases, of whom 91 died, a case mortality of 56.4 per cent; while of the 67 cases received more than 20,000 units, and of them 24 died, a case mortality of 58.5 per cent. There is, therefore, a balance of 20 per cent in favor of the larger dosage. Turning to a somewhat similar table in connection with the cases treated in home hospitals (England), and dividing the 175 cases therein analyzed into similar groups, below and above a total dosage of 20,000 units, we find that of 108 cases in the small-dose category, 61 died, a case mortality of 56.4 per cent; while of the 67 cases in the large-dose class only 21 died, a case mortality of 31.3 per cent. The balance here in favor of the larger total dosage is 25 per cent."

Insurance companies claim that if every accident case were to receive antitetanic serum they would lose money, and then they come back with the statement that they are better off paying for the occasional death from tetanus than they would be if required to pay for antitetanic serum in every case.

DR. SMITH: Regarding Dr. Leibold's statement, I wish to say that anaphylaxis often occurs after the injection of any serum; but where the serum is to be given as a prophylaxis, there is no reason why an anaphylactic dose cannot first be given in order to test out whether or not that patient is going to react severely following the prophylactic dose. If, however, a patient has developed real tetanus, I do not think we would be justified in testing out the anaphylaxis of the patient, but should at once go ahead and give the therapeutic dose of serum.

DR. VAUGHAN: In regard to Dr. Rishmiller's theory as to the effect of light and air on the tetanus organism, I am reminded of a case Dr. Murphy had when I was assisting him. A young man while in Michigan fell off a bicycle and slid along the street on the side of his face, with a little fissure underneath the ear. The local physician iodized the fissure, the young man returned to Chicago, and in ten days he developed tetanus. We thought probably a superficial wound would not show the organism on culture, but there was a little pus at the

corner of the ear, and we got the tetanus germ out of that. We gave him 120,000 units of serum, and in a few hours he had a fine anaphylactic reaction. He made complete recovery.

The point I wish to make is that his wound was thoroughly iodized and exposed to light and air, with free drainage, and still tetanus developed. My idea is that if he had not received the initial treatment with iodine he might well have been a fatal case, because the mortality is supposed to run about 80 per cent.

We had a case of simple circumcision in which the sutures used were horsehair. After ten days he developed tetanus, came back, and was treated with serum and recovered. We could not find the tetanus germ in the wound, but we cultured all our horsehair suture material and found that it contained the tetanus organisms.

As Dr. Vaughan states, no large institution can afford to give tetanus antitoxin to every accident case. Pick out the cases contaminated with street dirt, etc. In our practice every little cut that can be thoroughly iodized is so treated. We do not give antitoxin even in cases of gunshot wound unless of the foot. Once in a while we will have an untreated case develop tetanus. Most of them are small, almost unrecognized lesions, usually untreated.

DR. KELLOGG (closing): When the incubation period is fairly long, over nine days, it is generally admitted that these cases are rather benign than otherwise. Those cases that develop tetanus within five days are always fatal. Of the four cases I have reported, I shall have to admit that those which terminated fatally showed practically no benefit from the serum, the patients failed to improve from the beginning, whereas in those cases in which the patients recovered, whether due to the serum or not I could not say, the symptoms were more favorable from the start.

As to the site of the wound: All of the wounds in the cases I have mentioned were on the extremity, and we know that in tetanus caused by a wound of the face the prognosis is a great deal more grave than in those cases caused by a wound of the extremity. We also know that wounds containing a foreign body are far more likely to harbor tetanus germs.

Dr. Lewis mentioned tetanus developing in a case which had previously had tetanus. In this connection it is interesting to note that one of my cases which recovered, developed in less than a week a very ragged wound in the palm of the hand. I hardly knew what to do but figured that the boy must still have a certain degree of immunity, so I did not give any serum. He did not develop any symptoms as the result of this wound.

As to large and small doses, mentioned by Dr. Vaughan: This is a question difficult to decide. We all run across series of cases in the literature in which large doses of antitetanic serum have given good results, and other series in which small doses have been employed with almost identical results. I have had good results with dichloramin-T used early. Some writers advocate peroxid as a dressing for the wound. As the tetanus germ is an anaërobie and peroxid throws off free oxygen, it would appear to be the dressing of choice.

As to whether to give serum or not, Dr. Smith

brought out the fact that if it is given as a prophylactic measure we need not fear the development of anaphylactic shock. If the patient is sensitized to the serum we can always avoid shock by giving small doses.

In regard to tetanus developing in certain localities and not developing in others, and as to whether

certain wounds do or do not tend to the development of the disease, natural immunity might have some bearing on the question. When I was at the University of Minnesota I recall that in examining the water of the Mississippi river quite a large number of colonies of tetanus bacilli were found. We probably have tetanus bacilli with us always.

WORK AND EFFICIENCY OF THE SCHOOL CHILD

BY MAX SEHAM, M.D.

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In this paper I shall discuss the child as a working machine, a point of view that is rarely considered by the medical profession. In order to understand the curve of work and fatigue in the normal child of school age, one must first understand the physiology of work as it is related to the daily life of the average normal school child.

The child is similar to primitive man in many respects. By nature he knows no restraints, no duty nor obligation to society. He adjusts his activities to his own immediate needs. Measured by the standards of the adult his life seems without aim and without plan.

To the child all spontaneous activity is play. The impetus of the child for play corresponds to the impetus of the adult for work. We use the term play for the natural and active life of the child to distinguish it from the life of conscious self-direction, restraint, and inhibition into which the human adult has advanced through evolution.

On the other hand, work is activity intelligently put forth and is tied down to the end to be achieved. Work involves mental as well as physical strain, necessitates concentration and inhibition, and creates nervous tension.

Every new experience in whatsoever field of activity must break a trail for itself. Every attempt to perform a new movement opens up, so to speak, a path along a certain tract in the brain and the spinal cord. Every time the same impulse travels over this tract the path already established facilitates its journey. When a baby first feels the desire to walk, those centers of the brain that control this function send out the impulse to the muscles of the legs by way of the nerves. Once the impulse has passed over a certain tract it will take the same course and find the road smoother and easier. For example, when a child five years of age is first given a needle and thread, and told to sew on the dotted

outline of an elephant, she will cramp all her five fingers around the needle, and push the needle through the hole in the card with all her strength. She will use force instead of skill. After she has outlined many an animal she does this work with her wrists relaxed, and uses only those fingers which are necessary to sew. The first impulse to sew had to break the path and therefore met with considerable resistance. After it had traveled repeatedly over the same road, less energy was spent in overcoming the resistance of travel, and more was used for the execution of the act. In other words, the child becomes more efficient.

In the beginning every repetition of an act makes the efficiency curve climb higher and higher. After the peak has been reached, the line runs at about the same level, provided the work period is not drawn out too long. Too frequent repetition of an act, however, increases the resistance to the passage of an impulse, and the efficiency curve drops way below its average level. This represents fatigue.

In the preschool period of life only those tracts and centers which control the functions of the large muscles of the trunk, legs, and arms are well developed. Those which lead the impulses to the finer muscles of the fingers, toes, and the special senses are rarely stimulated and, therefore, remain for some time functionally inefficient.

Consequently at about the age of six years when the child is admitted into school, he seeks expression through his large muscles rather than through his brain. He is concerned with doing rather than with thinking. It is very difficult for him to sit still for three or four hours at a time, his nature crying for physical rather than for mental exertion. He learns first through his muscles by doing things; therefore the most effective way of teaching him, it seems, is to give free rein to his hands, feet, and voice. To teach

him about active life, about the birds and animals, flowers and woods, rather than to teach him to memorize words and facts. His ability to do mental work is limited at this age because his mental equipment is yet immature and incomplete. This physiologic state explains the lowered efficiency of the child as compared with the adult.

Nor does the child know how to conserve his energy. The inhibitory mechanism whose purpose is to protect the body from wasting power, is not fully developed in the child of school age. This is attested by his impulsiveness, and lack of deliberation before acting. If you ask a boy nine years old to chop some wood, he will grab his axe, run downstairs into the basement, and eagerly set to work. After ten minutes he will throw down his axe and rush upstairs to seek some physical exercise more to his liking. If you go downstairs you will find half of the wood-pile untouched, splinters lying all over the floor, and the floor itself all nicked up. To the boy it never occurred to chop the wood on the log standing right next to the pile, nor did he think it his responsibility to finish the job by piling up the chopped wood neatly. Such is the inefficiency characteristic of his age. When a child is called upon to do some work for the first time, he does not sit down and think over how best to go about it, but, instead, he rushes at his task, keeps on trying one way or another until either he has achieved the desired end, or, as happens more frequently, he becomes discouraged and tired and discontinues his efforts.

Another evidence of the imperfect inhibition in the child is the lack of unity of purpose and ability to concentrate. With many stimuli simultaneously flooding the nervous system, there must necessarily result a clashing of opposing functions unless the brain, through its inhibitory apparatus, suppresses these reflexes that impede instead of promote the efficiency of an act. To the trained worker one stimulus is supreme, one purpose dominating all the functions. In this way alone can the highest efficiency be attained. In the child the response to reactions can be compared to an orchestra that has lost its leader.

A good exhibition of the wasteful way in which a child works may be seen during his first few weeks at school. He squirms in his seat, he uses muscles whose activity do not contribute to the proper performance of the immediate task. In other words he attempts to respond to so many stimuli at once that he is at a loss how to use efficiently the tools that nature has endowed him with.

At about the age of eight the inhibitory power becomes stronger. He becomes more restrained and develops greater poise. Whereas in the first few years of life, sitting still for any length of time was very oppressive, he now actually enjoys listening to stories. Soon he learns to control his emotional responses, through habit and repetition of old experiences. His ability to apply himself more efficiently grows with the complexity of those experiences. In the preschool age the impulse for action is all imperative, but at the age of eleven or twelve years action is preceded by thought.

To the three factors thus far mentioned which control the efficiency of the child, a fourth one must be added, in order to fully appreciate the difficulties that lie in the path of highest efficiency in school work, namely, the lack of preparation for his new work and his new environment.

The laws governing the admission of children to school assume that at the age of six all children are ready to begin their long journey of education. If all children would develop uniformly, admission to school based on the number of years the child has lived would be justified, but in reality the chronological age is not necessarily a reliable index of his fitness for school. A feeble-minded child may be ten years old chronologically, yet no one would dispute that his mental age falls below that of normal children of the same age. On the other hand a child may have reached the chronological age of eight, have an intelligence quotient of a normal child of ten and have the physical development of a child only six. If a boy in the seventh grade applies for athletics the gymnasium teacher realizes that the crucial question lies not with his age, but, rather, whether the boy is physically equipped for such strenuous sport. Again, if a boy applies for permission to sell newspapers on the streets he should get his license from the physician, not so much on the basis of his age, as on the basis of his physiological maturity.

But the arbitrary use of the age as an index is not the only obstruction to the highest efficiency in school work. The present static system of education is, to a considerable extent, antagonistic to the nature of the child. The child is naturally a playing animal; his activity is characterized by spontaneity, his mental processes by a lack of definite purpose. His reactions to stimuli are largely emotional and rarely ever intellectual or rational. On entering school he is taken out of his natural habitat of open air, sunshine, and freedom, and, instead, subjected for

nearly half of his waking hours to an artificial and mental regime. He is immediately confronted with fixed responsibilities; he is required to sit still for long periods at a time; he is compelled to center his attention on a definite task, he must control his desire to whisper to his neighbor; he is forced to use his brain continuously and systematically. In other words, he is suddenly precipitated into a flood of duties for which he has had no previous experience.

The effect of modern life upon the average child is attested by the large number of children with nervous instability, absence of poise, abnormal behavior, and chronic fatigue.

Time will teach us to do away with the static system of education, which represses and suppresses the natural impulses of the child. In its place will rise the dynamic system, which considers more profoundly the peculiarities of the growing child. This system perpetuates his innate characteristics through adequate opportunities for his muscular needs; it furnishes him with a welcome outlet for his energies by frequent changes of posture and periods of relaxation. Simultaneously it teaches the child to perform his school work in the easy, the natural, and the direct way, rather than in the wasteful, the careless, and the round-about way. It will help him in the development of his latent power for work so he may apply it in the most effective manner. Efficiency, as some would like us to believe, is not so much a matter of inherited aptitude as it is a quality modified and developed by training and application.

When we speak of the efficiency of the child we must be mindful of all factors that, in organized society, have an effect on success. Human efficiency is not only the expression of the mechanistic force of the body, but it embraces every phase of human endeavor, the physical, the mental, as well as the spiritual.

It then follows that the efficiency of the school child can be judged, first, by his mental attainments; secondly, on the basis of his physical strength; and, thirdly, by his social capacities.

The record card he brings home periodically from school means more than merely that the child got 'A' in arithmetic and 'E' in spelling. It is, indeed, an index of his general efficiency in school. It tells us that for some reason the child is not as efficient in spelling as he is in arithmetic. And it is the reason for his inefficiency in one subject or another which we must try to unearth. A talk with the teacher who has the opportunity to observe the child during his school

work will disclose the cause for his deficiency, will lay bare his mental abilities and disabilities, will describe to us his technic of learning, and will inform us whether he uses his energies effectually or wastefully.

In the same way an analysis of his marks in gymnasium work and repeated observations of the child at play and during physical effort will enlighten the parent as to whether his physical or motor efficiency is satisfactory. It is rather strange that our times which have evolved numerous tests for mental efficiency and for grading and classification of practically every human endeavor, should have failed to find a satisfactory method for determining the physical fitness of the child. In not too distant a future we shall, and must, succeed in devising and systematically applying tests for motor efficiency so that to the marks for mental accomplishments, those of running, jumping, and throwing can be added. These tests, though primarily concerned with physical ability, might well form the basis for the determination of general efficiency, since to do them well, nervous stability and mental poise, as well as bodily strength, are necessary.

The third basic factor for the attainment of highest efficiency is the adaptability of the child to his environment at home and at school. Though a child may be healthy and brilliant he will not make the final grade of success if his social efficiency is at a low level.

Let us by way of summary re-emphasize the factors that influence the efficiency of the child and that make it impossible for him to do the work that the average adult can do with ease:

1. The physiologic development of the brain centers which control the execution of mental work is immature and incomplete in the child. At the age of six only those stations which direct the use of the large muscles of the legs, the trunk, and the arms are fully developed. Consequently the child of six years or less cannot be an efficient brain worker.

2. Viewed from the standpoint of psychology the child is relatively inefficient because his inhibitory apparatus which controls the expenditure of energy is inadequate. Closely associated with his diminished inhibition is his lack of emotional balance.

3. The efficiency of the average school child, especially during the first few years, must of necessity be unsatisfactory. The child, by nature a physical being, finds himself suddenly precipitated into sedentary and mental work. The entrance qualifications for school must be changed,

only the child of adequate physical and mental equipment should be admitted. The number of years lived is a false and often harmful standard.

The dynamic system which considers the physiologic and psychologic development of the child must supplant the static system.

SOME OBSERVATIONS ON BLOOD PRESSURE*

BY W. H. AURAND, M.D.

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The first sphygmomanometer in this country was designed by our Dr. Henry Wireman Cook, a modified instrument brought to Johns Hopkins from Riva Rocci Clinic at Pavia, Italy, by Dr. Harvy Cushing.

Dr. Cook also made the first contribution to the subject of blood pressure in its relation to life insurance, which he read at the meeting of the American Association of Life Insurance Examiners, at Atlantic City, in June, 1904.

Among the early students of blood pressure were Drs. Janeway, Faught, Stanton, Nicholson, Erlanger, and Rogers, all of whom designed instruments bearing their names. They also contributed some most valuable literature on the subject of blood pressure.

By *blood pressure* is meant the arterial tension or force of the blood stream in the arteries and represents the force exerted by the left ventricle of the heart.

The left ventricle at each systole discharges in the aorta about three ounces of blood; and the right heart sends approximately the same amount to the lungs. The force thus exerted by the left ventricle at each systole in a mature healthy man, at rest, will raise a column of mercury about 125 mm. in height. This force is transmitted to the column of blood, which being incompressible, is pushed onward into the capillaries and veins. But in order to make room for this sudden increment of the blood volume, the elastic walls of the arteries are made to expand by the sudden impulse of the hydrostatic pressure. The rebound of the aortic wall closes the semilunar valves, and the potential energy, somewhat diminished by further oozing away into the capillaries, remains in the arteries. This is the diastolic pressure, or rest, and represents the resistance to be overcome by the succeeding systole before the blood column can be carried forward. The difference between the systolic pressure and the diastolic pressure represents the pulse pressure, which in health is equal to one-half the

diastolic pressure and is susceptible of large increase for sudden emergencies by the rising of the systolic pressure.

There are three forces concerned in the production and maintenance of blood pressure: the mechanical, the nervous, and the biochemical.

The mechanical is represented by the muscular contraction of the heart and the elasticity of the blood vessels.

The nervous force is the intricate correlation of the cerebral heart centers with the cerebrospinal and sympathetic systems, which control the heart's speed and regulate the caliber and tone of the vessels.

The biochemical is represented by the secretions of the endocrine glands, and probably other products of metabolism, which as yet are but imperfectly understood.

There are five factors which enter into the phenomena of blood pressure: (1) cardiac strength; (2) peripheral resistance in the vessels; (3) the elasticity of the vessel walls; (4) volume of blood; (5) viscosity of the blood.

I shall now take up the causes of high blood pressure which are arteriosclerosis, angiosclerosis, nephritis, nervous influences, abuse of tobacco and tea and coffee, and abscessed teeth or focal infections.

The diagnosis of arteriosclerosis rests upon palpation of hardened vessel walls, visible tortuosity, or sclerosed vessels in the eye-ground. Observation shows that unless the splanchnic vessels are affected there is not likely to be an increased blood pressure and hypertrophy of the heart, but, whenever the splanchnics are sclerotic, blood pressure is increased.

Vascular degeneration is not apt to exist unless the diastolic pressure is over 90 mm., except in marked aortic regurgitation and severe mitral insufficiency with cardiac hypertrophy. In aortic regurgitation, we have a very low diastolic.

Angiosclerosis is high blood pressure of a permanent character, in which class of cases no arteriosclerosis is present and no nephritis.

*Presented before the Hennepin County Medical Society, Minneapolis, April 15, 1925.

Janeway associates this with early chronic interstitial nephritis. Perhaps some of these cases, according to my own observation, are due to abscessed teeth.

Nephritis.—Chronic interstitial nephritis gives a high systolic pressure, 200 mm. or higher, and a relatively lower diastolic giving a high pulse pressure 60 to 80 mm.

Janeway says that a systolic pressure of over 200 mm. means nearly always a diagnosis of contracted kidney.

In chronic parenchymatous nephritis the blood pressure is uncertain, being normal often.

In acute nephritis the pressure varies greatly, depending on the primary disease with which it is associated. In scarlet fever there is a rise of 50 mm., often with this complication.

In uremia the pressure runs very high being often as high as 290 mm.

Nervous influences often raise the blood pressure considerably, but the condition is temporary, as, for example, during a physical examination we often see an abnormally high pressure due only to nervousness, especially in young persons.

Abuse of tea and coffee will usually raise the pressure, especially for a time after consumption.

Heavy tobacco users are apt to have a high pressure, especially smokers of many heavy cigars.

It has been my personal observation that many heavy cigarette smokers are more inclined to have a low pressure.

In my experience I have found abscessed teeth to account for a pressure of 150 to 170 mm. where no other cause could be found, and removal of these foci of infection has produced lowering of the pressure to normal.

In obstetrical work blood pressure is very important and is usually normal or slightly lower in the early months in normal cases and somewhat higher (10 to 20 mm.) in later months. If a nephritis is developing, one of the best indications is a rise of blood pressure. A pressure of 125 to 150 in a pregnant woman needs careful watching.

Treatment of hypertension.—First of all regulation of diet, both as to amount and character of food—cutting out animal proteids. Amount of work and strain should be looked into and rest advised as much as possible and freedom from worry. Moderate exercise, such as walking, is advisable. Avoidance of tobacco and alcoholics is essential.

Regulation of the bowels is very important, and in some cases constipation seems to be a cause alone of hypertension of mild degree.

Drug therapy is not very important, so far as a cure of hypertension is concerned. Benzyl benzoate in 5m. doses, t.i.d., will reduce the tension considerably, but the effect is very transitory, as is the case with most drugs. The iodides are highly recommended, as is also sodium nitrite, which is one of the most widely used drugs for hypertension. Blood-letting in extreme cases is often productive of very good results.

But he who succeeds in treating hypertension must find the cause and, if possible, eliminate the cause. Drugs will not cure high blood pressure or take away the pathology which is already present.

Careful hygiene and a well-regulated life, and habits, and exercise with careful attention to diet, will be our best servants.

Hypotension.—Hypotension is found in tuberculosis, in many of the uncomplicated infectious diseases, and in many chronic diseases, such as the anemias; also in shock and collapse, and after severe hemorrhage.

Treatment of hypotension is also removal of the exciting cause, if possible, which is in many cases overwork and loss of sleep, as well as above mentioned diseases. Massage and exercise are advisable, especially plenty of exercise in the open air, if possible.

Laxatives are often required here also.

Tonics are often advisable.

The urologist or the man who is interested particularly in kidney diseases has a case referred to him with kidney sclerosis as the main factor. He thinks the kidney disease is the cause of the hypertension, blood-vessel changes, and cardiac hypertrophy. On the other hand some men believe that the condition of the heart and blood vessels and the hypertension cause the kidney disease. The specialist in nervous diseases frequently sees in his work a type of hypertension; therefore he suggests nervous diseases as the cause. The endocrinologist meets the symptom (hypertension) in some phases of his work. Why not? The endocrines are the regulators of metabolism. He at once suggests the endocrines; and likewise the gynecologist with his series of cases going through the menopause, which is in good part endocrine in origin, meets the symptom. He makes the suggestion, and so the merry war goes on.

This reminds me of a childhood poem written

by Saxe and entitled "Three Blind Men and the Elephant." The blind men made a personal visit to obtain first-hand information concerning the elephant. One of them came in contact with the elephant's side. He thought the elephant was a wall. One grasping a leg said "the elephant is very much like a tree." Another happened to get hold of an ear and said, "it was quite plain the elephant was like a fan." And so they disputed, each having his own opinion; and, though each was partly right, all were wrong.

I shall give you a few statistics or averages which I find as a result of over 700 case records of all ages. At 20, systolic, 112; diastolic, 72. At age 25, systolic, 120; diastolic, 72. At age 30, systolic, 118; diastolic, 73. At age 35, systolic, 121; diastolic, 75. At age 40, systolic, 123; diastolic, 77. At age 45, systolic, 126; and diastolic, 75. At age 50, systolic, 130; diastolic, 83. At age 55, systolic 136; and diastolic, 81. At age 60, systolic, 152; diastolic, 91. At age 65, systolic, 147; diastolic, 85.

Thus it will be noticed that the old saying of adding 100 to your age will give the systolic, does not work out this way, as the systolic is usually lower.

In my experience we were finding a great many lower pressures than heretofore, and much more often than we find high pressures. Also the man with a low pressure is a much better insurance risk than the man with a high pressure. Statistics show that with a systolic pressure 10 mm. higher than normal the mortality is about 10 per cent higher than for the one with normal pressure.

BOOK NOTICES

DISEASES OF THE HEART. By Dr. Henri Vaquez, Professor of the Faculty of Medicine of Paris; translated and edited by George F. Laidlaw, M.D., Associate Physician to the Fifth Avenue Hospital, New York City; introduction by William S. Thayer, M.D., Johns Hopkins Hospital, Baltimore, Md. Octavo volume of 743 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$8.50 net.

This book covers the subject of heart disease completely, including accounts of the most recent advances in the fields of x-ray diagnosis, electrocardiography, and therapy. Emphasis is naturally laid on the work of French and European observers, although English and American research is not overlooked.

Vaquez is an observer of wide experience. His judgment is well balanced, and he is not given to enthusiasm over hobbies; consequently his work is

a valuable summary of a lifetime of experience.

The style of the book is clear and vivid, with descriptions of disease conditions which are models of accuracy. The historical method is followed throughout, and adds much to the interest of the reader. Radiology, in particular, is covered exhaustively.

The author holds definite opinions on many disputed points, but he is never dogmatic in his statements. His book is to be recommended for general use.

J. H. TAYLOR, M.D.

FRACTURES AND DISLOCATIONS. Immediate Management, After-Care, and Convalescent Treatment With Special Reference to the Conservation and Restoration of Function. By Philip D. Wilson, A.B., M. D., F.A.C.S., Instructor in Orthopedic Surgery, Harvard Medical School, and William A. Cochran, M.B., Ch.B., F.R.C.S., University Tutor in Clinical Surgery, University of Edinburgh. Cloth. Price, \$10. Pp. 789, with 978 illustrations. Philadelphia: J. B. Lippincott Company, 1925.

This book shows very markedly the impress of the war on the treatment of this type of pathology. It is quite elaborate and complete. It is especially complete in its pictorial illustrations of the text.

Injuries of the hip and knee have received unusually thorough discussion. The splinting of mallet finger—as brought out by Osgood—illustrated in the text is an addition not frequently found in treatises on this subject.

The diction is nicely chosen, and the expositions clearly portrayed in carefully correct anatomical phrasure.

DANIEL H. BESSESEN, M.D.

THE MEDICAL CLINICS OF NORTH AMERICA. (Issued Serially), one number every other month. Volume VIII, Number VI, (Boston Number—May, 1925.) Octavo of 278 pages and 47 illustrations and complete index to Volume VI. Per clinic year (July 1924 to May 1925), paper, \$12.00; cloth, \$16.00. Philadelphia and London: W. B. Saunders Company.

This volume consisting of 300 pages contains seventeen articles on medical topics written by various physicians of Boston.

An article on "Congenital Heart Disease" by Dr. John Lovett Morse is very interesting. He takes up the subject in text-book style considering symptomatology, prognosis, diagnosis, and treatment. He points out that this form of heart disease is often associated with other congenital malformations, with Mongolian idiocy, feeble-mindedness, etc. It is also interesting to note that murmurs may be slight or entirely absent. In many cases there were loud murmurs with no symptoms. The prognosis, therefore, depends on the severity of symptoms rather than on the intensity or location of murmurs.

In arriving at a diagnosis a history showing the absence of rheumatism or other acute infection is important. Other congenital abnormalities often occur. The murmurs are almost always systolic.

The treatment is hygienic and symptomatic.

Dr. Edwin A. Locke reports two interesting cases of spontaneous ruptures of the heart. One was a woman of fifty-one and the other a man of eighty-one. Both had advanced arteriosclerosis, and both had been chronic, helpless invalids.

He has collected 71 cases from the literature. Of these 43 died suddenly, and 16 were found dead, usually in bed. In many cases the symptoms prior to death are negligible, and the diagnosis is made post-mortem. Usually the victim is seized with sudden intense precordial or epigastric pain. Nausea and vomiting may occur. The patient is pale, has an agonized expression, and imminent death is apparent. In 79 per cent of the cases the rupture occurred in the left ventricle. The myocardium in the vicinity of the tear presents a variety of degenerative changes. Occlusion of a sclerosed coronary artery with resulting infarct is the most common change. Fatty degeneration is common. Acute infections and syphilis play a prominent etiologic part. Post-mortem examination is essential to diagnosis.

Dr. Joseph H. Pratt writes a classical article on the time-honored subject of gout. Inquiry of physicians in different parts of the country shows this disease to be rarely met with in general practice, but is frequently seen in large hospitals and there even among the poor.

He emphasizes the importance of a complete examination before making a diagnosis. Unless tophi are found a positive diagnosis cannot be made. Tophi are most commonly found in the ears. Tophus means concretion. They consist of crystals of sodium urate. Tophi may be found in patients who have never had arthritis. Among the well to do, gout is rarer in America than in Europe. It is very rare in women.

Dr. Roger I. Lee presents two cases of vasomotor rhinitis associated with hypothyroidism. Both had enlarged thyroids and both improved rapidly on thyroid medication.

Dr. William H. Robey, in an article on gall-bladder disease and coronary sclerosis in the middle-aged, brings out the chief features in differential diagnosis. Gall-bladder disease occurs usually in younger people. Pain in gall-bladder disease is epigastric, may be brought on by eating and radiates to the right scapula. In coronary sclerosis the pain is precordial and radiates down the left arm and forearm. It is apt to come on after physical or mental exertion, but it may occur at night after several hours of sleep. There is dyspnea after exertion. In gall-bladder disease there is constant indigestion. In coronary sclerosis cardiac rest relieves the indigestion.

He presents two cases of gall-bladder disease, one case of coronary sclerosis and another case with both diseases.

Dr. Samuel A. Levine presents five cases of coronary occlusion with recovery. The pain is intense during the attacks and does not radiate as in angina pectoris, and, instead of letting up in minutes, it lasts for hours or for a day or more. Complete mental and physical rest is essential in treatment.

Dr. James P. O'Hare emphasizes the importance of a careful urinalysis. Single specimens voided during the day when the kidney is subjected to the strain of the day's activities are of greater value than those voided on arising in the morning.

Dr. C. W. McClure, in an article on peptic ulcer and cholecystitis, brings out the essentials in diagnosis. Of first and great importance is a careful history. Physical examination establishes the presence of possible anemia, cachexia, jaundice, tumor, abdominal tenderness or muscle spasm, hernia, etc.

Complete x-ray studies, including gall-bladder and kidney plates and possible barium enemata are essential.

Laboratory examination of the blood, urine, gastric contents, and stools are important.

Medical management should be instituted unless there is obstruction, perforation, perigastric abscess, or persistent hemorrhage. Keep the patient under observation and treatment the rest of his life.

In an article on disordered function of the colon, Dr. Edward S. Emery, Jr., presents three cases. The first is one of mucous colitis, the second gastritis and the third a case of gastric neurosis or chronic indigestion.

All complain of epigastric distension due to gas. All have rumbling and gurgling, and all belch. All have a disturbance of the colon.

Many symptoms formerly ascribed to a disorder of the stomach are in reality due to an irritable colon. In all cases the colon contracts with a smaller stimulus than in the normal case and hence the diarrhea.

In treating these cases the object is to allow only such stimuli to reach the colon as shall be in keeping with its threefold value. One should be careful to rule out carcinoma and tuberculosis.

Dr. Charles H. Lawrence contributes an article on thyroid failure without myxedema. He states that thyroid failure without myxedema is a definite clinical type, and that fatigability in a patient showing no organic disease and no adequate anemia, but showing bradycardia, subnormal temperature, hypotension, and an increase in the number of lymphocytes in the blood, should raise the suspicion of thyroid failure.

Thyroid extract should be administered only under careful basal metabolic control.

In an article on arthritis Dr. H. Archibald Nissen emphasizes the importance of x-ray plates of joints. It is impossible to determine the condition of a joint by inspection, palpation, and functional tests.

Dr. Percy B. Davidson presents two cases of peptic ulcer, one duodenal and the other gastric. In both cases a symptomatic functioning was obtained on dietary and medical management in spite of the fact that at the outset surgical interference seemed indicated. He emphasizes the fact that surgery is indicated only in high-grade obstruction due to cicatrices, in perforation, and in uncontrollable prolonged hemorrhage.

Dr. E. P. Joslin and others report 48 cases of diabetic coma treated without alkalis, 15 recoveries before the discovery of insulin and 31 recoveries out of 33 cases treated consecutively with insulin. The disease, diabetes, rather than its symptom, coma, the result of acidosis, should be treated.

The use of insulin in coma has made recovery almost sure where formerly it was doubtful. Coma is needless. Overeating predisposes to diabetes and precipitates coma. Of the 31 cases which recovered the dosage of insulin given varied from 20 to 300 units in the first twenty-four hours. Usually 20 to 40 unit doses are repeated hourly.

The patient should be kept warm and the bowel evacuated by enemata.

The coma patient is dry and fluids must be supplied subcutaneously and per rectum.

Gastric lavage is important.

—ARTHUR A. WOHLRABE, M.D.

THE JOURNAL-LANCET

Represents the Medical Profession of
Minnesota, North Dakota, South Dakota and Montana

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EXERCISE

There seems to be a great diversity of opinion among medical men, and particularly among laymen and authors of magazine articles, on the necessity of exercise. The ultimate result is determined at the exerciser's death. Many die at forty who have been athletic for from fifteen to twenty years. They have played football and basketball and golf and even more strenuous sports,—running, jumping, pole-vaulting, and all sorts of things of the kind that have made great demands on their heart, arteries, and nervous system. They are looked upon as in the pink of condition until something happens, and that something may happen any time between the ages of thirty-five and forty-five. Not infrequently many of these men pass into the great beyond from over-exercise.

Then there is the man who sits in his office chair, after getting out of a car and walking a few steps only; he finally arrives at the age of affluence and remembers that his friends play golf or do other athletic stunts, and he decides (at along about fifty) that perhaps the business will get along with an understudy, and he hies himself to the golf links and at once becomes the victim of the cartoonist, who shows him in all sorts of attitudes of mind and body; he thinks golf, he talks golf, his wife becomes a golf widow, his family are neglected, until he plays a bad game, and then

he slows down a bit; he finds that his much-boasted record has been ruined, and he sometimes gives up golf then. Sometimes he finds that he has overloaded his heart; he has strained his muscles, which are soft and tender in the beginning; and it may be that he is more or less invalidated. Then come his periods of vacation. He goes to Florida or California for the winter, ostensibly to play golf, or he goes up to Canada with the same sacred intention, and there imbibes some restoratives of which Canada supplies a sufficiency—not necessarily of athletics but of those things which are made to flow down the alimentary canal. He has a wonderful time, and he some times comes home refreshed and invigorated, and, sometimes, more or less intoxicated. He has had exercise, but has it done him any good? If it has it is not his fault but the fault of his maker, and his maker is his father and mother and his uncles and aunts and progenitors way back. He has, fortunately, inherited a good constitution, and he lives a long, happy, and useful life, exercise or no exercise.

George Jean Nathan writes a very readable article which is published in the *Minneapolis Sunday Tribune* on this mooted question, and after quoting from the statistics of his classmates he arrives at the conclusion that exercise and athletics are indifferent propositions. Some are fitted for it, and some are not. Out of the total number of his classmates, most of them are dead, and yet they were noted for their athletic prowess. Mr. Nathan does not believe in exercise, and quotes an elderly man who when asked if he took exercise said he did not,—he sometimes walked a half block or a block, and was feeling perfectly fit and fine. He then goes on and quotes the lives of the men who have lived to be centenarians, some occasionally adding four or five years to their century of life,—hale, hearty, toughened, wizened, all due to the fact that they had inherited a good constitution and had taken a very moderate amount of exercise. The old peasant stock in Hungary is another example. They sat on a bench outside of the front or back door of their homes and lived on sour milk and black bread and a few vegetables, took very little exercise, and they grew into family life and kept well and sturdy, and married frequently and sometimes persistently; by each wife, who died at a respectable age, they had a family of children, and it is recorded that some of them lived to be 122, 132, 142, and

even 152 years of age. They had few responsibilities or mental worries. It is quite doubtful whether those men exercised or whether they even took good care of their health from any other angle, but they all lived and ruminated or vegetated.

Consequently, Mr. Nathan thinks there is not much to the exercise proposition in the extending of one's life. Certainly, war has proved that exercise of a most strenuous kind brought out the inherent tendencies of the weakling and turned him into an invalid and made him a care to the community. But the men who publish magazines on physical culture believe in exercise and nothing else. They do not even consider the individual and his progenitors, or how they lived; but by all odds he must exercise, and usually according to the individual idea of the publisher as to what constitutes exercise, whether it is one magazine publisher or another.

What a lot of simple foolishness there is in the world, and what a lot of trash there is in the instruction that we get from these various experts who have developed a system of their own. Why do men have high blood pressure and arteriosclerosis at twenty-five to thirty? Not on account of their exercise altogether, although sometimes so, but on account of their lack of care of themselves and, namely, because of their peculiar organization. They are built that way, they live that way, and they die that way, in spite of and perhaps because they exercise. For us who live the simple life an occasional dose of Walter Camp's "Daily Dozen" is quite sufficient. It takes ten minutes a day. It wakes one up and makes one feel very fit. But after a while our enthusiasm wanes, and we leave Walter Camp's exercises to someone else, and go quietly, or vociferously, on to our destination.

THE COMPARISON BETWEEN THE ILLUSTRIOUS AND THE UNILLUMINATED

Professor J. Arthur Thompson, an editor, has listed the greatest scientists whom he believes have had much to do with the building up of advanced civilization and he brings it, so far as he can, up to date. Of these Aristotle, who laid the foundation for science, is still a much beloved and quoted man; Galileo, the discoverer of the laws of motion; Sir Isaac Newton, the discoverer of the law of gravitation; William Harvey, who discovered the

circulation of the blood; Antoine LaVoisier, father of modern chemistry; Michael Faraday, prominent in the field of electricity; Claude Bernard, discoverer of chemical processes within the human body; Charles Darwin, the promulgator of the evolution theory; Helmholtz, who demonstrated the law of the conservation of energy; and Louis Pasteur, originator of the germ theory.

Imagine these men coming back to the present time and discussing the various happenings that have gone on in the world. What would they say about our discussions, our literature, our methods of approaching scientific subjects, the haphazard way in which our courts of justice are managed; what arguments would they bring to bear on the way the expert witness is employed in the traffic of crime and souls? The latter has become a very vital point in present-day problems, and several of the medical associations are endeavoring to take some steps to consider the matter of expert testimony in criminal cases. This, of course, has been tried time and again, an endeavor of the medical and legal professions to get together and formulate a method of making the expert a real informer, not a mere paid man, employed by one side or the other, but a man who gives his opinion regardless of the consequences, based on the evidence which he has had time to study.

Take, for instance, the recent Scott murder case in Chicago, with its score of experts haggling over this man's sanity or insanity, and the fact that he had been sentenced to hang two or three times; yet the medical expert alienist succeeded in showing the man was "cell-shocked," that he became insane after his incarceration for murder. It developed, too, that a great many people were interested in his salvation, until the other day when one of his warm admirers witnessed the killing of his brother; he then and there changed his mind about the conviction and disappearance of the criminal,—he had for a long time been opposed to capital punishment, but when crime destroyed a member of his own family he reversed his opinion. It is simply a matter of mass following. People who are not thinking at all jump to conclusions until they are suddenly called to strict account for something that has occurred in their own community or within their own household.

Following on the heels of this fiasco, a group have organized to work for the abolish-

ment of capital punishment, and they expect to open a nation-wide campaign, in October, for the preservation of the criminal. A Miss Vivian Pierce is secretary of this league, and the League intends to make quite a stir against the death sentence which is pronounced against a murderer for the death that he has caused willfully.

It is time people were waking up to the folly of this sort of bosh. It is time they looked at some of the figures in connection with crime. It seems that America's population was reduced 10,000 by assassinations in 1923 and 11,000 in 1924. The number of deaths so caused in the past twenty-five years has been exactly doubled over what America's rate was in 1900; in other words, in 1900 there was an average of five deaths to every 100,000 of inhabitants and now they are counting ten deaths to every 100,000 by murder. In Great Britain things are very different. About 200 murders a year occur there, and very few of these murderers escape; in fact they are tried very speedily and promptly convicted and the sentence is as promptly carried out. But with us it is a waiting game, and time is the element for which the murderer spars, and which counts best for his escape from a death penalty and ultimate freedom. People forget, justice is slow, and politics are rife, and the league for anti-assassination of murderers is on the job.

THE UNIVERSITY MEDICAL EXTENSION COURSE

The University of Minnesota Medical School inaugurated a new campaign of—shall we call it education or medical conferences—this year. The idea was that certain centers should be selected in Minnesota, and the courses of instruction or the clinics or lectures should cover a period of sixteen weeks. Fergus Falls and Moorhead were selected as centers for this purpose, and at first the men in both cities were uncertain as to just what it meant. But they turned out in goodly numbers and greeted the men who were sent to them and had clinical material ready for the clinicians most of the time. Sometimes it was impossible for them to get material, and consequently some of the men who were sent from distant parts of the state had nothing to demonstrate and were obliged to confine themselves to clinical talks.

After the third or fourth session the interest

seemed to flag and, the men in attendance were not so numerous and there seemed to be a general lack of interest in some instances which may have been due to the character of the clinics given by the men who were sent there to carry out the directions of the Extension Course. So far a number of the clinicians have reported that their experience has been entirely satisfactory covering the early period, but with the onset of the summer and the lure of vacation time, and the fish that were biting dangerously, the attendance and enthusiasm waned. The men who attended, even though they were skeptical at first, expressed themselves in favor of the course, but the attendance after the first four weeks lessened to such a degree that it looked as if the medical men were tired of attending medical sessions. It is a very difficult question to decide sometimes, not only for the man in the country, but for the man in the city, what to do about so many medical meetings. And if the University Extension Course could get an opinion from the various men who attended the clinics some valuable information might be obtained, but the opinion would have to be a candid one and if criticism is to be made it must be made without hesitancy. Doubtless the Extension Course manager would accept it at its full value.

One other question comes up as to whether men out of town really want to be instructed by the men from elsewhere; whether they consider it an honor or whether they resent the fact that they should be more fully informed as to medical progress,—a very delicate situation, particularly for the man who gives the clinic and talk. However, there are some good points about it which ought not to be overlooked. One is that it not infrequently draws a man in who is absolutely indifferent to medical societies, but if a meeting is brought to his door he may attend and he may get something out of it. But the older soldiers in medicine have heard so much in medical meetings and perhaps are so sufficiently informed that they are an entirely different proposition to deal with than the man who occasionally attends a meeting. Perhaps, too, there is too much diversity of subject matter: what the man who comes to a town medical meeting needs is common every-day, practical medical and surgical stuff, and if he gets that he is satisfied and contented, and he appreciates what the University is trying to do. The other advantage is that the meetings

held in towns like Fergus Falls and Moorhead begin at five in the evening and last until nine-thirty, with intermissions for supper; and most men are willing to give up this time. Fortunately, at Fergus Falls they have large hospitals where a sufficient amount of material can be gathered, and the interest is continued. One man told the writer that he was doubtful about the value of the meetings, but he had found them beneficial and he had attended every meeting thus far held in his own town. Not many men came from a distance, either to Fergus Falls or to Moorhead; yet both towns are in a country filled by medical men who could, if they chose, spare the time to attend a meeting and at least meet their associates socially and their "instructors" out of pure curiosity. The matter is to be discussed and threshed out and is to be compared with the short courses that are given at the University which will draw the real man down here for his own good and for the information that he wants.

THE SOUTH DAKOTA STATE FAIR AND THE STATE'S BOYS' AND GIRLS' FARM CLUBS

The South Dakota State Division of Child Hygiene is making final plans to provide for the physical examination of every boy and girl of the Farm Clubs who shall attend the State Fair. This will be the third year that the work has been done. South Dakota was the first state in the Union to give such service to its Boys' and Girls' Clubs.

Two years ago the Extension Division of the State College of Agriculture which has the direction of the work of the Farm Clubs throughout the state, having noticed that not a few of the club children who were bringing prize stock to the State Fair were not physically fit themselves, asked the State Board of Health if arrangements could be made for the physical examination of these children. The work was undertaken by the Division of Child Hygiene under the auspices of the State Board of Health and the State Medical Association. Numerous general practitioners, dentists, and specialists in orthopedics and eye, ear, nose, and throat work gave their assistance with the examinations.

The work has met with such interest among the club children and their families and has resulted in the correction of so many physical defects that the State College this year made

it a permanent part of the club program. The Fair Board is adding permanent examining rooms and allowing additional space in the Child Welfare and Public Health Building for this feature.

THE LA GRANGE SYSTEM OF REFRACTION

The following advertisement, which will be familiar to many of our readers, is clipped from a North Dakota paper and is signed by a regular physician who is a member of the State Medical Association:

ANNOUNCEMENT

I wish to announce that I have arranged with the author of the LaGrange System of Refraction to give me a postgraduate course in optics and assist me in a free eye clinic to be held in my office, Monday, Tuesday and Wednesday, Aug. 24, 25 and 26, 1925.

I earnestly request those who have trouble with their vision or eye strain, especially headaches to avail themselves of this opportunity.

Hours for Clinic 9 a. m. to 9 p. m.

An almost identical notice has been appearing in the local papers of other states for a dozen years or so. A couple of years ago a warrant was issued in Minnesota for the arrest of Dr. LaGrange for practicing medicine without a license. When the warrant was served upon the person conducting the clinic who was supposed to be Dr. LaGrange, he claimed to be Dr. McNeil, the assistant of Dr. LaGrange and a licensed physician. He was arrested, tried, and convicted. He took an appeal, but did not appear in the higher court for a hearing.

The charge against LaGrange and McNeil was brought by the Minnesota Board of Optometry.

The claims for the LaGrange system are without merit, and the manner of doing business by the men teaching the system is reprehensible. It is unfortunate that physicians of good professional standing should be induced to take up this fifteen or twenty-year old theory of refraction, which is not accepted as good practice by competent men in eye work.

NEWS ITEMS

Dr. G. J. Warnshuis has moved from Forman, N. D., to Lidgerwood, N. D.

Dr. W. O. Tessier, of Oklee, has sold his practice and will locate elsewhere.

Dr. T. L. Birnberg, of St. Paul, has returned from a three months' trip to Europe.

The Dakota Clinic of Fargo will erect a clinic building at a cost of about \$50,000.

Dr. S. M. Mogiener, of St. Paul, has returned from a year's postgraduate work in Vienna.

Dr. Oliver J. Moorhead, a recent graduate of the University of Minnesota, has located at Stephen.

Dr. Bratrud, of Warren, has made a conditional donation of \$5,000 to the Children's Home of Ada.

Dr. H. O. Williams, of Lake Crystal, is doing postgraduate work in medicine and surgery in Chicago.

Dr. G. R. Kamman, of St. Paul, has gone to Europe for a year's study in London, Vienna, and Berlin.

Dr. J. P. Freeman, of Glenville, formerly a captain in the Reserve Medical Corps of the army, has been made a major.

Dr. Carl C. Rasmussen, of the Swedish Hospital, Minneapolis, has become associated with Dr. J. A. Sanford, of Farmington.

Dr. Edward D. Anderson, of Minneapolis, who has been in Europe about three months, mainly in London and Glasgow, will return home next week.

Dr. J. J. Heimark of the Fargo (N. D.) Clinic has returned from a year's postgraduate work in the Department of Neurology in the Mayo Foundation.

The hospital established at Eveleth about a year ago by St. Louis County and the Government for the treatment of trachoma patients may be closed as its work is no longer needed.

Dr. R. L. Kirsch is visiting at Crookston, where he formerly practiced, and is making preparations to remove permanently to Pasadena, California, where he spent the past winter.

The Sand Beach Sanatorium, conducted by Becker and Clay Counties, may be abandoned as the County Board of Becker County feels that the outlay is too great for the number of patients cared for.

Dr. John A. Evert, assistant chief surgeon of the Northern Pacific Hospital, St. Paul, has been appointed chief surgeon of the N. P. Hos-

pital at Glendive, Mont., where he will begin work on October 1.

Dr. H. S. Boquist, a University of Minnesota graduate, class of '21, who has been on the Glen Lake Hospital staff for some time, has entered private practice in Minneapolis with offices at 328 East Hennepin Ave.

Dr. Andrew J. Gibson, of Duluth, died last week in Scotland where he was visiting. Dr. Gibson was a graduate of the school of medicine of the University of Edinburgh, class of '94, and had practiced two years in Duluth.

There have been several outbreaks of infantile paralysis in Minneapolis during the summer, but the Executive Secretary, Dr. Chesley, of the State Board of Health, believes the number of new cases will now rapidly decrease.

The Northern Minnesota Medical Association held its annual meeting in Brainerd last week. Dr. O. J. Hagen, of Moorhead, was elected president for the current year, and Crookston was chosen as the meeting place in 1926.

The Northwestern Hospital of Brainerd has passed into the hands of the Protestant Churches Hospital Association of that city, and at the meeting of the Association last month Rev. E. A. Cooke was elected business manager of the hospital.

The next examination given by the American Board of Otolaryngology will be held at the Cook County Hospital, Chicago on October 19, 1925. Application should be made to the Secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Missouri.

It was stated in our last issue that Dr. A. C. Dean, of Grand Forks, N. D., is now in Chicago. He has been there some time taking an extended postgraduate course in ophthalmology and otolaryngology, and after January 1 will continue his studies in New York city.

Dr. J. F. Cummings, who has been practicing for the past year at Abercrombie, N. D., has entered into partnership with Dr. D. J. McMahon, of Breckenridge, Minn. Dr. Cummings is a graduate of Toronto and has done extensive postgraduate work in New York.

To the list of foreign guests expected to be at the St. Paul meeting (October 12-16) of the Inter-State Post-Graduate Assembly

named in our last issue, may be added the name of Lord Dawson, of London, King George's personal physician and a prominent medical man of England.

The Bethesda Hospital at Crookston is taking the necessary steps to become an accredited hospital of the American College of Surgeons. At the recent organization of the staff, Dr. M. O. Oppegaard was elected president, Dr. G. A. Morley, vice-president, and Dr. W. H. Hollands, secretary.

Dr. Hugo O. Altnow, formerly of Mandan, N. D., and for the past one and one-half years voluntary graduate assistant and Junior Associate in Medicine in the Medical Clinic of Dr. Henry A. Christian, of Boston, has associated himself with the Nicollet Clinic of Minneapolis, Division of Internal Medicine.

Dr. and Mrs. George G. Eitel and Drs. and Mrs. C. N. Spratt, of Minneapolis; Drs. and Mrs. G. A. Geist and Dr. F. C. Schuldt, of St. Paul, the only Twin Cities members of the Inter-State Post-Graduate Assembly, who took the recent Canadian and European tour, have returned to the "deadly dull work" of daily routine city practice.

Dr. L. L. Brown who has been practicing at Crookston for the past five years has become associated with the Northwestern Clinic at that place. The Clinic occupies its own building with the medical staff consisting of Dr. M. O. Oppegaard, general surgery; Dr. O. E. Locken, general medicine; Dr. C. L. Oppegaard, eye, ear, nose, and throat; Dr. L. L. Brown, pediatrics; and Dr. C. D. Mitchell, dentistry.

The midsummer meeting of the Twelfth District Medical Society of South Dakota was held at Enemy Swim Lake, S. D., in July. The dentists of the district were invited to the meeting, and Dr. J. F. D. Cook, Secretary of the State Medical Association, was a guest. A fine program was given, the following papers being presented: "Diagnosis and Present-Day Treatment of Diabetes," by Dr. Moses Barron, of Minneapolis; "Hypertrophy of the Prostate," by Dr. J. A. Thabes, of Brainerd, Minn.; and "The Present Status of Dental Foci Infection," by G. O. Goodman, D.D.S., of Milbank, S. D.

We published in our issue of April 1 a list of the medical men and their families from the states of Minnesota, the two Dakotas, and Montana who were to take the Canadian and

European Clinical tour of the Inter-State Post-Graduate Assembly. The list was complete with the exception of the names of Dr. and Mrs. H. J. Graham, of Duluth. Most of the Northwestern people went on the S. S. "Doric," of the White Star Line, and of course found pleasant acquaintances among themselves and with their fellow-passengers. The trip was a round of pleasure with much interest and profit in the clinics, and marked attention was shown to the party in all the cities they visited.

A Second-Hand Optical Trial Set Wanted

Set must be in good condition and the price moderate. Give full particulars. Address 279, care of this office.

Position Wanted as Secretary and Stenographer

In hospital, clinic, or doctor's office. Has had five years' experience in medical and surgical dictation. Best of references. Address 275, care of this office.

Minneapolis Offices for Physician and Dentists

At 2400 Hennepin Ave., front rooms on second floor, steam heat, electric light, etc. Very desirable offices at very low rental. Call at corner store or telephone Kenwood 0060.

Practice For Sale

Unopposed practice in live Southeastern South Dakota town. Fine practice, fine location. Can make money from first day. For details and terms, address 259, care of this office.

Minneapolis Office for Rent

Physician's office for rent with or without equipment including white enamel instrument cabinet, examination table, roll-top desk, etc. 404 La Salle Bldg., or telephone Main 2538.

Practice for Sale

In central part of Minnesota in a very rich territory. Fine village of 500 people. Good schools and modern improvements in village. A splendid opening. Address 251, care of this office.

Physician Wanted

Good opening for doctor in good country town. Good Scandinavian community. Nearest competition 10 miles. Three closeby towns without doctor. T. T. Sundal, Druggist, Hills, Minn.

Laboratory and X-ray Technician wants Position

Applicant is an undergraduate nurse with hospital experience of one year in a high-grade small hospital. Will give faithful service. Best of references. Age, 27. Address 276, care of this office.

Position Wanted as X-Ray and Laboratory Technician

By a young man with university education and over two years in present position in such work, near Chicago. Desires position in the Twin Cities or vicinity. Address 270, care of this office.

Location Wanted

Location in city of about five thousand. Have several years experience in surgery and x-ray. Am graduate of Minnesota; 37 years old; married, mason. Address 277, care of this office.

Specialist For Relief Work Wanted

Eye, ear, nose and throat specialist for relief work in well-established Clinic in South Dakota city for two months beginning August 5. State full particulars, including salary wanted. Address 260, care of this office.

Desirable Minneapolis Office for Rent

At 26th and Central Avenues N. E., over a well-patronized drugstore. Offices modern and in a fine location for a doctor and a dentist. For full information telephone Dinsmore 0522, or address 269, care of this office.

For Sale

Complete drug store with building in Northern Minnesota town. Large territory; no competition. Excellent place for physician who is a registered druggist. Reason for selling, poor health. Address 239, care of this office.

Assistant Wanted

Assistant to Eye, Ear, Nose, and Throat firm in Middle West. Young man who has had some experience and will remain at least a year. Send credentials, photograph and amount expected. Address 272, care of this office.

Laboratory Position Wanted

Well trained graduate technician wants position in a hospital or clinic. Capable of doing all routine laboratory work including blood counts, urinalysis, Wassermann, blood chemistry, differentiating and culturing of bacteria, preparation of antigenous vaccines, milk and water analysis, and all clinical microscopy. Available at once. Address 265, care of this office.

Practice for Sale

The general practice, surgical instruments, and office equipment of a recently deceased physician are offered for sale. City in Minnesota of 12,000 population and near the Twin Cities. An exceptional opportunity. Address 284, care of this office.

Office Position Wanted

Position in physician's office by a registered nurse. Seven years experience. Can keep books and manage office. Either call Atlantic 3380 or write to Helen J. Cribb, care of Dr. R. E. Farr, 306 Physicians and Surgeons Bldg., Minneapolis.

Fine Practice for Sale

In southern Minnesota, beautiful county-seat \$15,000 cash practice. Scandinavian physician could easily double the practice. Established 24 years. General practice and complete physiotherapy clinic; latest modalities, Burdick air watercooled and deep therapy lamps, high-tension diathermia, Morse wave-generator. Valuable appointments transferable. No real estate; equipment, practice and one month's introduction, \$5,000. Specializing abroad. Address 267, care of this office.

Laboratory and X-Ray Technician Wants Position

Can do Wassermanns, blood chemistry, blood counts, spinal fluids, gastrics, feces, basal metabolism, etc.; also x-ray work; a graduate nurse. Prefer location in Twin Cities. Address 282, care of this office.

Assistant Wanted

A young man capable and desirous of advancement is wanted for temporary or permanent position with a clinical group in a good Minnesota town. A future for the right man. State experience, ability, nationality and salary expected. Address 283, care of this office.

Physician's Office in Fine Location in Minneapolis

Over drug store, corner of Penn Ave. and Fiftieth St. at end of the Oak and Harriet car line. Location unsurpassed. District growing rapidly. Dentist across the hall. Nearest physician nearly one mile. Rent, \$35 a month with heat. Inquire at Rood's Pharmacy, 2300 West 50th St. (telephone Walnut 2413), or telephone to owner, Hyland 3129.

Locum Tenens Wanted

For eight or nine months from about September 15, in a South Dakota town of 275 population. Good roads and good crops and fine people. Well-equipped man can do well. Address for particulars 271, care of this office.

Good Minneapolis Location Offered

A doctor will find a fine opening at 3805 Nicollet Ave., with offices in the new building at that point. No other doctor on this corner. Will make a liberal concession to a good man. Inquire at 3858 Stevens Ave. or telephone Colfax 2754.

Fine Practice For Sale

Good practice in a county-seat town of 700 in Southwestern Minnesota. Good farming community. Plenty of work and good pay. Good residence, completely modern. Good reason for selling out. Terms very reasonable. Address 258, care of this office.

Associate and Prospective Successor Wanted—An unusual Opportunity

Have practiced over 30 years in a German and Scandinavian community in a village of 1300 population 50 miles from the Twin Cities. No better community in Minnesota. I shall soon retire on account of failing health, and must have a good man to take up my work. Will make satisfactory terms with the right man. Address 274, care of this office.

For Sale

Late Type 120 Kilovolt Acme International X-ray Generator complete with Filament Control for 220 Volt Alternating Current. Also Acme International Combined Radiographic Fluoroscopic Table for both horizontal and vertical fluoroscopy. Two Coolidge Tubes. Complete Dark Room Equipment. Also have some office equipment to sell. Splendid buy for someone who is just installing an x-ray department. Address 273, care of this office.

THE JOURNAL LANCET

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Minnesota, North Dakota, South Dakota, and Montana
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TRANSACTIONS OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION—FORTY-FOURTH ANNUAL MEETING

OFFICERS—1925-26

PRESIDENT

W. R. BALL, M.D. Mitchell

FIRST VICE-PRESIDENT

T. F. RIGGS, M.D. Pierre

SECOND VICE-PRESIDENT

S. M. HOHF, M.D. Yankton

THIRD VICE-PRESIDENT

N. K. HOPKINS, M.D. Arlington

SECRETARY-TREASURER

J. F. D. COOK, M.D. Langford

COUNCILORS

COUNCILOR—FIRST DISTRICT

R. D. ALWAY, M.D. Aberdeen

COUNCILOR—SECOND DISTRICT

H. W. SHERWOOD, M.D. Doland

COUNCILOR—THIRD DISTRICT

J. R. WESTABY, M.D. Madison

COUNCILOR—FOURTH DISTRICT

A. A. McLAURIN, M.D. Pierre

COUNCILOR—FIFTH DISTRICT

L. N. GROSVENOR, M.D. (Clerk) Huron

COUNCILOR—SIXTH DISTRICT

FREDERICK TREON, M.D. (Chairman) Mitchell

COUNCILOR—SEVENTH DISTRICT

R. W. MULLIN, M.D. Sioux Falls

COUNCILOR—EIGHTH DISTRICT

J. P. ISAAC, M.D. Freeman

COUNCILOR—NINTH DISTRICT

F. W. MINTY, M.D. Rapid City

COUNCILOR—TENTH DISTRICT

J. C. WATERMAN, M.D. Burke

COUNCILOR—ELEVENTH DISTRICT

A. E. BOSTROM, M.D. De Smet

COUNCILOR—TWELFTH DISTRICT

PERCY PEABODY, M.D. Webster

DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION

R. L. MURDY, M.D. Aberdeen

ALTERNATE

W. R. BALL, M.D. Mitchell

HOUSE OF DELEGATES

ABERDEEN DISTRICT

J. E. BRUNER, M.D. Frederick

R. D. WILSON M.D. Aberdeen

OWEN KING, M.D. Aberdeen

WATERTOWN DISTRICT

J. B. VAUGHN, M.D. Castlewood

MADISON DISTRICT

D. S. BAUGHMAN, M.D. Madison

PIERRE DISTRICT

A. A. McLAURIN, M.D. Pierre

HURON DISTRICT

O. R. WRIGHT, M.D. Huron

MITCHELL DISTRICT

F. J. TOBIN, M.D. Mitchell

J. H. LLOYD, M.D. Mitchell

SIoux FALLS DISTRICT

S. A. DONAHOE, M.D. Sioux Falls

S. A. KELLER, M.D. Sioux Falls

JOSEPH SCHWARTZ, M.D. Sioux Falls

YANKTON DISTRICT

LOTTIE BIGLER, M.D. Yankton

G. E. JOHNSON, M.D. Avon

BLACK HILLS DISTRICT

N. T. OWEN, M.D. Rapid City

ROSEBUD DISTRICT

J. C. WATERMAN, M.D. Burke

KINGSBURY COUNTY DISTRICT

D. S. SCANLON, M.D. Volga

WHEATSTONE VALLEY DISTRICT

G. H. LOWTHIAN, M.D. Milbank

COMMITTEES

COMMITTEE ON CHILD WELFARE

CLARA E. HAYES, M.D. (Chairman).....Waubay
 GOLDIE ZIMMERMAN, M.D.....Sioux Falls
 N. K. HOPKINS, M.D.....Arlington
 C. E. SHERWOOD, M.D.....Madison

COMMITTEE ON LEGISLATION AND PUBLIC POLICY

R. D. ALWAY, M.D. (Chairman).....Aberdeen
 G. G. COTTAM, M.D.....Sioux Falls
 FRED TREON, M.D.....Chamberlain

COMMITTEE ON EDUCATION

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 J. C. WATERMAN, M.D.....Burke
 F. W. FREYBERG, M.D.....Aberdeen

COMMITTEE ON HOSPITALS

E. W. JONES, M.D. (Chairman).....Mitchell
 P. D. PEABODY, M.D.....Webster
 B. T. GREEN, M.D.....Brookings

COMMITTEE ON CONSERVATION OF VISION

L. G. HILL, M.D. (Chairman).....Sioux Falls
 L. N. GROSVENOR, M.D.....Huron
 J. A. HOHF, M.D.....Yankton
 E. A. PITTENGER, M.D.....Aberdeen

COMMITTEE ON NECROLOGY

S. M. HOHF, M.D.....Yankton
 J. H. LLOYD, M.D.....Mitchell
 S. A. KELLER, M.D.....Sioux Falls

**PLACE OF 1926 MEETING
 ABERDEEN**

PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION

FIRST SESSION—WEDNESDAY, MAY 20, 1925

The first meeting of the House of Delegates of the forty-fourth annual session of the South Dakota State Medical Association was called to order at the Hotel Cataract, Sioux Falls, at 12:15 p. m., on Wednesday, May 20, 1925, by the Vice-President, Dr. W. R. Ball, Mitchell.

The Secretary called the roll of Delegates, following which the chairman announced that a quorum was present and the House duly constituted for the transaction of business.

The Secretary stated that the minutes of the 1924 meeting had been published in full in THE JOURNAL-LANCET, and moved their adoption as published.

Motion seconded and carried.

MEMBERSHIP

The Secretary presented the following report of the membership in the Association by districts:

Membership by Districts

| | |
|--------------------------------|----|
| Aberdeen District..... | 64 |
| Watertown District..... | 24 |
| Madison District..... | 11 |
| Pierre District..... | 7 |
| Huron District..... | 22 |
| Mitchell District..... | 37 |
| Sioux Falls District..... | 56 |
| Yankton District..... | 30 |
| Black Hills District..... | 39 |
| Rosebud District..... | 12 |
| Kingsbury County District..... | 12 |
| Whetstone Valley District..... | 13 |

Total membership.....327

COMMITTEE ON NOMINATIONS

The chairman announced that the President had appointed the following gentlemen to serve as the Committee on Nominations:

| | |
|--------------------------|-------------|
| Dr. J. F. D. Cook..... | Langford |
| Dr. L. N. Grosvenor..... | Huron |
| Dr. Fred Treon..... | Chamberlain |
| Dr. R. W. Mullin..... | Sioux Falls |
| Dr. J. P. Isaac..... | Freeman |
| Dr. D. S. Baughman..... | Madison |
| Dr. A. A. McLaurin..... | Pierre |
| Dr. A. E. Bostrom..... | DeSmet |
| Dr. G. H. Lowthian..... | Milbank |
| Dr. N. T. Owen..... | Rapid City |
| Dr. J. B. Vaughn..... | Casselwood |

COMMITTEE ON NECROLOGY

The chairman further announced that the President had appointed the following gentlemen as a Committee on Necrology:

| | |
|-----------------------|-------------|
| Dr. S. M. Hohf..... | Yankton |
| Dr. J. H. Lloyd..... | Mitchell |
| Dr. S. A. Keller..... | Sioux Falls |

REPORT OF THE SECRETARY

The Secretary called the attention of the Committee on Nominations to the fact that two Councilors were to be elected for three years, a Delegate and Alternate to the American Medical Association for two years, and a Secretary-Treasurer for three years.

During the State Legislature the Medical Practice Act was amended, permitting those who have successfully passed the National Board to obtain license by reciprocity.

The Osteopaths endeavored to amend their law so that they might be allowed to do major surgery. This bill was passed in the Senate but was defeated in the House. Great credit was

due to Mrs. Moody, the wife of Dr. Moody, who was a member of the House, for she had aided decidedly in defeating this bill.

A bill exempting hospitals from taxation provided they would permit all doctors and physicians in good standing to treat patients in the hospital, was passed in the Senate but defeated in the House. Had this bill become a law it would have admitted osteopaths and chiropractors to treat patients in the hospitals, as they are licensed doctors.

The Secretary called attention to some correspondence from the American Medical Association regarding a contemplated reduction in Federal taxes. He stated that he considered this an important matter, and he believed that resolutions should be drafted and a copy sent to each member of the House and Senate through the state, as well as to the President.

Acting on this suggestion, Chairman Ball appointed the following gentlemen to serve as a Committee on Resolutions:

| | |
|---------------------------|----------|
| Dr. H. W. Sherwood..... | Doland |
| Dr. F. J. Tobin..... | Mitchell |
| Dr. Percy D. Peabody..... | Webster |

Dr. G. G. Cottam, Sioux Falls, presented the following oral report on the Spafford Memorial Fund:

SPAFFORD MEMORIAL

We received \$650.00 of which we expended \$336.53 for the oil painting which hangs in the Capitol and the copy of the painting for Mrs. Spafford. I have a check for the balance, amounting to \$313.47. The Committee is at a loss to know what disposal to make of this. We had thought it would be nice to put up a bronze tablet commemorating Dr. Spafford, but what appears to be a better plan has been suggested. It has been suggested that sufficient money be put with this amount to make it \$1,000.00, and that this be used for a scholarship for the best student in Virgil in the State University. Dr. Spafford was a great lover of Virgil and read a few paragraphs every day. This check will be turned over now with this recommendation. The money can be placed in a separate fund until the necessary amount is received, and then it can be invested. It can probably be made to bring in around \$50.00 a year, which can be given to the student who has the best record in Virgil at the State University. The entire amount will be made up by an unknown friend of Dr. Spafford who wishes it to be known as "The Spafford Memorial Scholarship." It is thought that the money can be used more advantageously in this way than by putting it into a bronze tablet.

This will be the last report of the Committee and if you have any other suggestions we shall be glad to receive them.

After a brief discussion of the matter, Dr. Treon moved that the money be turned over to

Treasurer of the State Association to be held as a trust fund, at interest, until the other money was ready to be added to it, the whole fund then to be used as "The Spafford Memorial Fund."

Motion seconded by Dr. Peabody and carried.

The Secretary called attention to the proposed amendments to the Constitution and By-Laws, which were introduced by Dr. Murdy and laid on the table until the next meeting, and stated that they would be taken up at the meeting on Thursday.

On motion the House of Delegates adjourned at 1:30 P. M. to reconvene at the luncheon hour on Thursday.

SECOND SESSION—THURSDAY, MAY 21, 1925

The second meeting of the House of Delegates was called to order at 12:20 P. M., on Thursday, May 21, 1925, by the Second Vice-President, Dr. T. F. Riggs, Pierre.

The Secretary called the roll of Delegates, and the Chairman announced that a quorum was present and the House duly constituted for the transaction of business.

The Secretary read the minutes of the last meeting of the House of Delegates which, upon motion duly seconded and carried, were accepted as read.

REPORT OF THE COMMITTEE ON CHILD WELFARE

Dr. Clara E. Hayes submitted the following report:

There were two phases of Child Welfare work to which the State Medical Association gave assistance during the year. Namely, a survey of indigent crippled children, and a repetition of the physical examination of the boys and girls of the Farm Clubs at the State Fair.

The survey of crippled children was made by the State Division of Child Hygiene, the director of which is also the Chairman of the Child Welfare Committee. In response to a request sent to each doctor in the State, many reported the children in their communities, giving much valuable information regarding each of them and assistance in sending a number of them to the Sioux Falls Clinic for examination by Dr. Emil S. Geist at the time of his Clinic before the Annual Meeting of the Association. One neurological case was also examined by Dr. Sweeney at that time.

The State College of Agriculture requested a repetition of the physical examinations of the boys and girls of the Farm Clubs at the State Fair in 1924. The work of the previous year had been of such benefit that its repetition was deemed advisable, and beginning with this year it is to be a permanent part of the Farm Clubs program. The proposed work received the sanction and approval of the President of the State Medical Association and the State Board of Health. It was carried out by twenty-three physicians and dentists under the direction of the Division of Child Hygiene. The

eye, ear, nose, and throat examinations were made by specialists in those branches. Those making the examinations gave their services, their expenses being paid by the Division of Child Hygiene. Ninety-two girls and ninety boys were given full examination.

The principal of the School of Agriculture stated that he felt that no more important work was done for these children than this. Up to May 1 forty of the children examined reported to the College that they had had correction of the physical defects noted on their examination records.

Respectfully submitted:

DR. CLARA E. HAYES, Chairman

DR. E. A. PITTENGER

DR. LYLE HARE

DR. W. E. DONAHOE

On motion duly seconded and carried the report was accepted as read.

REPORT OF NOMINATING COMMITTEE

The Committee on Nominations presented the following report:

For President—Dr. W. R. Ball, Mitchell.

For First Vice-president—Dr. T. F. Riggs, Pierre.

For Second Vice-president—Dr. S. M. Hohf, Yankton.

For Third Vice-president—Dr. N. K. Hopkings, Arlington.

For Secretary-Treasurer—Dr. J. F. D. Cook, Langford (3 years).

For Councilors—Dr. August E. Bostrom, Desmet (3 years).

Dr. J. C. Waterman, Burke (3 years).

Dr. R. D. Alway, Aberdeen (Unfinished term).

For Delegate to the A. M. A.—Dr. R. L. Murdy, Aberdeen (2 years).

For Alternate to the A. M. A.—Dr. W. R. Ball, Mitchell.

For meeting-place in 1926, Aberdeen.

Upon motion, duly seconded and carried, the nominations were declared closed, and the Secretary was instructed to cast a unanimous ballot for the gentlemen recommended by the Committee.

The Secretary reported the ballot cast, and the Chairman declared the gentlemen duly elected.

PROPOSED AMENDMENT TO BY-LAWS

The Chairman read the following proposed amendment to Chapter VII, Section 5, line 6, after the word *necessary*: "to edit and publish a bulletin periodically as public necessity and the interests of the profession demand." He then read Section 5 in its entirety, and following this the amendment proposed for Chapter X, Section 4, as follows:

Unprofessional conduct may include such acts as openly denouncing; unjust criticism; untruthful statements; voluntary efforts at aiding and abetting shyster lawyers as against another member in good standing; voluntary evidence against a brother practitioner in matters which involve suits for damages or malpractice; also, furnishing disgruntled patients and shyster lawyers with x-ray pictures and other proofs of inquiry and disability, such as opinions based on physical and other examinations, and be punishable by reprimand, suspension or expulsion, when fully established as provided by our By-Laws.

Dr. Murdy explained that the first amendment he proposed was simply for the purpose of educational propaganda. He thought it might be possible by means of a bulletin to put over educational matters that concerned the profession in the different districts of the state in a way that they could not expect to do through THE JOURNAL-LANCET. He believed a bulletin of the type sent out by the American Medical Association would serve to let people know what the Association was trying to do, and perhaps aid in getting some helpful legislation.

Dr. Treon stated that the expense of such a bulletin had not been investigated and thought this an important matter. He moved that the amendment be laid over for a year to afford an opportunity to find out what the expense would be.

Motion seconded and carried.

The second proposed amendment was then taken up and discussed by Dr. Wright, who objected to the wording of the amendment. By Dr. Isaac who thought the Code of Ethics of the American Medical Association was the one used by the Association.

Dr. Wright moved that the amendment be laid on the table.

Motion seconded.

Dr. Peabody thought the amendment should be killed as each District had power to take care of any conditions that might arise.

Dr. Wright, with the consent of the House, withdrew his motion to table and moved that the amendment be voted upon as read. Motion seconded.

Dr. Treon was not in favor of going on record using the terms used in the amendment. He felt that it lowered the dignity of the Association and that the laws laid down by the American Medical Association were sufficient.

Dr. Wright's motion was then put to a vote and the amendment was not adopted.

REPORT OF COMMITTEE ON RESOLUTIONS

Dr. H. W. Sherwood presented the following report:

WHEREAS, according to reports published the President of the United States will, in December, recommend to Congress a reduction in Federal taxes, and the medical profession feels that an unjust tax has been imposed upon them, to wit:

1st. The \$3.00 narcotic tax, the \$1.00 tax originally imposed being sufficient to defray all the expenses of the Government in maintaining and operating the law.

2nd. The traveling and other necessary expenses arising from attending medical society meetings are legitimate expenses in maintaining our business.

3rd. Necessary expenses for all postgraduate courses are also a part of our expense for maintaining our professional standing and knowledge.

Therefore, be it resolved, that the South Dakota State Medical Association instruct its Secretary to communicate with the President of the United States, asking him to recommend to the next Congress a reduction of the narcotic tax to the original \$1.00, and to allow the deduction of necessary expenses of attending medical society meetings and of taking postgraduate courses from our gross earnings before computing our net incomes.

Be it further resolved, that the Secretary correspond with our United States Legislators from South Dakota, asking them to support such a measure, and that he forward a copy of these resolutions to each member of the Association, asking them to write to the United States Legislators from South Dakota urging them to support the measure.

Respectfully submitted by the Committee,

H. W. SHERWOOD

F. J. TOBIN

P. D. PEABODY

Dr. Sherwood moved the adoption of this report.

Motion seconded by Dr. Wright and carried.

VOTE OF THANKS TO DR. R. D. ALWAY

Dr. P. D. Peabody presented the following resolution:

WHEREAS, Dr. R. D. Alway has declined renomination to the position of Secretary-Treasurer of our Association, in appreciation of his long and devoted service to the Association, be it resolved,

That a vote of thanks and appreciation be extended to Dr. Alway, and that the same be made a matter of record and published in the proceedings of the Association

Dr. Peabody moved the adoption of this resolution.

Motion seconded and unanimously carried.

Dr. Alway expressed his thanks for this mark of appreciation and stated that the work in connection with his office had always been a labor of love. He had enjoyed it for a good many years and felt that at this time some new blood would be of assistance in many ways. He expressed the hope that he would still meet with and enjoy the friendship of the men throughout the state.

Dr. Peabody suggested that it would be well to express some appreciation of the work done by Dr. Jenkins as head of the State Board of Health, as he had worked to the best of his ability, and it had required a great deal of labor to get the State Board of Health where it was at present. He moved that the following resolution be adopted and published in the official minutes:

VOTE OF THANKS TO DR. PARK B. JENKINS

Be it resolved that it is the sense of the South Dakota State Medical Association in Annual Session at Sioux Falls, May 20 and 21, 1925, that

WHEREAS, Dr. Park B. Jenkins, of Waubay, is terminating his tenure of office as Superintendent of the State Board of Health after twelve years in the above capacity, and

WHEREAS, under his direction the Department has grown from an insignificant office to one of importance, representing divisions of Child Welfare, Maternity, and Engineering, involving the employing of fifteen to twenty assistants, and

WHEREAS, the work among the crippled children and deserving pregnant women has been an important part of the duties of the Board, the former being made possible by the assistance of surgeons of skill obtained at a minimum expense, and the latter by co-operation with the Shepard-Towner Law, and

WHEREAS, financial aid has been obtained for the Department from Rockefeller Foundation through the efforts of Dr. Jenkins,

THEREFORE, in recognition of these services, be it RESOLVED that Dr. Park B. Jenkins be highly commended and appreciated by the people of South Dakota for his work.

Dr. Peabody's motion was seconded and unanimously carried.

REDUCTION OF DUES

Dr. F. J. Tobin said that he had been instructed by the Society in the Mitchell District to inquire as to the reduction in dues, as a fund was accumulating in the treasury. At the time the dues were increased Dr. Spafford was to be the full-time secretary, and so far as he knew nothing had been done to decrease the dues since the death of Dr. Spafford.

Dr. Alway stated that the dues were reduced \$2.00 in 1924. He brought up the matter of a part-time or full-time secretary, and stated that South Dakota had never felt able to have a full-time secretary, but with Dr. Cook, the new Secretary, as the executive officer of the State Board of Health it would be possible to do better work and increase the membership 20 to 50 per cent. This would necessitate the expenditure of money, and he thought it would be well to take this up with the Board of Councilors at a special meeting within the next three or four months. He

believed that if Dr. Cook was allowed \$600.00 a year and at least some of his expenses it would be a very excellent thing for the State Association.

Dr. Tobin said he believed that if there was to be a part-time secretary who was going to do some active work his District would be perfectly willing to have the dues remain as at present.

Dr. Wright stated that there had been practically no increase in the membership of the South Dakota State Medical Association in the last ten years, and that only a small percentage of the men in the state attended the annual meetings. He felt that the Association should make the same effort that other states made to get the men interested, and believed someone should visit the local districts, get acquainted with the men and get them interested in the work of the Association. The only way this could be accomplished was to have someone whose business it was to do this and if it could be brought about by the expenditure of \$600.00 a year it would be to the great advantage of the Association. The Association was at a period of rest, and more activity was needed as the problems were getting greater all the time.

Dr. Peabody agreed with Dr. Wright.

The Secretary presented the following communication concerning the Gorgas Memorial:

THE GORGAS MEMORIAL

Gentlemen: Since the last meeting of your Society the Gorgas program has evidenced a steady, healthy growth. Fifteen hundred well-known doctors and influential laymen and women are now actively participating as State Governing Committee members in developing the movement. As you know, the Gorgas Memorial consists of two phases: first, research in tropical medicine; and, second, a "personal" health education campaign.

THE RESEARCH PROGRAM

Last September the Republic of Panama authorized the floating of a \$750,000 bond issue to finance the construction of the Institute which will be erected on a site of land donated by the Panama government, \$10,000 worth of material is now available for use when a sufficient sum has been realized from the Endowment Fund to finance the research teams. In addition, a drive to raise \$10,000 towards the Endowment Fund is now under way in Panama and the Canal Zone. In other words, the Republic of Panama, in recognition of Gorgas' great work in that country, is evidencing its appreciation by making this very substantial contribution to the Memorial in his honor. No part of the funds raised in the United States will be used for building or equipment as this is being provided for in the manner outlined above. Our only obligation is to maintain the building when it is built and finance the research workers.

THE "PERSONAL" HEALTH CAMPAIGN

Public health activities are adequately provided for in practically every state. But "personal" health depends upon the individual. Many diseases that are incurable in later life might have been checked if discovered in their incipiency. Many diseases are caused by faulty habits and might logically be termed "habit" diseases. This is the group that the Gorgas Memorial hopes to reduce by urging upon the individual the importance of keeping in close contact with his family doctor, consulting him frequently for advice in order to keep well and having a periodic health examination for the purpose of detecting physical defects and remedying them before they progress to the incurable stage.

The "personal" health campaign was begun in a modest way in January of this year. Twelve signed health articles prepared by doctors of national reputation (members of our State Governing Committees) have been distributed to 1,000 newspapers and the various press associations. A series of twelve radio talks have been broadcasted by State Governing Committee members from the principal radio stations in the United States. Arrangements have been made with several radio directors for broadcasting of Gorgas health talks weekly.

In these articles and talks the point is driven home to the reader or "listener-in" that his family physician should be regarded as the custodian of his physical well being and that the scientific medical profession is the real authority in all matters pertaining to health.

It gives us great pleasure to report that the response from newspaper editors and radio directors has been most cordial. Every article we have issued has been published, and scores of editorials commenting favorably on this movement of doctors and laymen to make life healthier and longer by developing co-operation between the public and the scientific medical profession, have been received at headquarters. In this connection the following quotation from the Detroit Saturday Night, a lay weekly, is pertinent as it is typical of editorial comments received from all sections of the country:

"Quacks and quackery will receive a heavy blow when the Gorgas Memorial Institute, recently founded in honor of the great army medical man who showed the world that yellow fever and other pestilences could be conquered by preventive methods, gets functioning. The Institute is not heralding as one of its purposes the counteracting of propaganda such as is spread by Bernard MacFadden and others of his kind, who use every opportunity to attack the medical profession, but just so far as its plans as announced are successful, *it will help to overcome pernicious teachings and ignorance regarding health.*"

To summarize, we feel that the Gorgas program has passed the experimental stage. The public is willing and anxious to be guided in matters of health by the real authority—the scientific medical profession. But the representative men in the profession must accept the responsibility their position places upon them. Public ignorance is encouraged by professional reticence. Every high minded doctor abhors self aggrandizement and blatant self advertising. But the public is entitled to proper health information furnished them in a conservative,

ethical way from authoritative sources. This cannot be done by the individual physician. The Gorgas Memorial is the channel through which it can be done. To make it 100 per cent effective we must have the support of every doctor.

In the very near future intensive organization of the Gorgas Memorial Governing Board will begin. Your State should be adequately represented in order that the permanent activities of the Gorgas Memorial which will be supervised by the State Governing Board may be properly cared for. We sincerely trust that the South Dakota Medical Association will play an active and influential part in the full development of the Gorgas Memorial.

—FRANKLIN MARTIN, M.D.
Chairman of the Board,
Gorgas Memorial Institute,
410 North Michigan Avenue,
Chicago.

No action was taken.

Dr. P. D. Peabody moved a vote of thanks and appreciation to the Sioux Falls District Society for their very courteous entertainment during the meeting, and for the splendid clinical material they had presented.

Motion seconded and unanimously carried.

As this concluded the business before the House of Delegates at this time, on motion duly seconded and carried, the meeting adjourned *sine die*, at 1:30 P. M.

REPORT OF THE COUNCIL.

FIRST MEETING—WEDNESDAY, MAY 20, 1925

The members of the Board of Councilors were called to order on Wednesday, May 20, 1925, at 1:30 P. M., at the Cataract Hotel, Sioux Falls, by Dr. Frederick Treon, Chairman, Chamberlain.

The following members responded to roll call:

| | |
|--------------------------|------------------------|
| Dr. J. F. D. Cook..... | Langford |
| Dr. H. W. Sherwood..... | Doland |
| Dr. J. R. Westaby..... | Madison |
| Dr. A. A. McLaurin..... | Pierre |
| Dr. L. N. Grosvenor..... | Huron |
| Dr. R. W. Mullen..... | Sioux Falls |
| Dr. J. P. Isaac..... | Freeman |
| Dr. N. K. Hopkins..... | Arlington |
| Dr. P. D. Peabody..... | Webster |
| Dr. R. D. Alway..... | Aberdeen, Sec'y-Treas. |

Dr. R. D. Alway presented the following report of the Treasurer:

TREASURER'S ANNUAL REPORT

May 23, 1924, balance on hand\$2,792.19

Receipts

| | |
|---------------------------------|-------|
| May 23, 1924, O. W. Katz..... | 6.00 |
| May 23, 1924, R. A. Kelly..... | 6.00 |
| May 23, 1924, R. A. Kelly..... | 6.00 |
| June 7, 1924, J. A. Hohf..... | 6.00 |
| June 10, 1924, W. A. Bates..... | 18.00 |

| | |
|---|------------|
| June 16, 1924, G. H. Lowthian..... | 16.00 |
| June 28, 1924, W. A. Bates..... | 12.00 |
| July 1, 1924, G. H. Lowthian..... | 6.00 |
| July 18, 1924, W. A. Bates..... | 6.00 |
| July 18, 1924, W. A. Bates..... | 6.00 |
| July 24, 1924, Lyle Hare..... | 6.00 |
| August 4, 1924, D. A. Gregory..... | 30.00 |
| August 21, 1924, G. H. Lowthian..... | 6.00 |
| September 4, 1924, W. A. Bates..... | 12.00 |
| November 26, 1924, W. A. Bates..... | 6.00 |
| January 15, 1925, H. B. Martin..... | 28.00 |
| January 27, 1925, W. A. Bates (for Farrel 1924 dues)..... | 6.00 |
| March 14, 1925, R. V. Overton..... | 36.00 |
| March 19, 1925, R. V. Overton..... | 12.00 |
| March 25, 1925, L. N. Grosvenor..... | 88.00 |
| March 26, 1925, J. R. Westaby..... | 40.00 |
| March 28, 1925, George B. Irvine..... | 48.00 |
| March 31, 1925, G. H. Lowthian..... | 24.00 |
| April 3, 1925, Owen King..... | 176.00 |
| April 3, 1925, J. A. Hohf..... | 112.00 |
| April 4, 1925, Owen King..... | 4.00 |
| April 4, 1925, J. L. Stewart..... | 148.00 |
| April 8, 1925, Owen King..... | 24.00 |
| April 8, 1925, D. A. Gregory..... | 200.00 |
| April 10, 1925, Owen King..... | 12.00 |
| April 10, 1925, R. A. Kelly..... | 16.00 |
| April 15, 1925, H. T. Kenney..... | 4.00 |
| April 16, 1925, Owen King..... | 16.00 |
| April 18, 1925, H. T. Kenney..... | 72.00 |
| April 18, 1925, J. L. Stewart (W. J. Bentley 1924-25)..... | 10.00 |
| April 18, 1925, J. A. Hohf..... | 4.00 |
| April 22, 1925, Owen King..... | 4.00 |
| April 22, 1925, D. A. Gregory..... | 24.00 |
| April 24, 1925, H. T. Kenney..... | 12.00 |
| April 25, 1925, Owen King..... | 4.00 |
| April 29, 1925, R. A. Kelly..... | 4.00 |
| April 30, 1925, Owen King..... | 8.00 |
| May 6, 1925, H. T. Kenney..... | 4.00 |
| May 7, 1925, H. T. Kenney..... | 4.00 |
| May 7, 1925, J. R. Westaby..... | 4.00 |
| May 9, 1925, R. A. Kelly..... | 4.00 |
| May 11, 1925, Owen King..... | 4.00 |
| May 12, 1925, Owen King..... | 4.00 |
| May 14, 1925, R. A. Kelly..... | 4.00 |
| May 16, 1925, J. L. Stewart..... | 4.00 |
| Total..... | \$4,268.19 |

Disbursements:

| | |
|--|--------|
| May 21, 1924, Irene H. Snyder, reporter, ex- penses to meeting..... | 75.00 |
| May 21, 1924, The Lilly Company, badges..... | 25.81 |
| May 21, 1924, Dr. G. G. Cottam, expenses to A. M. A..... | 50.00 |
| May 21, 1924, E. W. Jones, Mitchell, ex- penses for meeting..... | 10.00 |
| May 21, 1924, R. D. Alway, salary..... | 250.00 |
| June 2, 1924, Hed-Wilson Bond for Treas- urer..... | 2.50 |
| June 2, 1924, Journal-Lancet, subscriptions January 1 to June 30..... | 359.00 |
| July 7, 1924, Reporting meeting and tran- script..... | 244.75 |
| December 8, 1924, Journal-Lancet subscrip- tion..... | 357.00 |
| August 9, 1924, American Printing Com- pany, letterheads..... | 15.00 |

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|---|------------|
| February 10, 1925, American Printing Company, cards | 8.25 |
| February 26, 1925, Western Union, Senate Bill No. 231 | 20.90 |
| April 21, 1925, Louise Heinzen, postage for programs | 10.00 |
| May 3, 1925, Whitehead & Hoag, badges | 44.00 |
| May, 11, 1925, American Printing Company, programs and cards for Black Hills District | 70.50 |
| Total | \$1,542.71 |

| | |
|---------------------------|------------|
| Total receipts | \$4,268.19 |
| Total disbursements | 1,542.71 |

Balance on hand\$2,725.48

The Chairman appointed an auditing committee consisting of Dr. J. P. Isaac, Freeman; Dr. L. N. Grosvenor, Huron; Dr. A. A. McLaurin, Pierre.

There being no further business before the Council at this time the meeting was declared adjourned, to reconvene on Thursday.

SECOND MEETING—THURSDAY, MAY 21, 1925

The members of the Board of Councilors were called to order on Thursday, May 21, 1925, at 1:30 P. M., by Dr. Frederick Treon, Chairman, Chamberlain.

The following members responded to roll call:

| | |
|---|------------------------|
| Dr. J. F. D. Cook..... | Langford |
| Dr. H. W. Sherwood..... | Doland |
| Dr. J. R. Westaby..... | Madison |
| Dr. A. A. McLaurin..... | Pierre |
| Dr. L. N. Grosvenor..... | Huron |
| Dr. R. W. Mullen..... | Sioux Falls |
| Dr. J. P. Isaac..... | Freeman |
| Dr. N. K. Hopkins..... | Arlington |
| Dr. P. D. Peabody..... | Webster |
| Dr. R. D. Alway..... | Aberdeen, Sec'y-Treas. |
| Dr. J. P. Isaac, Chairman of the Auditing | |

Committee, reported that the Committee had examined the books of the Treasurer and found the accounts correct.

Upon motion duly seconded and carried this report was accepted as read.

Dr. P. D. Peabody moved that Dr. J. F. D. Cook be allowed an increase of \$350.00 per annum, making a total of \$600.00, as the salary of the Secretary-Treasurer.

Motion seconded by Dr. H. W. Sherwood and carried.

Dr. L. N. Grosvenor moved that Dr. Treon be re-elected Chairman of the Board of Councilors for the ensuing year.

Motion seconded by Dr. Peabody and carried.

As this concluded the business before the Council at this time the meeting was declared adjourned *sine die*.

PROCEEDINGS OF THE SCIENTIFIC MEETINGS OF THE ASSOCIATION

FIRST DAY—WEDNESDAY, MAY 20, 1925

MORNING SESSION

The first session of the forty-fourth annual meeting of the South Dakota State Medical Association was called to order in the ball room of the Hotel Cataract, Sioux Falls, at 9:45 A. M., on Wednesday, May 20, 1925, by the President, Dr. R. L. Murdy, Aberdeen.

Dr. Murdy then delivered the Presidential Address, entitled "The Evolution of Medicine and its Relation to Present-Day Problems."

The scientific sessions were devoted to Dry Clinics and the following gentlemen gave clinics during the morning:

Dr. E. L. Tuohy, Duluth, Minnesota, gave a Clinic on Internal Medicine.

Dr. A. E. Benjamin, Minneapolis, Minnesota, gave a Clinic on Gynecology.

As this completed the program for this session the Association adjourned at 12:10, to reconvene at 2:00 P. M.

AFTERNOON SESSION

The afternoon session was called to order at 2:00 P. M., by the President, Dr. R. L. Murdy, Aberdeen.

Dr. Emil Geist, Associate Professor of Orthopedic Surgery, University of Minnesota, Minneapolis, gave a Clinic on Orthopedics.

Dr. Arthur Sweeney, Professor of Medical Jurisprudence, University of Minnesota, St. Paul, gave a Clinic on Neurology.

As this completed the program for the afternoon the Association adjourned at 5:00 to reconvene at 8:00 P. M.

EVENING SESSION

The evening session was held in the Coliseum and was called to order at 8:10 by Dr. G. G. Cottam, Sioux Falls, who introduced the President, Dr. R. L. Murdy.

Dr. Murdy made a brief address and introduced Mr. Charles Day, of Sioux Falls, who then addressed the Association.

Dr. Arthur Sweeney, St. Paul, Minnesota, delivered an address entitled "Measuring the Human Mind."

Dr. Allan Craig, Associate Director, American College of Surgeons, Chicago, delivered an address entitled, "The Humanity of Medicine."

Dr. William J. Mayo, Rochester, Minnesota, delivered an address entitled, "Studies in Physiology and Their Relation to Clinical Medicine."

Vocal and instrumental music was furnished during the evening by local talent, and the meeting adjourned at 10:15 P. M.

SECOND DAY—THURSDAY, MAY 21, 1925

MORNING SESSION

The morning session was called to order at 9:30 A. M. by the President, Dr. R. L. Murdy, Aberdeen.

Dr. W. L. Benedict, Chief of the Department of Ophthalmology, Mayo Clinic, Rochester, Minnesota, gave a clinic on "Diseases of the Orbit."

Dr. H. Longstreet Taylor, Medical Director, Pokegama Sanatorium, St. Paul, Minnesota, demonstrated Dr. Cole's Tuberculosis Movie, at the Strand Theater.

Following this presentation the Association adjourned to reconvene at 2:00 P. M.

AFTERNOON SESSION

The afternoon session was called to order at 2:10 P. M., by the President, Dr. R. L. Murdy, Aberdeen.

Dr. H. F. Helmholtz, Chief of Department of Pediatrics, Mayo Clinic, Rochester, Minnesota, gave a Clinic on Pediatrics.

Dr. Henry E. Michelson, Head of the Department of Dermatology and Syphilis, University of Minnesota, Minneapolis, gave a Clinic on Dermatology.

Dr. Lynne B. Greene, Kansas City, Missouri, gave a Clinic on Physiotherapy in the Practice of Medicine.

DISTRICT AND COUNTY ROSTER

ABERDEEN DISTRICT MEDICAL SOCIETY—NO. 1

| | | | |
|---------------------------------|--|--------------------------------|--------------------------------|
| PRESIDENT | | Dunn, J. E. Groton | McCauley, C. E. Aberdeen |
| Farrell, W. D. Aberdeen | | Elward, L. R. Ashton | Mertens, J. J. Gettysburg |
| SECRETARY | | Farrell, W. D. Aberdeen | Miller, J. F. Andover |
| King, Owen Aberdeen | | Freyberg, F. W. Aberdeen | Miller, Frank Aberdeen |
| Adams, J. F. Aberdeen | | Gerdes, O. H. Eureka | Murdy, B. C. Aberdeen |
| Aldrich, H. H. Orient | | Hart, B. M. Onida | Murdy, R. L. Aberdeen |
| Allen, J. M. Rosholt | | Hart, R. S. Groton | Murphy, T. W. Pierpont |
| Alway, R. D. Aberdeen | | Hill, Robert Ipswich | Olson, C. L. McIntosh |
| Baer, T. H. Timber Lake | | Hurley, S. E. Gettysburg | Olson, C. O. Groton |
| Bailey, F. C. Redfield | | Jackson, E. B. Aberdeen | Pittenger, E. A. Aberdeen |
| Bates, W. A. Aberdeen | | Johnston, M. C. Aberdeen | Potter, Geo. W. Redfield |
| Boteler, G. M. Aberdeen | | Jones, R. R. Britton | Ramsey, E. T. Clark |
| Brenckle, J. F. Northville | | Jones, T. D. Bowdle | Ranney, T. P. Aberdeen |
| Brosseau, J. E. Frankfort | | Katz, O. W. Aberdeen | Sargent, C. E. Isabel |
| Bruner, J. E. Frederick | | Keene, L. M. Millette | Seeman, C. A. Tulare |
| Chapman, W. S. Redfield | | King, H. I. Aberdeen | Seeman, H. J. Rockham |
| Chichester, J. G. Redfield | | King, Owen Aberdeen | Senescall, C. R. Veblin |
| Cook, J. F. D. Langford | | Kraushaar, F. Aberdeen | Sutton, Dewey Redfield |
| Countryman, G. E. Aberdeen | | Kutnewsky, J. K. Redfield | Twining, G. H. Mobridge |
| Crain, C. F. Redfield | | Lavcry, C. J. Aberdeen | Von Wohlleben, G. Herried |
| Crain, F. M. Redfield | | Lowe, C. E. Mobridge | Weishaar, C. H. Aberdeen |
| Creamer, Frank H. Dupree | | Lundquist, C. G. Leola | White, W. E. Ipswich |
| Deertz, J. J. Brentford | | Mayer, R. G. Aberdeen | Whiteside, J. D. Aberdeen |
| Dinsmore, W. E. Claremont | | McCarthy, P. V. Aberdeen | Wilson, R. D. Aberdeen |

WATERTOWN DISTRICT MEDICAL SOCIETY—NO. 2

| | | | |
|---------------------------------|--|----------------------------------|--------------------------------|
| PRESIDENT | | Gross, D. W. White | Parsons, H. C. Watertown |
| Magee, W. G. Watertown | | Hammond, M. J. Watertown | Paulson, A. J. Watertown |
| SECRETARY | | Haskell, H. I. Clark | Richards, G. H. Watertown |
| Kennedy, H. T. Watertown | | Hendrickson, Paul, Vienna | Schwendener, J. E. Bryant |
| Bartron, H. J. Watertown | | Johnson, A. Einar Watertown | Sherwood, H. W. Doland |
| Bates, J. S. Clear Lake | | Kennedy, H. T. Watertown | Smith, S. W. Watertown |
| Campbell, R. F. Watertown | | Koren, Finn Watertown | Tarbell, H. A. Watertown |
| Crawford, J. H. Watertown | | Lockwood, J. H. Henry | Vaughn, J. B. Castlewood |
| Christensen, B. M. Toronto | | McIntyre, P. S. Bradley | Williams, C. A. Doland |
| Freeburg, H. M. Watertown | | Magee, W. G. Watertown | |
| | | Martin, T. P. Gary | |

MADISON DISTRICT MEDICAL SOCIETY—NO. 3

| | | | |
|------------------------------|--|------------------------------|------------------------------|
| PRESIDENT | | Brimmer, K. W. Canova | Kellogg, H. E. Madison |
| Hoagland, C. C. Madison | | Green, B. T. Brookings | Sherwood, C. E. Madison |
| SECRETARY | | Hickman, G. L. Bryant | Torwiek, E. E. Volga |
| Westaby, J. R. Madison | | Hoagland, C. C. Madison | Westaby, J. R. Madison |
| Baughman, D. S. Madison | | Jordan, L. E. Chester | Westaby, R. S. Madison |

PIERRE DISTRICT MEDICAL SOCIETY—NO. 4

| | | | |
|----------------------------|--|---------------------------------|-----------------------------|
| PRESIDENT | | Martin, H. B. Harrold | Northrup, F. A. Pierre |
| Stout, E. T. Pierre | | McLaurin, A. A. Pierre | Riggs, T. F. Pierre |
| SECRETARY | | Minard, R. W. Midland | Stout, Trent E. Pierre |
| Martin, H. B. Harrold | | Morrissey, R. J. Ft. Perre | |

HURON DISTRICT MEDICAL SOCIETY—NO. 5

| | | | |
|---------------------------------|--|-------------------------------|-----------------------------|
| PRESIDENT | | Leach, W. O. Huron | Shirley, J. C. Huron |
| Wood, T. J. Huron | | McGarvey, F. B. Cavour | Sigler, G. V. Highmore |
| SECRETARY | | McKie, J. F. Wessington | Sprague, B. H. Huron |
| Grosvenor, L. N. Huron | | McWhorter, Port Miller | Taylor, E. B. Huron |
| Buchanan, R. A. Wessington | | Paddleford, J. F. Miller | Thomas, Benj. Huron |
| Cogswell, M. E. Wolsey | | Saxton, W. H. Huron | Tschetter, J. S. Huron |
| Grosvenor, L. N. Huron | | Saylor, H. L. Huron | Wheeloek, D. O. Miller |
| Launspaeh, G. W. Huron | | Scheib, A. P. Hiteheoek | Wood, T. J. Huron |
| | | Sewell, H. D. Huron | Wright, O. R. Huron |

MITCHELL DISTRICT MEDICAL SOCIETY—NO. 6

| | | | |
|---------------------------------|--|--------------------------------|----------------------------------|
| PRESIDENT | | Delaney, W. A. Mitchell | McClellan, S. A. Kenabee |
| Mizener, Mark Parkston | | Diek, L. C. Spencer | Maytum, W. J. Alexander |
| SECRETARY | | Farnsworth, C. P. Chamberlain | Mizener, Mark Parkston |
| Kelly, R. A. Mitchell | | Gifford, A. J. Alexandria | Payne, R. H. Tripp |
| Auld, C. V. Plankington | | Gillis, F. D. Mitchell | Rogers, J. C. White Lake |
| Ball, W. R. Mitchell | | Hoyne, A. H. Salem | Shull, J. H. Alpena |
| Beukelman, W. H. Stickney | | Hunt, Wm. Murdo | Smiley, T. B. Mt. Vernon |
| Bobb, B. A. Mitchell | | Jenkensen, H. E. Wess. Springs | Stewart, F. H. Kimball |
| Bobb, C. S. Mitchell | | Jones, A. L. Corsica | Templeton, C. V. Woonsocket |
| Bobb, E. V. Mitchell | | Jones, E. W. Mitchell | Tobin, F. J. Mitchell |
| Carmichael, M. M. Cheyenne | | Kelly, R. A. Mitchell | Treon, Fred Chamberlain |
| Clauser, G. A. Bridgewater | | Kenton, Chas. B. Artesian | Waldner, J. L. Parkston |
| Cochran, F. B. Plankinton | | Kidd, F. S. Woonsocket | Wallis, C. R. Amour |
| Daniels, G. F. Mitchell | | Kimble, O. A. Murdo | Willy, R. G. Kimball |
| | | Lloyd, J. H. Mitchell | Young, E. M. Mitchell |

SIOUX FALLS DISTRICT MEDICAL SOCIETY—NO. 7

| | | | |
|-------------------------------------|--|------------------------------------|------------------------------------|
| PRESIDENT | | Gregg, J. B. Sioux Falls | Perkins, E. L. Sioux Falls |
| Billingsley, P. R. Sioux Falls | | Gregory, D. A. Sioux Falls | Putnam, E. D. Sioux Falls |
| SECRETARY | | Grove, A. F. Dell Rapids | Putnam, F. I. Sioux Falls |
| Gregory, D. A. Sioux Falls | | Grove, M. M. Dell Rapids | Reagan, R. Sioux Falls |
| Billion, T. J. Sioux Falls | | Hagin, J. C. Crooks | Rider, A. S. Flandreau |
| Billingsley, P. R. Sioux Falls | | Hannon, L. J. Hartford | Roberts, R. B. Sioux Falls |
| Bliss, P. D. Colton | | Hanson, O. L. Valley Springs | Saekett, Roy Parker |
| Brandon, P. E. Sioux Falls | | Hill, L. G. Sioux Falls | Schooyer, C. T. Sioux Falls |
| Cottam, G. G. Sioux Falls | | Housman, W. Mc K. Sioux Falls | Schwartz, Jos. Sioux Falls |
| Craig, D. W. Sioux Falls | | Howg, E. M. Lennox | Sherwood, H. H. Humbolt |
| Culver, C. F. Sioux Falls | | Hummer, H. R. Canton | Stegeman, S. B. Salem |
| De Vall, F. C. Garretson | | Hyden, A. Aleester | Stenberg, E. S. Sioux Falls |
| Diekinson, W. E. Canastota | | Jones, T. E. Sioux Falls | Stern, M. A. Sioux Falls |
| Donahoe, S. A. Sioux Falls | | Keller, S. A. Sioux Falls | Stevens, G. A. Sioux Falls |
| Donahoe, W. E. Sioux Falls | | Keller, W. F. Sioux Falls | Stevens, R. G. Sioux Falls |
| Eagan, J. B. Dell Rapids | | Lierle, G. A. Canova | Thompson, T. J. Sioux Falls |
| Egan, M. H. Sioux Falls | | Lokke, B. R. Egan | Trail, C. J. Sioux Falls |
| Erikson, O. C. Sioux Falls | | Moe, A. J. Sioux Falls | Tufts, A. H. Sioux Falls |
| Fisk, R. R. Flandreau | | Mullen, R. W. Sioux Falls | Van Demark, G. E. Sioux Falls |
| Gage, E. E. Sioux Falls | | Nessa, N. J. Sioux Falls | Vaughn, L. B. Hurley |
| Gage, A. E. Sioux Falls | | Nilsson, F. S. Sioux Falls | Wendt, C. L. Canton |
| Gottschalk, T. P. Sioux Falls | | Pankow, L. T. Sioux Falls | Zimmerman, Goldie Sioux Falls |
| | | Parke, L. L. Canton | |

YANKTON DISTRICT MEDICAL SOCIETY—NO. 8

| | | | |
|--------------------------------|--|---------------------------------|---------------------------------|
| PRESIDENT | | Burkland, P. R. Vermilion | Kauffman, E. J. Marion |
| Isaac, J. P. Freeman | | Bushnell, Wm. F. Elk Point | Keeling, C. M. Springfield |
| SECRETARY | | Creceilius, H. A. Volin | Landmann, G. A. Scotland |
| Hohf, J. A. Yankton | | Duguid, J. O. Springfield | Langley, C. S. Lake Andes |
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| Beall, L. F. Irene | | Gross, C. C. Yankton | Remy, C. E. Yankton |
| Berry, S. G. Tyndall | | Hohf, J. A. Yankton | Smith, F. C. Yankton |
| Bigler, Lottie G. Yankton | | Hohf, S. M. Yankton | Stansbury, E. M. Vermilion |
| Blezek, F. M. Tabor | | Isaac, J. P. Freeman | Sweezy, F. A. Wakonda |
| Braddock, W. M. Yankton | | Johnson, G. E. Avon | Trierweiler, J. E. Yankton |
| | | Kalayian, D. S. Parker | Willhite, F. V. Redfield |

BLACK HILLS DISTRICT MEDICAL SOCIETY—NO. 9

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| Fleeger, R. B. Lead | | Hare, Carlyle Spearfish | Morse, W. E. Rapid City |
| SECRETARY | | Hargens, C. W. Hot Springs | Morsman, C. F. Hot Springs |
| Stewart, J. L. Lead | | Heinemann, A. A. Wasta | Newby, H. D. Rapid City |
| Allen, A. G. Deadwood | | Hodges, V. R. Lead | O'Toole, T. F. New Underwood |
| Bentley, W. S. Sioux Falls | | Howe, F. S. Deadwood | Owen, N. T. Rapid City |
| Chassell, J. L. Bellefourche | | Hultz, Eugene Hill City | Paekard, L. A. Hot Springs |
| Clough, F. E. Lead | | Inec, H. J. T. Rapid City | Pemberton, M. O. Deadwood |
| Crane, H. L. Lead | | Jackson, A. S. Lead | Ramsey, Guy Philip |
| Crouch, J. A. Bellefourche | | Jackson, R. J. Rapid City | Roduseh, Freda Rapid City |
| Ewald, P. P. Lead | | Jerustrum, R. E. Wall | Rogers, J. S. Hot Springs |
| Fasser, A. O. Cheyenne, Wyo. | | Mattox, N. E. Lead | Stewart, J. L. Lead |
| Fleeger, R. B. Lead | | Miller, George Spearfish | Walsh, J. M. Rapid City |
| | | Mills, G. W. Wall | Williamson, W. R. Nemo |
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ROSEBUD DISTRICT MEDICAL SOCIETY— NO. 10

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| SECRETARY | | Carmaek, A. O. Colome | Quinn, W. M. Winner |
| Overton, R. V. Dixon | | Kenaston, H. R. Bonesteel | Quinn, R. J. Burke |
| | | Malster, R. M. Carter | Schaefer, J. F. Colome |
| | | Murnan, H. A. Winner | Waterman, J. C. Burke |

KINGSBURY DISTRICT MEDICAL SOCIETY—NO. 11

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| SECRETARY | | Cowgill, C. H. Hunt'gt'n Pk., Cal | Irvine, G. B. Lake Preston |
| Irvine, G. B. Lake Preston | | Dickey, J. B. Iroquois | Jamieson, G. V. De Smet |
| Ahern, J. J. Oldham | | Dyar, B. A. De Smet | O'Donnell, H. J. Oldham |
| | | Fiege, C. A. Iroquois | Seanlon, D. S. Volga |
| | | | Stockdale, C. P. Irwin |

WHETSTONE VALLEY DISTRICT MEDICAL SOCIETY—NO. 12

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| Severide, A. L. Webster | | DeTuney, A. E. Milbank | Hayes, C. E. Waubay |
| SECRETARY | | Flett, Chas. Milbank | Lowthain, G. W. Milbank |
| Lowthain, G. W. Milbank | | Harris, H. G. Wilmot | Peabody, H. C. Webster |
| Brown, A. E. Webster | | Jacotel, J. A. Milbank | Peabody, P. D. Webster |
| | | Jenkins, P. B. Waubay | Severide, A. L. Webster |

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| Adams, J. F. Aberdeen | Bartron, H. J. Watertown | Bliss, P. D. Colton |
| Aldrich, H. H. Orient | Bates, J. S. Clear Lake | Bobb, B. A. Mitchell |
| Ahern, J. J. Oldham | Bates, W. A. Aberdeen | Bobb, Clyde S. Mitchell |
| Allen A. G. Deadwood | Baughman, D. S. Madison | Bobb, E. V. Mitchell |
| Allen, J. M. Rosholt | Beall, L. F. Irene | Bostrom, A. E. De Smet |
| Alway, R. D. Aberdeen | Bentley, W. S. Sioux Falls | Botcler, G. M. Aberdeen |
| Auld, C. V. Plankinton | Beukelman, W. H. Stickney | Bouza, F. E. White River |
| Baer, T. H. Timberlake | Bigler, Lottie G. | Braddock, W. M. Yankton |
| Bailey, F. C. Redfield | Billion, T. J. Sioux Falls | Brandon, P. E. Sioux Falls |
| Ball, W. R. Mitchell | Billingsley, P. R. Sioux Falls | Brenekle, J. F. Northville |

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|--------------------|--------------------|----------------------|----------------|-------------------|------------------|
| Brimmer, K. W. | Canova | Grove, A. F. | Dell Rapids | Leach, W. O. | Glendale, Calif. |
| Brosseau, J. E. | Frankfort | Grove, M. M. | Dell Rapids | Lierle, G. A. | Canova |
| Brown, A. E. | Webster | Grove, E. H. | Arlington | Lloyd, J. H. | Mitchell |
| Buchanan, R. A. | Wessington | Hagin, J. C. | Crooks | Lockwood, J. H. | Henry |
| Bruner, J. E. | Frederick | Hammond, M. J. | Watertown | Lokke, B. R. | Egan |
| Bryant, F. A. | Herrick | Hanson, O. L. | Valley Springs | Lowe, C. E. | Mobridge |
| Burkland, P. R. | Vermilion | Hannon, L. J. | Hartford | Lowthain, G. W. | Milbank |
| Bushnell, Wm. F. | Elk Point | Hare, Carlyle | Spearfish | Lundquist, C. C. | Leola |
| Butler, C. A. | Lake Preston | Hargens, C. W. | Hot Springs | McCarthy, P. V. | Aberdeen |
| Campbell, R. F. | Watertown | Harris, H. G. | Wilmot | McGarvey, F. B. | Cavour |
| Carmack, A. O. | Colome | Hart, B. M. | Onida | McCauley, C. E. | Aberdeen |
| Carmichael, M. M. | Cheyenne | Hart, R. S. | Groton | McClellen, S. A. | Kenabec |
| Chassell, J. L. | Bellefourche | Haskell, H. I. | Clark | McIntyre, P. S. | Bradley |
| Chapman, W. S. | Redfield | Hawkins, A. P. | Waubay | McKie, J. F. | Wessington |
| Chichester, J. G. | Redfield | Hayes, Clara E. | Waubay | McLaurin, A. A. | Pierre |
| Christensen, B. M. | Toronto | Heinemann, A. A. | Wasta | McWhorter, Port. | Miller |
| Church, E. O. | Reville | Hendrickson, Paul, | Vienna | Magee, W. G. | Watertown |
| Clauser, G. A. | Bridgewater | Hickman, G. L. | Bryant | Malster, R. M. | Carter |
| Clough, F. E. | Lead | Hill, L. G. | Sioux Falls | Martin, H. B. | Harrold |
| Cochran, F. B. | Plankinton | Hill Robert | Ipswich | Martin, T. P. | Gary |
| Cogswell, M. E. | Wolsey | Hoagland, C. C. | Madison | Mattox, N. E. | Lead |
| Cook, J. F. D. | Langford | Hodges, V. R. | Lead | Mayer, R. G. | Aberdeen |
| Cottam, G. G. | Sioux Falls | Hohf, J. A. | Yankton | Maytum, W. G. | Alexandria |
| Countryman, G. E. | Aberdeen | Hohf, S. M. | Yankton | Mertens, J. J. | Gettysburg |
| Cowgill, C. H. | Hunt'gt'n Pk. Cal. | Hopkins, N. K. | Arlington | Miller, Frank | Aberdeen |
| Craig, D. W. | Sioux Falls | Housman, W. McK. | Sioux Falls | Miller, George | Spearfish |
| Crain, C. F. | Aberdeen | Howe, F. S. | Deadwood | Miller, J. F. | Andover |
| Crain, F. M. | Redfield | Howg, E. M. | Lennox | Mills, G. W. | Wall |
| Crane, H. L. | Lead | Hoyne, A. H. | Salem | Minard, R. W. | Midland |
| Crawford, J. H. | Watertown | Hultz, Eugene | Hill City | Minty, F. W. | Rapid City |
| Creaner, F. H. | Dupree | Hummer, H. R. | Canton | Mitchell, Fred L. | Newell |
| Crecelius, H. A. | Volin | Hunt, Wm. | Murdo | Mizner, Mark | Parkston |
| Crouch, J. A. | Bellefourche | Hurley, S. E. | Gettysburg | Moe, A. J. | Sioux Falls |
| Culver, C. F. | Sioux Falls | Hyden, A. | Alcester | Moore, F. A. | Lesterville |
| De Vall, F. C. | Garretson | Ince, H. J. T. | Rapid City | Morehouse, E. M. | Yankton |
| Daniels, G. F. | Mitchell | Irvine, G. B. | Lake Preston | Morrissey, R. J. | Ft. Pierre |
| Deertz, J. J. | Brentford | Isaac, J. P. | Freeman | Morse, W. E. | Rapid City |
| DeLaney, W. A. | Mitchell | Jackson, A. S. | Lead | Morsman, C. F. | Hot Springs |
| DeTuncy, A. E. | Milbank | Jackson, E. B. | Aberdeen | Mullen, R. W. | Sioux Falls |
| Dick, L. C. | Spencer | Jackson, R. J. | Rapid City | Murdy, B. C. | Aberdeen |
| Dickey, J. B. | Iroquois | Jacotet, J. A. | Milbank | Murdy, R. L. | Aberdeen |
| Dinsmore, W. E. | Claremont | Jamieson, G. V. | De Smet | Murnan, H. A. | Winner |
| Dickinson, W. E. | Canisota | Jenkins, P. B. | Waubay | Murphy, T. W. | Pierpont |
| Donahoe, S. A. | Sioux Falls | Jenkins, H. E. Wess. | Springs | Nessa, N. J. | Sioux Falls |
| Donahoe, W. E. | Sioux Falls | Jerustrum, R. E. | Wall | Newby, H. D. | Forsyth, Mont. |
| Duguid, J. O. | Springfield | Johnson, A. Einar | Watertown | Nillson, F. C. | Sioux Falls |
| Dunn, J. E. | Groton | Johnson, G. E. | Avon | Northrup, F. A. | Pierre |
| Dyar, B. A. | De Smet | Johnston, M. C. | Aberdeen | O'Donnell, H. J. | Oldham |
| Eagan, J. B. | Dell Rapids | Jones, A. L. | Corisca | O'Toole, T. F. | New Underwood |
| Egan, M. H. | Sioux Falls | Jones, T. D. | Bowdle | Olson, C. L. | McIntosh |
| Elward, L. R. | Ashton | Jones, E. W. | Mitchell | Olson, C. O. | Groton |
| Erickson, O. L. | Sioux Falls | Jones, R. R. | Britton | Overton, R. V. | Dixon |
| Ewald, P. P. | Lead | Jones, T. E. | Sioux Falls | Owen, N. T. | Rapid City |
| Farnsworth, C. P. | Chamberlain | Jordan, L. E. | Chester | Packard, L. A. | Hot Springs |
| Farrell, W. D. | Aberdeen | Kalayjian, D. S. | Parker | Paddleford, J. F. | Miller |
| Fasser, A. C. | Cheyenne, Wyo. | Katz, O. W. | Aberdeen | Pankow, L. T. | Sioux Falls |
| Fiege, C. A. | Iroquois | Kauffman, E. J. | Marion | Parke, L. L. | Canton |
| Fisk, R. R. | Plandreau | Keeling, C. M. | Springfield | Parsons, H. C. | Watertown |
| Fleeger, R. B. | Lead | Keens, L. M. | Mellette | Paulson, A. J. | Watertown |
| Flett, Chas. | Milbank | Keller, S. A. | Sioux Falls | Payne, R. H. | Tripp |
| Freiburg, H. M. | Watertown | Keller, W. F. | Sioux Falls | Peabody, H. C. | Webster |
| Freeman, J. W. | Lead | Kellogg, H. E. | Madison | Peabody, P. D. | Webster |
| Freshour, I. M. | Yankton | Kelly, R. A. | Mitchell | Pemberton, M. O. | Deadwood |
| Freyberg, F. W. | Aberdeen | Kenaston, H. R. | Bonesteel | Perkins, E. L. | Sioux Falls |
| Frink, R. P. | Wagner | Kennedy, H. T. | Watertown | Pittenger, E. A. | Aberdeen |
| Gage, A. E. | Sioux Falls | Kenton, Chas. | Artesian | Potter, Geo. W. | Redfield |
| Gage, E. E. | Sioux Falls | Kidd, F. S. | Woonsocket | Putnam, E. D. | Sioux Falls |
| Gerdes, O. H. | Eureka | Kimble, O. A. | Murdo | Putnam, F. I. | Sioux Falls |
| Gifford, A. J. | Alexandria | King, H. I. | Aberdeen | Quinn, J. F. | Gregory |
| Gillis, F. D. | Mitchell | King, Owen | Aberdeen | Quinn, R. J. | Burke |
| Gottschalk, T. P. | Sioux Falls | Koren, Finn | Watertown | Quinn, W. M. | Winner |
| Gregg, J. B. | Sioux Falls | Kraushaar, F. J. | Aberdeen | Ramsay, E. T. | Clark |
| Gregory, D. A. | Sioux Falls | Kutnewsky, J. K. | Redfield | Ramsay, Guy | Philip |
| Green, B. T. | Brookings | Landmann, G. A. | Scotland | Ranney, T. P. | Aberdeen |
| Gross, C. C. | Yankton | Langley, C. S. | Lake Andes | Reagan, R. | Sioux Falls |
| Gross, D. W. | White | Launspach, G. W. | Huron | Remey, C. E. | Chicago |
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| Rider, A. S. | Flandreau | Smiley, T. B. | Mt. Vernon | Tufts, A. H. | Sioux Falls |
| Riggs, T. F. | Pierre | Smith, F. C. | Yankton | Twining, G. H. | Mobridge |
| Roberts, R. B. | Sioux Falls | Smith, S. W. | Watertown | Van Demark, G. E. | Sioux Falls |
| Rodusch, Freda S. | Rapid City | Sprague, B. H. | Huron | Vaughn, J. B. | Castwood |
| Rogers, J. C. | White Lake | Stansbury, E. M. | Vermillion | Vaughn, L. B. | Hurley |
| Rogers, J. S. | Hot Springs | Stenberg, E. S. | Sioux Falls | Von Wohlleben, G. | Herried |
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| Sargent, C. E. | Isabel | Stegman, S. B. | Salem | Wallis, C. R. | Amour |
| Saxton, W. H. | Huron | Stewart, F. H. | Kimball | Walsh, J. M. | Rapid City |
| Saylor, H. L. | Huron | Stewart, J. L. | Lead | Waterman, J. C. | Burke |
| Scanlon, D. S. | Volga | Stevens, G. A. | Sioux Falls | Weishaar, C. H. | Aberdeen |
| Scheib, A. P. | Hitchcock | Stevens, R. G. | Sioux Falls | Wendt, C. L. | Canton |
| Schaefer, J. F. | Colome | Stokdale, C. P. | Irwin | Westaby, J. R. | Madison |
| Schoyer, C. T. | Sioux Falls | Stout Trent | Pierre | Westaby, R. S. | Madison |
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| Seeman, C. A. | Tulare | Tarbell, H. A. | Watertown | White, W. E. | Ipswich |
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| Severide, A. L. | Webster | Thomas, Benj. | Huron | Williams, C. A. | Doland |
| Sewell, H. D. | Huron | Thompson, T. J. | Sioux Falls | Williamson, W. R. | Nemo |
| Sherwood, C. E. | Madison | Tobin, F. J. | Mitchell | Wilson, R. D. | Aberdeen |
| Sherwood, H. H. | Humbolt | Torwick, E. E. | Volga | Wood, T. J. | Huron |
| Sherwood, H. W. | Doland | Trail, C. J. | Sioux Falls | Wright, O. R. | Huron |
| Shirley, J. C. | Huron | Trierweiler, J. E. | Yankton | Young, B. A. | Hot Springs |
| Shull, J. H. | Alpena | Treon, Fred | Chamberlain | Young, E. M. | Mitchell |
| Sigler, G. V. | Highmore | Tschetter, J. S. | Huron | Zimmerman, Goldie | Sioux Falls |

PRESIDENT'S ADDRESS: THE EVOLUTION OF MEDICINE AND ITS RELATION TO PRESENT PRACTICE*

By R. L. MURDY, M.D.

ABERDEEN, SOUTH DAKOTA

"Medicine arose," said Sir William Osler, "out of a primal sympathy of man for man, out of the desire to help those in sorrow, need, and sickness." No definition of the physician's calling could be more comprehensive. The history of medicine from its most remote days to the comparatively recent period of greatest advance is the story of an earnest profession, steadfast in its purpose despite innumerable vicissitudes and conflicts. It began by chance observations; it grew under the yoke of innumerable empiricisms, and through successive centuries was stunted by theistic, dogmatic, and metaphysical influences. It was inevitably sustained, however, by the accumulation of data which gradually permitted the drawing of conclusions. These, subsequently found by experience to be false or misleading, served as the spur to further observations, and ultimately more truthful generalizations. Thus medicine, like every other science, has passed through its several phases. "Confronted by pain and death, medicine has from the first been compelled to act as an art before it had any rational explanation of what it saw or did, that is to say, before it had any development as a science."

No science, however, can thrive on observation alone, which is bound to be inexact, hence the necessity of subjecting observations to experimental proof, and the necessity for the elaboration of many types of instruments and laboratory tests as further aids to, or check upon, our sense-perception organs. The stethoscope projected to the ear diagnostic sounds produced within the thorax; the microscope extended the range of human vision and revealed the identity of the hosts of infection; quantitative methods gradually replaced the cruder ones of guesswork; principles of physics were utilized to record and visualize the cardiac mechanism in health and disease; chemistry was invoked to explain problems of perverted metabolism; biological observations were turned to value in explaining many of the complexities in human growth or behavior; electricity has illumined many of the hitherto dark portions of the body through the x-ray; and the invisible magic of radium is but yet in the infancy of its power.

The tendency, the direction of desire, has always been from the vague and ill-defined to the exact, a state in which every alleged medical fact or doctrine was challenged as to its real truth—"Verification by experience not justification by faith." As time went on "this devotion to doubt,"

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this consecration of distrust, spread to the systematic workers in all of the other sciences, and clearer and clearer became the vision of a medical profession imbued with and guided by the scientific spirit, replacing the occult, nihilistic, or merely empirical methods of recognized impotence. Along such lines the evolution of the medical profession of to-day has taken place.

Medicine, in its foundations and in its applications, is based on research. The most sacred heritages of medicine have come through the transcendent genius of a comparatively few men devoted to the alleviation of human woes. The protection and advancement of research is our greatest opportunity, but it is as important to apply the results of research as to foster it. All dealing with life is relative, and will be so until we can know more of the unknown. For the present we can only expect to get high percentage results in the application of medicine. Every time we learn a new fact, the structure of medicine becomes firmer and more dependable. Near facts must fall before facts. There can be no present finality. Dogma has no place in medicine to-day. Facts, and not authority, control.

Without ideals we accomplish nothing. Idealism is implied in Osler's definition of medicine, and it is the propelling force which carries many physicians through their practice, consciously or otherwise. The physician's native instinct of service makes him too often blind to the fact that materialism festers all about him, and he leads a life which someone has described in these words: "The world does not owe me a living, I owe the world a life."

At the risk of repetition it might be well, briefly, to point out some of the ideals which must be constantly sought after since they insure future advance.

The ideal of fraternalism must be kept alive. Jealousy, criticism, and intolerance lamentably weaken medical influence. Much can be done to perpetuate the tradition of a brotherhood by earnest attempts to create a scientific unity. This gospel must be preached especially to those backward members of the profession who rarely attend county, city, state, or national medical meetings. Fraternalism with workers whose daily life is occupied, not with the care of the sick, but with the scientific study of conditions underlying such care is quite as important. The benefits to be derived are equally reciprocal.

The ideal of public service cannot be shunned. By oath physicians have pledged their support to the enforcing of laws and the sustaining of institutions dedicated to the service of humanity.

It is their moral duty to give advice and to sit in council with others whose work concerns the betterment of community hygiene. Upon all questions of local public health their opinion should be openly and frankly expressed. It must not be forgotten that we are in a period of legislative morality and that the field of medicine has been a fertile one for the reformer, agitator, and propagandist. The physician faces a serious menace in the spread of the idea that medical socialization will bring higher standards of health. Both political doctors and medical politicians are foisting subtle arguments and insidious pleas to secure public patronage. We pay a tax for the privilege of giving morphine to relieve a patient's agony, but there is no evidence of the utilization of the money thus derived for medical uplift or the reclamation of unfortunate narcotic derelicts. It is no time to be complacent. The physician has nothing to fear in backing preventive medicine to the utmost.

There must be no let down in ideals which govern our ethical standards of conduct.

First of all there is the pathway of consistent individual effort. The daily grind, as Arnold Bennett would call it, must be started with a conscious realization of the ideals to be desired, a fervent "credo" in their worth-whileness, and buoyant enthusiasm in possessing the opportunity to hasten their consummation. The remote and obscure practitioner, the urban consultant, the specialist, or the semicloistered scientist must be sustained in his work not merely by ministering to worthy human wants. The day never passes without the opportunity to teach the lesson that many human wants are unworthy, and still others are beyond the power of humans yet to gratify. Nothing is so epidemic in its spread as the force of good example.

The extension of knowledge is certain of steady and indefinite advance. Better knowing has always resulted ultimately in better doing. This constitutes the best possible reason why the future of our profession depends upon and demands an extension of scientific research along all possible lines. But remember always one thing. Though medicine has its two aspects—the so-called theoretical side and the practical side—scientific medicine includes both. There is, then, just as broad a field for scientific research in the pursuit of a clinical career—perhaps a broader one—as there is in the full-time seclusion of a laboratory, and the methods to be employed in each instance are identical. There is, then, no justification for the existence of the slightest feeling of jealousy, disdain, or intoler-

ance between workers in these two domains, and, least of all, no excuse for the practitioner to regard theory and practice as incompatible or to feel that science has shoved him aside or pre-empted his rights. The fact is, that he has stepped aside into one of those paths and is lost, if such be his honest conviction.

Knowledge gained must be imparted to others through the channels of education, and here one encounters one of the most perplexing problems confronting the future of the medical profession. The ablest students of the matter are by no means in accord, nor are they guided or helped enough perhaps by those who see best, and at first hand, what is needed most. It is not a matter for presidents and deans alone to decide. Radical as it may sound, it is not at all unlikely that in no far distant time medical schools and even hospitals may be run by the public itself, for the public is becoming ever more critical and discriminating in matters pertaining to its health. It recognized the dangers to it of medical inbreeding, and it is averse to political, social, or financial control of the education of those who are to grapple with matters concerning life and death. Nor is the domination by feat or hero worship usually conducive to the sound selection of teaching staffs and their harmonized co-operation.

We may now ask what progress has medicine made during the half century? The answer to this question would require very much more time than is at our disposal at present, but it is permissible to make brief references to the most marked innovations that have come to pass. At the outset it may be claimed that the past fifty years have been the most glorious era in the entire history of medicine. Its achievement, its real accomplishments have eclipsed all the achievements of the preceding twenty-three centuries. In speaking of these accomplishments it is only just to refer to the few pioneers who laid the magnificent foundation upon which modern medicine has been built.

We can and must keep our medical societies and hospital staffs on a plane above reproach. The patient entering a hospital should be guaranteed good nursing, a careful physical examination, proper laboratory service, scientific treatment, and, if necessary, the use of a trustworthy operating-room with trained anesthetists. Our lives as physicians are so closely bound up with hospitals that we must keep a full share of responsibility in their management and policies.

Along with the growth of the modern hospital there has been, particularly in our own country,

a remarkable development of training-schools for nurses. A large number of fine spirited and trained lieutenants have been educated to help us in the care of the sick. They are even more intimately associated with the hospitals than we are. Together the two great professions of medicine and nursing must go forward in the mutual control of educational and hospital standards. There can be no successful separation of interests, since the good of the patient is primary and the field of operation is the same. The practice of medicine will change, the graduate nurse will have new duties, but the proper relationship of physician, nurse, and patient must go on undisturbed.

These general considerations, largely quoted from *Progressive Medicine* and other sources, bring us to a consideration of present and local problems, mostly applicable to our own state and association.

When we realize that there are about six hundred physicians in the state of South Dakota and that only little over half of them belong to the State Medical Association (350 certified to the A.M.A.) we wonder if the medical profession as a whole is as progressive as it should be, if we are doing our full duty to promote our usefulness and serve society for the best that is in us. If so, the fruit of our labor should reveal us as leaders in community activities, moulders of public opinion, builders of constructive legislation, pioneers in county and state sanitation, guardians of the law and order, and teachers and guardians of those less gifted. We take pride in our profession and should do our duty individually and collectively to promote the amenities between members and the district and the state. We should improve our opportunities to the full extent of our ability and the time at our disposal. How could we do better than adopt the gospel teaching, "Love thy brother as thyself"? To assist a brother to gain knowledge and improve his ethical and medical practice is a distinct gain to the entire profession, while a knock is an assault on the profession. The best example I can give of brotherly love is portrayed in the mythical characters of "Damon and Pythias." While it is not necessary to go to the extent portrayed in this beautiful myth, a display of a little human kindness toward a brother is the right example to stimulate improved methods. We feel our importance and know that we represent a lot of brains, teaching, and experience, yet we are seldom called upon to lead community activities or take much leadership even in matters where we possess special knowledge, like

health, sanitation, school hygiene, medical laws, etc. Much of this is due to lack of concerted effort. These are matters where we should dominate the whole situation, and if we put the right man forward and all support him to the last ditch, we could recover the influence that is due us and serve the community better.

If we would attain the elevated professional and civic position due us by reason of our special training and experience, we must function as a unit and not as divergent fragmentary elements which make up the larger part of society. We should be united for the betterment of ourselves scientifically and socially. We should be united so we may exert our full force and influence in other lines for the promotion of the commonwealth.

We must first form ourselves into a strong organization. There can be no question about the desirability of this. We should be as strong as a labor union, coal heavers, blacksmiths, or plumbers, and have as good control over our members. An organization which is mutually helpful, one which will promote our scientific interests, one which will give us greater opportunities in local and state affairs, one which will protect us against encroachment from without, one which will permit us to use our full strength for the protection of society against physical and mental deterioration, fraudulent, ignorant, and irregular practice, one which will give us an opportunity to direct the sanitary, hygienic, and eugenic regulations of our State, one which will give us an opportunity to protect the community and State against false doctrines, false, fraudulent, and dangerous practices, fraudulent and dangerous and poison us self-medication and patent medicines. As like as not some layman will be directing the sanitary affairs of the community directly or otherwise, and it is common knowledge that the Christian Scientists killed the eugenic bill by making a tool out of a few doctors, also by spreading false information all over the state through a sympathetic, or more dangerous, ignorant press.

The medical profession must resist the encroachments from without, that is, adverse propaganda, adverse legislation, fraudulent, cheap, and dangerous practices, and every sinister influence which detracts from the high, scientific, and safe purpose of progressive medicine. The adverse propaganda carried out by the converts of the drugless therapy, of whatever school, clan, pathie, or no pathie at all, is derogatory and dangerous and should not be permitted to grow in its present form. Much of this could be dis-

counted and corrected through our official bulletin, which I will discuss later in this connection.

The medical profession is also weakened by internal dissensions to such an extent that we actually invite or foster certain practices which undermine and weaken us to a deplorable extent. Our internal dissension is the most unnecessary and discouraging of our medical problems, and it seems to me that a firm and courageous stand by the decent, progressive, peacefully inclined members of our profession who have the interest of the association, the community, and the State at heart, could cure it for all time. I believe that the remedy lies in amending our by-laws to read as follows: "Unprofessional conduct may include such acts as openly denouncing, unjust criticism, untruthful statements, voluntary efforts at aiding and abetting shyster lawyers as against another member in good standing. Voluntary evidence against a brother practitioner in matters which involve suits for damage or malpractice, also furnishing disgruntled patients and shyster lawyers x-ray pictures and other proofs of injury and disability, such as opinions based on physical and other examinations, as unprofessional conduct and punishable by reprimand, suspension, or expulsion when fully established as provided in our by-laws."

In this connection I may state that we are largely responsible for malpractice and damage suits. Every community has its trouble makers and disturbers in our profession. It likewise has its shysters and blackmailers among the law profession. A combination of these two factions compose a most dangerous element to society, more than a potential danger to us individually and collectively, yet this pernicious practice is fostered by some men who call themselves doctors. Among our shortcomings, I may state that we have been too liberal in our granting of certificates of health and disease, not that we mean to misrepresent facts, but out of the goodness of our hearts, believing that we are helping our patients as against a tricky or dishonest insurance company. Insurance companies and others have taken advantage of this to a point which fairly discredits our profession.

Our interests and the interest of society which we serve can be promoted and maintained best by strict adherence to a policy of loyalty to each other and fidelity to our society and high standards of professional conduct. We should refrain from criticism of a brother physician outside of our circle, refrain from accepting another physician's patients, and changes of physicians should not be encouraged or accepted except when

they conform to accepted practice. We should refrain from giving evidence or making examinations or *x*-ray pictures or giving any other medical proof of disease or injury to shyster lawyers, ambulance-chasers, or other enemies of society and decent practice.

Medical societies should function as a good-fellowship organization, they should promote our scientific interest and our social relations, provide wholesome entertainment for both formal and informal meetings, discourage medical politics, and eliminate cliques and factions. Our motto should be, "If you can't boost, don't knock."

In addition to the amendment which defines unprofessional conduct, I want to urge the necessity of a state bulletin to be edited and published by the society as part of our educational program. Such a bulletin would not be expected to take the place of our official journal, and would be issued only three or four times a year and for a specific purpose.

The necessity for such a bulletin to thrash out our growing problems was never greater or so urgent as the present time. We are constantly confronted with social, economic, professional, legislative, and other problems such as shortcuts into the practice of medicine by every cheap, false, and fraudulent method of practice. Also our obligation to protect the public against false, fraudulent, and dangerous self-medication and adverse sanitary conditions, could all be handled as part of our educational program.

They are all proper matters to be handled by our association as a unit proposition. It could be made a medium of education for the advancement of medical science, protection of the public, and carry a construction program to a definite conclusion.

In conclusion permit me to quote: "May I be strong with the weak, righteous with the wicked, wise with the foolish, honest with myself and kind to all men. May I avoid professional comparisons, sensitiveness, speak well of those of the household of medical faith, shun jealousy and eschew envy, follow progress, beware lest the demands of life chill my enthusiasm for study and knowledge; play sometimes and wander when I may. May I take injustice gracefully, disappointment easily, fight disease cheerfully, death hopefully; believe victory and defeat equally a part of the large plan, and rise from both fresh for repeated conflicts. May I remember that I am heir to the same diseases as my patients, must meet the same death, pass with them beyond the River, and may I go with a smile."

BOOK NOTICES

A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Medicine and Surgery and Its Various Branches. Edited by Henry W. Cattell, A.M., M.D., Philadelphia, with the collaboration of Charles H. Mayo, M.D., and others. Vol. 4, thirty-fourth series, December 1924. Philadelphia and London: J. B. Lippincott Co., 1924.

Several articles in this issue are well worth the time spent in reviewing them. Especially the first article by James F. Coupal on blastomycosis. He gives very good post-mortem findings, pathological and histological findings, as well, of six cases which had been studied by him. Emphasis is made in regard to more careful examination in all chronic sinuses and chronic diseases, such as tuberculosis, Hodgkin's disease, or syphilis, for, there may be a blastomycotic contamination in a previous unhealed chronic infection; even the differential diagnosis of this infection is difficult. I feel that he has sufficiently stressed the importance of thorough examination in any chronic infectious process, whether it be local or widespread, to make it possible to recognize these cases.

Scarle Harris has given a few opinions in an article on food factors in pellagra, which he has gained from personal observation of cases. He believes that infection of some kind is partly responsible for this disease and not only an unbalanced diet. He emphasized the importance, however, of the absence of carbohydrates combined with a diet rich in vitamins B and C as absolutely essential in the successful treatment.

There are so many good points in the article on periodical health examinations by Elliott Bedie, member of the committee on Public Relations of the Penn State Medical Society, that every physician who expects to do any form of this work would benefit greatly by reading. Mention is made as to the best methods to use to educate the public in regard to benefits derived from periodic health examinations. Annual physical appraisals are of more value than real estate appraisals. It will be the medicine of the future, and every person interested in this work should by all means read this article.

A. J. Ochsner, in a brief paper, gives a few very good conclusions as to benefits of *x*-ray in malignant conditions based upon his own experiences, not forgetting to state that much harm may result from careless or unscientific *x*-ray and radium treatments.

The effect of tonsillectomy on existing visceral disease, by Alfred Hood, brings out a few very good points. It is better to remove the focus of infection in some cases even if the child is suffering at that time from some form of infection, i. e., arthritis or chorea. Undoubtedly, in the majority of cases it is well to wait until the focus is removed. These children, even though there is already a pre-existing cardiac lesion, stand the anesthetic well. No mention is made about removing the tonsils in young children under local anesthesia.

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THE ASSET OF MEDICAL MEN IN THEIR COMMUNITIES

We hear through the daily press, frequently, of various industries that are induced to come to Minneapolis, or any other city. Every effort is made by business houses and by the various associations to present a rosy view and to offer financial assistance in securing what they think to be a valuable industry to a community. These factories or industries, of whatever type they may be, doubtless improve every city in some way. They, however, have to spend a good deal of their money outside of their own community circle, consequently in order to do a large business they may have to spend a million dollars in ordering supplies and importing apparatus and things of that kind from various parts of the world. This means a large sum of money going out of the community and benefiting some other community until it is passed on from there to some other place.

No one seems to have realized that the various professions are a valuable asset to any place. Certainly the medical profession is to be at least considered as one of the aids to a community in which the minimum amount of expenditure is sent abroad. Business men and the various associations which are making themselves responsible for the success of a town or city do not seem to see this from the proper business angle. The average medical staff of a city is not very

much favored except in a small percentage of its numbers, and there ought to be some way to devise a plan by which the community could help the doctors.

The man who has spent from five to seven years in acquiring his medical degree has spent a good deal of time and money in study and research, but his earning capacity does not begin until after he has had some experience; and then his income is further dependent upon his ability to get along with people and upon his success as a diagnostician, as an operator, or as a medical man. We think there are but few in any community who know the life of the doctor. If he is successful they assume that he is accumulating vast sums of money when, as a matter of fact, he is making only a living and his success depends upon his association with sick people. And it is fair to assume that 50 per cent of his sick people are charity cases, or at least they bring him in no income; they tax his resources, they add to his burden of work, and they are very commonly ungrateful because they do not appreciate the experience, the study, and the work that make a medical man a success.

What can be done to improve the status of the medical fraternity? We would suggest, in the first place, that the business men and the people of the community get in closer touch with the doctor; and he should keep up his acquaintance and association with organizations of various kinds, but particularly with his medical organizations.

Secondly, if the people have faith in the doctor they will see that he gets on. They will encourage him by calling him in when they are sick; and will encourage him even more if they will pay their bill at the end of the month—which is only a normal business relation between a business house and a profession. Of course, it would perhaps not be policy to say, in the third place, that the people of the community should patronize home industries, and yet that is the very thing that is being done. We patronize our home factories and places of business, but do we always patronize the doctor who lives in our vicinity? Are the people not sometimes inclined to doubt the ability of the various medical men that they meet and see from time to time? They practically know nothing about him, nor do they take any steps to inquire as to his status and ability as a medical man. Frank encouragement, open assistance, and a just understanding between the real medical men and the people who practice the healing art but who have no standing in medicine would help the situation a great deal. Of

course, there are some cults that no one can object to, and if they are objected to it simply means trouble, but, comparing the time and the education required of a medical man and the training and association with the sick and the hospitals—comparing that with the work of the man who deals with non-medical methods of healing, and whose foundation in common knowledge and in primary medicine is so small, it would seem that the educated medical man would be the first choice of intelligent people. For instance, how many men in the cities of Minneapolis, St. Paul, Rochester, and Duluth know that they each have a large county medical society, attended monthly by many medical men, striving to improve their medical status and offering whatever aid they can to organizations that require their services? The other branches of the healing art contribute practically nothing in the way of assistance, neither help our hospitals, nor anything that is in any way comparable to what the medical fraternity is willing to do and must do, because its first duty is to help the people in general.

In the larger cities the medical men have a home, or, at least, they call it a home, a place in which they can hold their medical sessions, house their libraries, and perhaps conduct clinics, or where they can entertain physicians from abroad who come to national or state meetings. All this requires a good deal of money, and the medical man is probably least able to contribute his quota. But some method must be devised which will make it possible for him to establish here, as in other cities, an adequate home for his medical associations.

“FOUR MEN OF THE ACADEMY”

The above is the title of an address made last week by Dr. Harry P. Ritchie, the thirty-ninth president of the Minnesota Academy of Medicine; so the Academy is about thirty-eight years old, and its membership has been made up of many men from the Twin Cities and various parts of Minnesota. During this time, very naturally, a number of its original members have died. Dr. Ritchie's presidential address was introduced by a brief résumé of the Academy and its work until he finally approached the above topic,—“Four Men of the Academy.”

The President's list of men included Dr. Archibald MacLaren, Dr. Warren Dennis, Dr. James E. Moore, and Dr. Parks Ritchie. It is interesting to note his various comments on the men who have passed on within a recent period. The writer was particularly interested in the President's remarks upon the events of the life

of his father, Dr. Parks Ritchie, and it was a most touching and loyal tribute by a son to his father.

Dr. Parks Ritchie was the third president of the Academy, and he died at sixty-seven years of age. Of course most of us remember Parks Ritchie, for he was a friend to all doctors. It is doubtful if he had a single enemy. He was jovial, great-hearted, and had a very happy way in his medical teaching and medical experience,—for he was known as one of the most practical and consistent teachers of medicine that the University of Minnesota Medical School ever had. To hear him eulogized modestly by his son was a real treat. He settled many disputes in the University Medical School, and he always settled them right. He had a clean-cut mind, he saw all sides of a situation, and he decided, and his decisions were accepted by those who knew him. He was the type of man that others should seek to emulate,—a real man with a fine sense of humor and wit. He was full of practical stories which applied to any given situation. He went into the house of the patient, he went when he was called, and he rendered service and gave advice, and he carried with him a reassurance wherever he went, and often he did this, so his son said, by some quick response or side-remark, some odd interpretation of the situation.

Dr. Archibald MacLaren, the nineteenth president of the Academy, died at the age of sixty-six years. He was a Minnesota man by birth, and a man of good family. He was gentle in his manner, always courteous and kindly considerate. He had an inbred sense of loyalty and honesty that comparatively few enjoy. And everyone knew that when Dr. MacLaren said it was so—and-so he was perfectly honest about it. He was more than this: he was honest to such a degree that most of his papers concerned his mistakes, so that others might profit by what he had missed, consequently he became known as an “honest surgeon.” Dr. MacLaren had been president of his various societies, the Ramsey County Medical Society, the Minnesota Academy of Medicine, and the Minnesota State Medical Association, although he was unable to be present at the meeting of the State Association during his presidency as he was on his death-bed. His favorite society, however, was the American Surgical Society. He always attended its meetings, and was a frequent contributor to its transactions. He taught in the Medical School of the University of Minnesota for many years, and he gave clinics at St. Luke's Hospital, St. Paul, over a long period of time. He was a man who wrote a

great deal, and his writings received widespread attention. He devised many new things in surgical operations, and all of them after conservatively studying the situation. Aside from being a surgeon he was a sportsman; he loved the out-of-doors and out-of-door sports. He was a man that none of us will forget.

Dr. Warren Dennis, the thirty-fourth president of the Academy, died at the age of fifty-three, of pneumonia. He was a man who was particularly interesting, one of the clean-cut fellows in medicine and surgery. He knew how to do the right thing, and he did it in the right way, and naturally he was very much thought of and respected by the members of his profession. He, too, has been president of his county society, and he was secretary of the Western Surgical Society at the time of his death. He was in the Spanish-American War; and he served as a lieutenant-colonel in the Eighty-eight Base Hospital in the World War; so he served over-seas. He was never robust, physically, and his lack of endurance was well-known to his friends.

Dr. James E. Moore, of Minneapolis, lived to be sixty-six. He was the twenty-second president of the Academy. He came to Minneapolis in the earlier days of medicine and surgery and promptly identified himself with surgical work. He was not afraid to work. He was a man who was very quiet and carried into the sick-room a tenderness of approach and a light and gentle touch. He taught in the Medical School under Dean Ritchie for many years, and, the essayist quotes his father again, when they complained of lack of material in some of the clinics the Dean said, "There is Moore; all he needs is a bone and he will give a clinic." He was looked upon by his associates as a chief in surgery.

This address, as has been said before, is rather a remarkable human document and human because it is told by a human being in a very human way. There is much in these memoirs that every younger medical man should read.

THE ETHICAL AND THE UNETHICAL NURSE

The ethical nurse is the one who is primarily and fundamentally fitted, physically and mentally, to take care of the sick, provided she has been trained in a hospital where the training-school is of prime importance. During this training process she shows her fitness as an individual, first, to learn obedience, to follow instructions, and to treat her teachers, her associates, and her patients loyally. She may have her escapades, simple and merry in type, and not interfere with her

training nor with her ability to take care of the sick, provided she has the other qualifications. Of late there has been very much said against training-school nurses, and surely organizations of ethical nurses or graduate nurses should be free from undesirables. These women are willing to learn, are willing to sacrifice everything for a degree in order that they may become registered; perhaps some of them have been over-trained, just as many medical men have been. They are trained to such a high degree that they cannot always see the personal equation.

The time has now come when nurses' associations are drifting toward the twelve-hour system, and when it may be necessary in many cases to employ two nurses instead of one. This move is rather untimely because the majority of the people have not sufficient money to pay two trained nurses; nor is it altogether wise, nor in keeping with the training of the average medical man, who works more hours than he should, perhaps—and yet he does it from a sense of duty and fidelity to his patients. If this plan is carried out, that is, the twelve-hour service, it is going to cause a great deal of difficulty in co-ordinating the work of the doctors and the hospitals for the patients. Perhaps it is this sort of thing which makes patients dissatisfied with their surroundings. They find that it is more and more expensive to be sick, that the hospitals are of necessity demanding more for their selling equipment. The nurse is going to demand more money, and, very naturally, the doctor should not be left behind. How this will work out we shall learn after a few years of experience.

The unethical nurse is the type of woman who thinks only of herself, her own convenience, her own comforts, and her ability to get away from the responsibilities of her work. She is of a lower standard as a rule, necessarily so. Not infrequently she is not a graduate of any school. Occasionally she has had a little hospital training, a few weeks or a few months, and considers herself equal to the demands of the nursing profession. Occasionally she has taken care of some member of her family who had influenza or who was on an obstetric bed, hence she thinks she is qualified to nurse the sick. Of course in the majority of instances she should be disbarred and disqualified from taking care of any sick person where any responsibility is involved. These unethical nurses may be school graduates; but they are looking after themselves, they are evading a duty, and they lack loyalty and responsibility.

There are among the so-called practical nurses, too, many who are unethical because they are

uneducated. These people, if they are endowed with commonsense and good judgment, and have sufficient powers of observation, get along very well with the average sick person. There is a large need for the practical nurse on account of the limitation of the family purse. In some hospitals these nurses are taken in for a period of six months and given a hurried bit of training in the house-keeping side of nursing; yet the unethical ones presume to know the medical side, as well. Here is where the danger of the unethical nurse comes in. She can cause more disturbance and discomfort in a household and to her patients and demand more than her just dues in money, and yet deal more lightly with her responsibilities in life and her duty to the sick than almost any other woman in professional service.

The hospitals ought to take these matters up and sift them out very carefully. They should carefully analyze and investigate the so-called practical nurse, and know whether she is ethical or unethical so that the sick person and the physician may know whether they are to trust her in a responsible position. A number of so-called nurses who have had little or no training should be in other fields of work; they should be housemaids or cooks (if they know how to cook) before they attempt to take up any of the duties of a nurse. The average hospital has unnumbered calls from nurses who telephone for a position, who never visit the hospital or the doctor to show what kind of nurses they may be; consequently, these many applications are promptly ignored. But when a nurse of any kind cannot be trusted and is not loyal to her school and to her patient she should be promptly dropped from the list. What are you going to do about it?

NEWS ITEMS

Dr. W. O. Leach, of Huron, S. D., has moved to Glendale, Calif.

Dr. J. D. Clark has moved from Harvey, N. D., to Fargo, N. D.

Dr. H. H. Aldrich has moved from Wessington, S. D., to Orient, S. D.

Dr. A. P. Lapiere, of Minneapolis, is going to Europe to spend a year in study.

Dr. Kenneth A. Phelps, of Minneapolis, has returned from a three months trip to Europe.

Dr. Edward C. Gaebe, who formerly practiced in Harvey, N. D., is now located in Beulah, N. D.

Dr. W. C. Bradley, of Marion, N. D., has sold his practice to Dr. J. C. Meridith, of Winnipeg, Manitoba.

Dr. H. J. Rothschild, of St. Paul, has returned from Europe where he spent the summer in special study.

Dr. Horace Hagen, of Santa Barbara, Calif., has formed a partnership with his uncle, Dr. O. J. Hagen, of Moorhead (Minn.)

Dr. A. E. Benjamin, of Minneapolis, who has been visiting the hospitals and Clinics of Europe for the past two months, returned last week.

Dr. B. J. Derauf, of Brainerd, has become a member of the staff of the Northern Pacific Hospital at St. Paul, to which city he will remove.

North Dakota has an official death-rate of less than 8 per thousand of population, which is below that of any other state in the registration area.

Dr. Talbert B. Hughes, who practiced at Belcourt, N. D., for a short time, has charge of the government hospital for Indians at Cloquet (Minn.)

Crookston, a Minnesota city of over 7,000 population, has been six months without a case of contagious disease within its borders. "Can you beat it?"

The Course in Laboratory Diagnosis and Applied Therapeutics at the University of Minnesota originally announced for the week of October 12-17, will be given October 5-10.

Dr. G. G. Mueller, a 1924 graduate of the Medical School of the University of Minnesota, who took his internship work at Ancker Hospital, St. Paul, has begun practice in Windom.

The new unit to be added to the North Dakota Tuberculosis Sanatorium at Dunseith, will be three stories high and 63x123 feet in size. It will cost \$40,000 and will house forty patients.

Dr. George E. McCann, formerly of Olivia (Minn.) but now medical examiner with the U. S. Fargo regional Veterans' Bureau, has been transferred to Hospital No. 37 at Waukesha, Wis.

Dr. H. E. French, Dean of the Medical Department of the University of North Dakota, is spending his sabbatical year vacation at the School of Medicine of the University of Pennsylvania.

Dr. Gordon C. McRae, of Duluth, was married last week to Miss Margery McCullough, of

Minneapolis. Dr. McRae graduated from the Medical School of the University of Minnesota in the class of '23.

Dr. A. M. Bessesen, of Minneapolis, was married on Sept. 3, to Miss Eva Matson, also of Minneapolis. Dr. Bessesen graduated from the Medical School of the University of Minnesota in the class of '22.

Dr. Robert Guilmette has purchased the practice of Dr. O. A. Kibbe, at Canton, and Dr. Kibbe has moved to Minneapolis. Dr. Kibbe is a graduate of the Medical School of the University of Minnesota, class of '05.

Dr. H. E. Michelson, of Minneapolis, has been appointed by the Board of Regents to be the Director of the Department of Dermatology and Syphilology at the University of Minnesota, and has just taken up his duties.

Dr. Thomas L. Hawkins, who has been associated with Dr. E. A. Johnston in the practice of medicine and surgery in Helena, Mont., for a number of years, has formed a partnership with Dr. John G. Thompson, of Helena.

The St. Louis County Public Health Association maintained a health camp near Floodwood last month for undernourished boys and girls, and the improvement in both the boys and girls in the camp was remarkable.

Dr. A. F. Hammergren, of Harvey, N. D., and Dr. R. C. Rasmussen, of Drake, N. D., have organized a clinic at Harvey. Suitable rooms for offices, a laboratory, x-ray and other apparatus, and a pharmacist, have been prepared.

The Minnesota Academy of Medicine held its annual meeting last week, when the following officers were elected: President-elect, Dr. Henry L. Ulrich, Minneapolis; vice-president, Dr. Frank E. Burch, St. Paul; secretary, Dr. J. L. Hynes, Minneapolis.

The Richland County (N. D.) Medical Society held its annual meeting at Wahpeton, N. D., last month, when the following officers for 1925 were elected: President, Dr. D. E. Ryan, Hankinson; vice-president, Dr. W. M. Lancaster, Wahpeton; secretary, Dr. W. E. G. Lancaster, Abercrombie.

Dr. Chester J. Olson, a 1924 graduate of the Medical School of the University of Minnesota, who recently finished two years of internship work in the Winchester County Hospital of New York and the Swedish Hospital of Minneapolis, has become associated with Dr. F. J. Von Bohland, of Belle Plaine.

Dr. K. K. Sherwood, a 1925 graduate in medicine at the University of Minnesota, and now doing his internship work at the University Hospital, was married the last of August to Miss Ruth Gullette, of Minneapolis. The wedding took place when Dr. Sherwood was confined to bed by a recent operation.

Dr. A. H. Bollenbach, who has practiced in Faribault for seventeen years, has gone to California to live, and has located in Los Angeles. Dr. Paul F. Meyer, who has been associated with Dr. Von Bohland, of Belle Plaine, for a couple of years and has just moved to Faribault to do special work, will occupy Dr. Bollenbach's old office.

The appointment of Dr. J. J. McKinnon, Wadena, as Superintendent of the Fair Oaks Lodge Tuberculosis Sanatorium, has been confirmed by the State Board of Control, and the bitter fight waged for the past two years against Dr. McKinnon has been dropped. Dr. McKinnon won his way to success in his work at the Sanatorium by sheer ability.

The annual meeting of The American Dietetic Association will be held in Chicago, at the Edgewater Beach Hotel, October 12, 13, 14, 15. The program which is being arranged by Dr. Kate Daum, of New York, aims to cover the varied activities of the Association so that all who are concerned with the food problem in any of its phases will find something of special interest to them.

The Camp Release District Medical Society held its annual meeting last month at Redwood Falls. Dr. W. H. Hengstler, of St. Paul; Dr. J. M. Hayes, of Minneapolis; Dr. F. H. Aldrich, of Belview, and Dr. E. A. Meyerding, of St. Paul, presented papers. Officers were elected as follows: President, Dr. L. G. Smith, Montevideo; vice-president, Dr. A. A. Passer; secretary, Dr. LeRoy J. Holmberg, Canby.

The Glen Lake (Hennepin County) Tuberculosis Sanatorium now has a capacity of 600 beds and has 92 patients on the waiting list. To relieve the crowded condition at the Sanatorium an out-patient department has been established. Dr. H. S. Boquist of the Sanatorium staff will supervise the work of the new department. Visiting and County Public Health nurses will cooperate in the home care of the children.

Dr. Frederick W. Maercklein, of Oakes, N. D., died suddenly a few days ago at the age of 50. Dr. Maercklein was a graduate of the Mil-

waukee Medical College (class of '97), and he began practice in North Dakota immediately after graduation. He practiced in Kulm and Ashley for some years, and moved to Oakes in 1906, having purchased, with his brother Dr. Ivan R. Maercklein, the Oakes Hospital. Surgery was his specialty, but he stood high in his profession as a general practitioner. He was a member of several medical societies, including his local and state organizations.

The Northern Minnesota Medical Association held a very successful two-day meeting at Brainerd last month. A fine program, an efficient president, and a hustling local committee will always get up a good meeting. Dr. Tuohy's presidential address was full of wise counsel to medical men; and the local committee, Drs. J. A. Thabes and R. A. Beise, made the general entertainment enjoyable to all. The following officers were elected: President, Dr. O. J. Hagen, Moorhead; vice-president, Dr. O. V. Johnson, Sebeka; secretary-treasurer, Dr. F. J. Hirschboeck, Duluth. A vote of thanks was extended to the retiring president, Dr. E. L. Tuohy, of Duluth, and the retiring secretary, Dr. W. W. Will, of Bertha.

A Second-Hand Optical Trial Set Wanted

Set must be in good condition and the price moderate. Give full particulars. Address 279, care of this office.

Minneapolis Offices for Physician and Dentists

At 2400 Hennepin Ave., front rooms on second floor, steam heat, electric light, etc. Very desirable offices at very low rental. Call at corner store or telephone Kenwood 0060.

Locum Tenens Wanted

In a Minnesota village for several weeks with a view to larger employment. In a German community, but not necessary to speak German. Address 289, care of this office.

Minneapolis Office for Rent

Physician's office for rent with or without equipment including white enamel instrument cabinet, examination table, roll-top desk, etc. 404 La Salle Bldg., or telephone Main 2538.

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A 1923 graduate of a Class A school desires an assistantship to a good general practitioner or small clinic until April 1, 1926, when he is to enter a large clinic. Address 287, care of this office.

Practice for Sale

An old-established unopposed general practice in Northeast North Dakota. Plenty of work and good pay. Good residence, completely modern. Moving to the city. Terms very reasonable. Address 286, care of this office.

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Good opening for doctor in good country town. Good Scandinavian community. Nearest competition 10 miles. Three closeby towns without doctor. T. T. Sundal, Druggist, Hills, Minn.

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In central part of Minnesota in a very rich territory. Fine village of 500 people. Good schools and modern improvements in village. A splendid opening. Address 251, care of this office.

Position Wanted as X-Ray and Laboratory Technician

By a young man with university education and over two years in present position in such work, near Chicago. Desires position in the Twin Cities or vicinity. Address 270, care of this office.

Laboratory and X-ray Technician wants Position

Applicant is an undergraduate nurse with hospital experience of one year in a high-grade small hospital. Will give faithful service. Best of references. Age, 27. Address 276, care of this office.

Laboratory and X-Ray Technician Wants Position

Can do Wassermanns, blood chemistry, blood counts, spinal fluids, gastrics, feces, basal metabolism, etc.; also x-ray work; a graduate nurse. Prefer location in Twin Cities. Address 282, care of this office.

St. Paul Office Wanted

An Eye, Ear, Nose and Throat man wants to share office rooms in St. Paul. Would sublet from established surgeon, general practitioner, group, etc. Experienced and in good standing. Address 288, care of this office.

Desirable Minneapolis Office for Rent

At 26th and Central Avenues N. E., over a well-patronized drugstore. Offices modern and in a fine location for a doctor and a dentist. For full information telephone Dinsmore 0522, or address 269, care of this office.

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For eight or nine months from about September 15, in a South Dakota town of 275 population. Good roads and good crops and fine people. Well-equipped man can do well. Address for particulars 271, care of this office.

For Sale

Complete drug store with building in Northern Minnesota town. Large territory; no competition. Excellent place for physician who is a registered druggist. Reason for selling, poor health. Address 239, care of this office.

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Over drug store, corner of Penn Ave. and Fiftieth St. at end of the Oak and Harriet car line. Location unsurpassed. District growing rapidly. Dentist across the hall. Nearest physician nearly one mile. Rent, \$35 a month with heat. Inquire at Rood's Pharmacy, 2300 West 50th St. (telephone Walnut 2413), or telephone to owner, Hyland 3129.

Assistant Wanted

Assistant to Eye, Ear, Nose, and Throat firm in Middle West. Young man who has had some experience and will remain at least a year. Send credentials, photograph and amount expected. Address 272, care of this office.

Office Position Wanted

Position in physician's office by a registered nurse. Seven years experience. Can keep books and manage office. Either call Atlantic 3380 or write to Helen J. Cribb, care of Dr. R. E. Farr, 306 Physicians and Surgeons Bldg., Minneapolis.

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The general practice, surgical instruments, and office equipment of a recently deceased physician are offered for sale. City in Minnesota of 12,000 population and near the Twin Cities. An exceptional opportunity. Address 284, care of this office.

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A young man capable and desirous of advancement is wanted for temporary or permanent position with a clinical group in a good Minnesota town. A future for the right man. State experience, ability, nationality and salary expected. Address 283, care of this office.

Physician Wanted

To locate in a good neighborhood in Minneapolis. A suitable suite of rooms adjoining dentist's office with general waiting room above a corner drug store in an up-to-date brick building. Address Chicago Avenue Pharmacy, 3757 Chicago Ave. or telephone Colfax 0906, Minneapolis.

Laboratory Position Wanted

Well trained graduate technician wants position in a hospital or clinic. Capable of doing all routine laboratory work including blood counts, urinalysis, Wassermann, blood chemistry, differentiating and culturing of bacteria, preparation of antogenous vaccines, milk and water analysis, and all clinical microscopy. Available at once. Address 265, care of this office.

For Sale

Late Type 120 Kilovolt Acme International X-ray Generator complete with Filament Control for 220 Volt Alternating Current. Also Acme International Combined Radiographic Fluoroscopic Table for both horizontal and vertical fluoroscopy. Two Coolidge Tubes. Complete Dark Room Equipment. Also have some office equipment to sell. Splendid buy for someone who is just installing an x-ray department. Address 273, care of this office.

(Continued from page 453)

"Internal Fixation in Fractures" by E. L. Eliason and Dury Hinton has been well covered. They give the results of treatment in various hospitals by different men, covering a period of fourteen years. Indications and contra-indications are very well covered, as well as a number of essential points in the successful treatment of this type of injuries and causes of the bad results in this type of treatment.

"Fracture of the Lumbar Spine" by Carl DeCosta has been quite thoroughly reviewed. He emphasizes the importance of immediate thorough examination at once, if possible, and believes in early laminectomy in cord injuries, especially if only a partial lesion. There is no question but that the mortality is higher in early operation, but both early and late surgical interference have their supporters. However, good surgical judgment has been expressed throughout this paper.

ARTHUR F. BRATRUD, M.D.

OPERATIVE SURGERY. By J. Shelton Horsley, M.D., F.A.C.S. Attending Surgeon, St. Elizabeth's Hospital, Richmond, Va. With 666 original illustrations by Miss Helen Lorraine. St. Louis: The C. V. Mosby Company. 1924. 2nd ed. 784p. Price \$12.50.

This book, which may be used profitably as a handy reference volume in operative surgery, is really a collection of data which the author collected in his cases. Its usefulness is emphasized because the author remembers and discusses surgical technique and also the underlying biologic principles concerning the organs. Thus, in concluding his first chapter, which is devoted to general considerations, he states that "real progress in surgery lies, not so much in cultivating the art of surgery and in striving after mechanical dexterity, which is important, but can be acquired in a few years, as in the study of biologic principles that concern function, nutrition, metabolism, and repair of tissues, and in the thoughtful application of these principles to every operation and every method of surgical treatment."

The author has diffused in the book his own conception and interpretation of various physiologic principles concerning several states and organs. Being unusually interested in blood vessel surgery Horsley uses at least eighty pages in the discussion of this phase of surgery. He devotes a whole chapter to reversal of circulation and proves that Carrel and Guthrie's work is not well founded.

A considerable portion of the book is devoted to the discussion of plastic and maxillofacial surgery. Gastro-intestinal surgery is given its share, just as is thoracic and mammary gland surgery. Operative procedures on the skull, the brain, the spinal cord, and the peripheral nerves are discussed briefly, but in a very interesting manner. Throughout the whole book the subject matter is well illustrated, making the descriptions quite vivid.

Horsley brings this edition up to date by describing eight new procedures now in vogue, namely Costain's lymphaticostomy, Stookey's operation for innervating paralyzed muscles, Finney's pylorotomy, Graham's lobectomy, Cutler's valvotomy, Coffey and Brown's sympathectomy for angina pectoris, Frazier's cordotomy, and Kerr's intestinal resection. A few fundamental facts relative to treatment of malignant tumors from the point of view of metastasis are included and may prove of some value to the reader. The author is to be congratulated for emphasizing the one great point in surgery, namely, the development of the proper surgical conscience, even at the expense of operative dexterity. After all, the patients needing surgical interference need less operating and more surgery.

MINAS JOANNIDES, M.D.

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MORBID ATTRIBUTES AND BELIEFS*

By C. MACFIE CAMPBELL, M.D.

Professor of Psychiatry, Harvard University, School of Medicine

CAMBRIDGE, MASSACHUSETTS

REPORTED

By E. L. TUOHY, M.D.

DULUTH, MINNESOTA

(These notes were redrafted from rougher ones made in the course of Prof. Campbell's rapid-fire lectures. Some inaccuracies may have unconsciously crept in, and if so the pardon of the inspiring and fluent philosophical doctor is craved. E. L. T.)

Our personalities are our reactions, or the results of our reactions, to the general demands of social life. Some sort of harmony must exist between our conflicting tendencies; balance must be maintained. Each individual has his own capacity, restrictions, and attitude—these become his personality pattern and are strikingly and intimately a part of him.

Many people seem to find their whole life's program awry. Many fields of perverted thought become a very gross portion of the field they cover. Very early experiences in childhood are likely to frame the thought tendencies or direction that in a measure suggest a fulminating reaction of the body similar to known physical reactions, the result of early protein sensitization. As these reactions occur at critical periods of life—adolescent and post-adolescent, for example—the reaction may break down an otherwise orderly existence, and is in a sense evidence of "mental anaphylactic reaction."

"Out of the reservoirs of disturbing emotions" flood out fear, disgust, remorse. The woman, for example, who spent her whole time washing her hands constantly lest the contaminations

thereon should finally engulf her, was really using this only symbolically for a sense of filthiness that arose from her own perverted mental response to the idea of filth in general. Much intellectualism and religiosity are like reactions. Artistry in general is only a desire to get away from that which to many people is crude and abhorrent. Out of this growth arises the artistic temperament.

COPING WITH LIFE'S PROBLEMS

This becomes to all thoughtful folk, of course, a great test. Those who do it well secure a sense of satisfaction; for those less qualified come the situations out of which the psychoneurotics arise. The ability to meet failure graciously, and ascribe this failure to its correct source, is often a supreme test of stability, as well as efficiency.

PARENTS AND CHILDREN

Many a child improperly started develops a series of tantrums or like emotional explosions simply to gain his ends. Carry this into adult life, and it breeds an embittered attitude toward society where the individual finds that the parental attitude is not forthcoming, and the fusillade of criticism, instead of establishing a correction, breeds an incongruous pessimist, seeking retribution upon society for that which is fundamentally his own fault.

*Presented before the Postgraduate Assembly at Milwaukee, Wis., October 27-31, 1924.

On the one hand, over-repressed children may become submissive, dominating personalities having taken away from them their latent but never developed faculties. The attitude and outlook and proportion of spirit is what is passed on to children. In other words, it is not what parents tell their children they should do, but it is the manner in which parents live that vitally directs and influences them. Not a few people never marry because the relationship between them and their parents was of such an intimate nature that they could not think of such intimacy with anyone else. Or, having accumulated dispositions so odd and peculiar, nobody else would stand for them. Parents, denied certain of their longings, frequently attempt to project into the lives of their children that which they did not have themselves. It is impossible and improper for parents to live the lives of their children for them. Children taking care of invalid parents frequently carry an attachment into the later days of their separation that induces them to marry invalids or take up a life of the same sort, because of their unnatural attachment to the idea that others are relying upon them.

CHARACTER AND AUTHORITY

Certain folks develop an absolute antagonism to authority. They become heterodox in politics, religion, and thought. These are our exaggerated individuals who find this attitude singularly inappropriate in adult life, and they often wonder why they secure so much opposition. Immortality may be stated to be craved by everybody. This is the reason for the wish of parents to see done in the lives of their children that which they were unable to do. They wish their children to be a second edition of themselves. We see insistence on the getting of an education where the parent was rather short in that regard; indulgence of all sorts, all out of proportion to the best interests of the children involved.

Those with abnormal sexual experiences are so apt to hover about their children with the intention of saving them any such calamity that often that which should be allowed to develop naturally and spontaneously is exaggerated into a disproportioned picture that renders normal living most difficult. A very plain woman, unhappy because she is less masterful than a dignified and handsome husband who had a fine college education, was getting retribution in the fact that her daughter was to get the best education available. The latter, in the course of her studies and mental perigrinations hit upon the Darwinian doctrine and associated theories

of heredity, and thus ruined the poor mother. It was so unkind to tell her that her daughter was not really a distinct part of her!

THE INFERIORITY COMPLEX

Not all people are able to adapt themselves to their fellows, groups, rivals, not to say antagonists. A feeling of deficiency is often camouflaged by a manner of aggressiveness. Diffidence and uneasiness may be an evidence of sensitivity reaching out after sympathy, understanding, or affection. This may lead to a very awkward behavior. An amateur burglar had a trivial physical disorder that caused his fellows to twit him about it. He, therefore, took on an employment entirely contrary to his natural tendencies, in order to prove to them his essential bravery.

In studying the problem of waywardness in children, this lead must be looked for. Members of certain racial or religious groups that do not happen to be in vogue at the time are likely to suffer in this manner. Entering into life's complexities and competition, personal deficiencies are apt to be minimized and the blame placed subjectively upon society. Some people take up with social work or various uplift movements, not so much because of a cognizance of the world's inequality and faulty alignment, but because these individuals desire to group with those having similar ideas, and this grouping is not always an expression of a love for the purposes they supposedly attain toward, but rather a "herding instinct."

Many people decry dancing and games. On analysis, some of these folk cannot relish them nor do them well; therefore they depreciate them in the opinion of others.

THOUGHTS GUIDED BY WISHES

It is a commonplace to note that trials are transferred into opportunities,—a transcendent scheme of life that makes the commonplace notable. Social adjustments are conjured out of personal beliefs. Many of these may seem intensely morbid, but are simply an expression of the individual's method of seeking satisfaction. Their critical factors at their optimum level may so ineffectually inhibit the unlikely and bizarre as to produce some formulation leading the subject's mentality dangerously near the pathologic. Very keen wishes may be strong enough to explain away any number of physical objections. It is difficult for some particularly well balanced and sturdy folks to understand this until some great loss, by death or otherwise, causes them to become quite detached. At this point some great

religious or spiritual conjuration ensues, which renders the subject capable of spiritual contact or conversation with departed members of the family or friends. (I am reminded, in this instance, of one of my very good friends who after the loss of his wife told me that frequently as he sat in his study in the evening she came into his presence and talked to him! I have frequently noted that this type of man rarely allows his grief or isolation to endure overlong. This is gratifying, because the human craft can only stand a reasonable amount of buffeting from the winds of fate and the waves of disaster. Accordingly, this friend was no exception—he ultimately married twice more before his untimely death cut short his benefactions. He was uncommonly fond of all of his wives.—E. L. T.)

The lecturer closed by stating that it is only by studying ourselves in our inmost reactions that we are better able to understand the borderline folk.

His clinical cases: He referred to insanity as a legal and not a medical appellation,—a condition of any sort of the central nervous system rendering the individual more or less permanently irresponsible for his acts. It would appear that, in his treatment and discussion of these various children, coming on with emotional outbursts, tantrums, and perversions of personality and disorderly conduct, an analysis of the physical and anatomical status stands forth in considerable contrast to an understanding of emotional components and environmental reactions. Often the former set seems particularly undisturbed, although the endocrine imbalance puts out a factor that no one can thoroughly evaluate

at a glance, nor have we any laboratory methods competent to render any greater accuracy. In the other segment of emotional reaction, the keenest analysis of early experiences is essential. These should, however, be reasonably concrete in nature, and not entirely a verbal realm with Freudian projections. Apropos of Freud, he intimated that we should take from all schools their points of view without swallowing their entire theory whole. We should carefully avoid “swallowing whole the theory either of the master or his American representative.”

A girl shown, “absolutely without any demonstrable somatic disease, yet living in a world entirely foreign to our interpretation.”

The most solid fact in medicine “is the complexity of human beings.”

Showed a 40-year-old spinster who appeared to be troubled with matters she didn't understand. She recalled to him “the instance of an unattractive woman at fifty, who lived in constant fear lest a series of young millionaires careering about in fast motor cars should come and grab her off!”

“So, after all, in the light of fundamental life attributes, appetites, and instincts, the problem may even yet be biological.”

As to the slough of sex, into which all these discussions lead, he had the following to say: “Some people live as in a reservoir of unpleasant experience, calling constantly for light, listening ever to the first tinkle of the knell of doom.” “Many a doctor who does not believe in teaching children proper sex education will tell stories in the smoking-room that would bring the blush of shame to the cheek of a gynecologist!”

PREGNANCY IN ABNORMAL SITUATIONS*

BY G. M. WILLIAMSON, M.D., L.R.C.P., AND S. EDIN.

GRAND FORKS, NORTH DAKOTA

A fertilized ovum may become arrested in the Graffian follicle before it leaves the ovary, or in any part of its course, including the abdominal cavity, from the ovary to the uterus, that is, in the fimbriated extremity of the tube, in the tube proper, the interstitial portion of the tube, the cornu of the uterus, the uterus, the lower uterine segment (causing placenta previa), or in the cervix, which is doubtful. The reason why this happens is unknown. There are many theories

but no proof, and it is not necessary at this time to discuss them. When the ovum is implanted outside of the uterine cavity, separation from its attachment similar to abortion is bound to occur.

Pregnancy in abnormal situations is, from a practical point of view, synonymous with tubal pregnancy (in this discussion we will use that term). The dangers of tubal pregnancy are entirely associated with the environment of the ovum. Cases of ovarian pregnancy and pregnancy arising in the fimbriated extremity of the tube do not differ clinically from abdominal

*Presented at the thirty-eighth annual meeting of the North Dakota State Medical Association held at Fargo, N. D., May 18 and 19, 1925.

pregnancy due to breaking away of the living ovum from the tube and its continued growth in the abdominal cavity. When the fertilized ovum is arrested in its passage through the tube and development in this abnormal situation starts there begins a process of erosion in the walls of the tube. If this erosion proceeds slowly and the penetration of the wall of the tube is so gentle that the ovum bulges through it without its amnion being ruptured or its placenta becoming detached the fetus may continue to develop to full term.

There are two routes by which the ovum may erode out of the tube, one into the peritoneal cavity, and the other into the broad ligament. It seldom happens that the tube erodes in such a manner, and the ovum escapes to either of these situations that serious and alarming symptoms do not occur, because running in the muscular walls of the tube are numerous vessels, and it is the erosion of these by the developing ovum and the thinning of the muscular coat by destruction and distension that constitute the chief danger, that is, hemorrhage.

In ovarian pregnancy the ovum, having become fertilized in the follicle, grafts on its wall and burrowing into the ovarian substance, proceeds to develop there. As the gestation grows the ovary becomes expanded over it and it may develop to viability, more commonly the gestation sac ruptures, and symptoms of acute abdominal hemorrhage occur. The ovum may develop between the fimbriae of the tube and the ovary; the sac usually ruptures with the attendant consequences. It is possible, however, to see development of the fetus to maturity.

Primary abdominal pregnancy is very rare, in fact some authorities deny its occurrence. I saw one with a colleague where the ovum was attached to omentum and a portion of the mesentery about six inches from the ileocecal valve. The tube was normal and intact as was the fimbriated extremity. We made a diagnosis of intraperitoneal hemorrhage due to a ruptured extra-uterine pregnancy. On opening the abdomen we found it filled with blood, and we located the point from which came the bleeding, which was as above stated. There was considerable embryonic attachment to the mesentery and omentum. We removed what portion we could after controlling the hemorrhage by mattress sutures. The patient made a good recovery.

When pregnancy occurs in the interstitial portion of the tube the ovum develops in the uterine wall; the inner side of the sac may project into the uterine cavity; on the outer side is the round

ligament and tube. The usual termination of this kind of pregnancy is rupture into the peritoneal cavity, or the fetus surrounded by its membranes may protrude into the broad ligament and continue to develop there. As gestation proceeds a secondary erosion through the broad ligament into the peritoneal cavity may occur. No vessels of importance having been torn across, pregnancy may continue to term. The sac will be composed partly by broad ligament and peritoneal adhesions. I shall draw attention to this point later in a case-report.

Symptoms—Pregnancy in abnormal situations in the early weeks or months before rupture of the gestation sac does not give rise to other symptoms than those of early pregnancy. In the vast majority of cases, however, rupture is preceded by severe cramp-like pains, and there may be a discharge of blood or a deciduous membrane.

Pain of extra-uterine pregnancy is very distinctive, occurs in paroxysms with intervals free from suffering, appearing any time from a few days to several weeks after a normal menstruation, referred to the lower abdomen, extending down the leg or up to the epigastrium. It may be so severe as to cause syncope, nausea and vomiting, and every appearance of shock. There is usually a slight elevation of temperature, and the general health may be impaired. There may be a history of amenorrhea, perhaps morning sickness, tenderness, and swelling of the breasts, and a certain amount of pain in the lower abdomen on one side or the other coming on suddenly without apparent cause. The cervix may be soft and bluish, and examination per vaginam may disclose a tender swelling involving a tube.

Again, without any warning a patient may be seized with a very acute pain and faintness, and in a short time show all the typical signs of intraperitoneal hemorrhage. A vaginal examination at this time causes severe pain, but usually no tumor can be felt and the patient is intensely blanched and may be semiconscious.

The diagnosis presents some difficulties especially before rupture of the gestation sac.

The symptoms of pain, internal bleeding, vaginal hemorrhage, and a tender swelling in Douglas' pouch are the salient points in a ruptured ectopic gestation. The pain must not be confounded with that of a twisted pedicle of an ovarian cyst, acute appendicitis, ruptured pyosalpinx, renal colic, biliary colic, or perforation of an abdominal viscus. Internal bleeding and shock must not be confounded.

Internal bleeding of ruptured ectopic origin presents a different picture from that of any

other condition, and once seen is never forgotten. Given a history of a suspected pregnancy in a woman of child-bearing age with a sudden attack of severe abdominal pain, blanched face, soft rapid pulse, subnormal temperature, perhaps vomiting, hiccough, tense abdominal muscles, and a slight vaginal bloody discharge, a ruptured ectopic pregnancy should be thought of at once. There may or may not be felt a swelling in Douglas' pouch, especially soon after rupture takes place; later after blood has settled in the pelvis it is possible; then there are other conditions to consider such as inflammatory disease of the tubes, appendix, ovary or uterine tumor.

If a ruptured ectopic gestation goes on to term, spurious labor begins, no progress is made, no bag of water can be felt presenting. The os remaining contracted, pains may continue for a time then cease. Symptoms and signs of an abdominal tumor will persist, which may cause no pronounced trouble, or, on the other hand, severe inflammation with indications of pus formation demanding surgical interference may present itself, which, if not surgically opened, will find an exit through the abdominal wall, intestine, vagina, bladder, or rectum.

The following case-report will illustrate in part some of the conditions I have mentioned:

Mrs. D., aged 32, housewife, mother of one child, a boy aged 15. Divorced, remarried. She came to my office for examination June 7, 1922, complaining of a tumor in the abdomen.

Personal history, negative.

She had the usual diseases of childhood, diphtheria at twenty-six, influenza in 1918, complicated with pneumonia. Uneventful recovery. Menstrual periods began at 14, regular, twenty-eight day type, three-day duration, no pain. Had a miscarriage at third month in 1914.

Physical examination: Normal except large symmetrical tumor in abdomen extending well above the umbilicus, hard and firm; no nodules can be felt. Bimanual examination shows a hard, firm cervix with evidence of slight laceration. A tumor mass can be felt in the upper posterior part of the vagina of a firm, hard fibrous consistency—urine, normal; blood, normal.

Present history: Menstruation was regular until January 21, 1921. She is uncertain regarding the menstrual period in January, but thinks she became pregnant that month, and calculated that she would be confined in October. In March she passed some clots of blood, and thought she was having a miscarriage. Does not remember when she first felt life, but sure there was strong movement in June. Abdomen was very large in July, but did not seem to increase after that month. Began having severe pains in latter part of October and passed a large quantity of water from the vagina at that time.

At this time I would like to read a portion of a letter from the local physician who saw this patient at that time:

"The husband engaged me to take care of her when she was to be confined. One night the latter part of October he came after me telling me that she would have a baby in a few minutes, and urged me to leave my supper and go with him. I made a vaginal examination and found the cervix completely closed. I gave her a $\frac{1}{4}$ grain morphia and went home thinking that she was having false pains. Didn't hear from her again for three or four months, when I was called to their home for the purpose of examining her, though she was feeling pretty good. I believed then that she had an ovarian cyst and referred her to you."

Then a bloody discharge continued for about twenty-two days, pains ceased and she began to feel better the latter part of November and improved from that time on. She had not been able to leave her home between November first and Christmas; felt well at Christmas. Menstruated normally in January and had regular monthly periods since that time; last period ended June 2d.

At the present time she is feeling well, eats and sleeps well, and has no pain whatever. X-ray examination shows the bony skeleton of a fetal head in the upper right quadrant of the abdomen. The pelvis, bones and legs at the superior strait of the pelvis.

Diagnosis: Missed labor with the fetus extra-uterine. Death of fetus occurred in October, 1921.

While the tumor in the abdomen was symmetrical in every respect, bimanual examination was negative so far as determining whether the fetus was intra- or extra-uterine.

The fact that menstruation was regular and normal for the past five months seemed to point to the pregnancy being extra-uterine or with a slight possibility of it being in one horn of a bicornate uterus.

The patient was advised that an operation for removal of the dead fetus was necessary, and she prepared for the operation, which was done June 9, under ether.

The abdomen was opened by a median incision extending from the pubes well above and to the left of the umbilicus. Parietal peritoneum was not adherent; a large hard, firm, smooth tumor resembling fundus of pregnant uterus came into view. On the upper right side of the tumor was a white spot about two inches in diameter. The right side of the tumor was smooth; no adhesions; low down in the pelvis on the right side could be felt a hard firm nodular mass like a fibroid which proved to be the uterus. The tumor could be rotated towards the left side, the bowels and visceral peritoneum were adherent to the posterior surface low down. The tumor mass on the left side shelved off, filling the entire left side of the pelvis and hypochondrium.

Further examination revealed an ovarian cyst on the right side, which was delivered unruptured through the abdominal wound. The pedicle was clamped and the cyst removed. The cyst contained 750 c.c. of clear fluid. An attempt was then made to deliver the tumor mass through the abdominal opening, but this was not possible on account of adhesions. After careful packing with gauze behind and on both sides of the tumor, it was opened, and a dead fetus in a fairly good state of preservation was delivered. The inner side of the tumor was covered with stringy-like mass (the placenta),

which could not be peeled off. As it was impossible to separate the tumor sack from the uterus and the adnexa of the left side it was decided to do a partial hysterectomy. This proved very satisfactory as after amputation of the uterus it was possible to get beneath the tumor sack and dissect it out very easily. The only part which was troublesome was on the posterior surface where the bowels were adherent.

The abdomen was closed; two cigarette drains and a rubber tube were placed well down in the pelvis projecting through the abdominal wound.

The patient, with the exception of a bronchial irritation for three days, the effects of the ether anesthetic, made an uneventful recovery.

The fetus, as has been said, was in a fair state of preservation being semimummified. It weighed 1,568 grams, measured 44 cm. long and 28 cm. around the chest. The ovarian cyst weighed about 1,000 grams.

Evidently this was a case of left interstitial pregnancy, which had ruptured between the folds of the broad ligament. This occurred in March when she thought a miscarriage was taking place; sometime later it eroded its way into the abdominal cavity, where development continued, and in the latter part of October nature was endeavoring to expel the fetus as evidenced by pain and bloody discharge.

Judging from the condition of the patient and the fetus on removal, this fetus might have remained in the abdomen indefinitely without causing much disturbance.

REPORT FROM THE PATHOLOGICAL LABORATORY
OF THE UNIVERSITY OF NORTH DAKOTA

"The fetus appears completely developed, and weights 1,568 grams. It is 44 cm. long and 28 cm. around the chest. The skin is white and appears wrinkled as in the beginning of mummification. There are no traces of congenital diseases, such as syphilis, and no signs of putrefaction or suppuration. In consequence of the pressure and the beginning of mummification, the bones of the head are slightly narrowed and the fontanels are reduced in size.

"The history shows that the fetus came from the abdomen, having been found in the broad ligament of the right side of the uterus. The pregnancy began in January, 1921, and the fetus was removed on June 9, 1922.

"This is plainly a case of extra-uterine pregnancy, which has permitted the normal development of the fetus until it died as a consequence of a spurious labor. The fluids of the membranes then underwent absorption, and the fetus began to mummify. This process was interrupted by the operation."

If a diagnosis is made before rupture of the sac operate at once; if rupture occurs any time during the first five months immediate operation is best. There may be a difference of opinion on this point. Some surgeons hold that, if there are no alarming symptoms following rupture, in all probability the fetus will be dead, and the blood already effused will be absorbed, but there is no assurance that this will be so and after the pa-

tient has been in bed for weeks the hemocele may suppurate, or during the process of absorption the healthy tube may become involved and destroyed in a mass of adhesions.

In the acute fulminating cases prompt surgical measures are productive of the best results. Time is an important factor in handling these cases after opening the abdomen; quick action in locating and controlling the hemorrhage is important; it is best to remove the ruptured tube preserving the ovary if possible; clots should be cleared out of the abdomen.

So far as I can learn statistics favor early operation as the proper method of procedure in these cases. That has been our practice and has proven eminently satisfactory.

When gestation has advanced to beyond the sixth month without causing urgent symptoms it is safest to let the patient alone in the hope that, sooner or later, the child will die, after which its removal is comparatively easy. If the child dies and there are no urgent symptoms calling for interference, it is best to wait eight or ten weeks before attempting removal. During that time the placental vessels become thrombosed, and the operation is much safer.

Operative treatment of these cases after the sixth month is beset with the greatest difficulties. No single surgeon has had sufficient experience in handling them to warrant generalizing, and conditions must be met and dealt with as they present themselves.

Should spurious labor begin and the child is alive the services of a skilled surgeon should be procured, and its removal attempted; the operation has been successful, but usually the mortality is great.

DISCUSSION

Dr. W. W. Wood (Jamestown): Dr Williamson's paper has quite completely covered the subject, and I do not think I have anything new to add, but I would like to report a case or two that I have seen.

A woman of twenty-five or thirty who had had one or two children came to me with the history that she thought she was seven or seven-and-a-half months pregnant. The symptoms of pregnancy continued for three months. During the last three or four months she had not been feeling well, but all the symptoms of pregnancy had disappeared, except that there was only a very slight recurrence of the menstrual flow. She came complaining of the usual symptoms that go with a dead fetus.

Upon examination a diagnosis was made of a retention of the dead products of conception in the uterus, but after putting her to sleep she was again examined vaginally, and the diagnosis was changed to that of ectopic pregnancy. She had an ovoid mass about the size of a three-and-a-half months pregnancy and about that shape. Upon

opening the abdomen a perfectly normal, or perhaps a little smaller than normal, uterus was found. To the left of the pelvis was the large, ovoid mass, with quite definite walls, and the Fallopian tube of that side leading directly to it and spreading out over the mass. On the other side of the mass there was no attachment at all of the tube to the uterus. The mass was removed with the tube and contained a dried mummified fetus of about three or possibly three-and-a-half months.

The interesting point about it was the probable course of the impregnated ovum, which was in the blind end of the tube and must have come either from the tube on the other side or by internal migration into the left tube.

Some eighteen years ago I saw an abdominal pregnancy of about seven months' duration. I was an interne at the time. In that case the placenta was implanted on the posterior wall of the uterus and the broad ligament. The fetus was alive at the time they operated, but while they removed the fetus, membranes and all, the patient died from shock and hemorrhage.

I had an experience with an ovarian pregnancy a couple of years ago. The patient was a girl of eighteen, unmarried, who had been exposed to the possibility of pregnancy. She had missed one period, and the next did not appear so she became worried and told her mother, and I was called in to examine her. She had no nausea or vomiting, but there was some tenderness and enlargement of the breasts.

Examination showed practically a normal uterus, perhaps a little bit larger and softer than normal, but on the right side was a mass the size of a fair-sized orange. As soon as I attempted to get it between my fingers and examine it, it ruptured under my fingers. A diagnosis was made of a probably ovarian pregnancy. The girl was at once taken to the hospital, and this proved to be the case. The pregnancy was entirely in the ovary. We sent the

specimen up to Grand Forks, and the laboratory reported it an ovarian pregnancy.

DR. L. B. GREENE (Edgeley): Looking at this matter from the standpoint of a country practitioner, he sees probably very few of these cases. He may see several within a short time and no more for several years. The main point to me seems to be the necessity for immediate diagnosis. Practically all of the cases he sees are those that have ruptured. He has no idea of the diagnosis, not having seen the patient before, but in my experience there are three points in the diagnosis that should show what the condition is and enable the physician to make an accurate differential diagnosis.

The first point is the pain of the ruptured ectopic pregnancy, that particular type which starts in the pelvis, possibly a lancinating pain, but not always. Probably by the time the doctor is called the character of the pain has changed and the patient is complaining of pain under the diaphragm, due to pressure from free hemorrhage into the peritoneal cavity.

The second symptom is blanching of the face, the mucous membranes, and the fingers; and the third symptom is the excessive thirst of the patient. I have never seen a case of ruptured ectopic pregnancy that the patient did not complain of great thirst.

While one may make a mistake and diagnose an acute appendicitis as an ectopic pregnancy, I do not believe one will diagnose a ruptured ectopic pregnancy as anything else.

DR. WILLIAMSON (closing): In the case reported by Dr. Wood of the seven months' ectopic pregnancy that was operated on I feel that it would have been better to leave the case alone if there were no urgent symptoms at that time.

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NUTRITION AND FUTURE DEVELOPMENT*

BY ROBERT H. RAY, B.A., M.D.

GARRISON, NORTH DAKOTA

Many interesting things have arisen in the problem of nutrition since the ideas on infant feeding have changed from a question of pathology to the knowledge that the food constituents are responsible for most of the changes in the growing child.

If one were to build a house, the foundation would be well constructed in order that the house should be long-lived. The same thing applies to the human race. The foundation of a well child, physically and mentally, is that of proper feeding. Probably hereditary defects are not so much

a factor in a child's development as the unbalanced diet that it receives.

A general observation of breast-fed babies shows a considerable proportion who are not doing as well as a normal baby should do, and have slight evidences of malnutrition. We have assumed that mother's milk is always, or nearly always, the same, and that infants should thrive perfectly on it. Experimental work on rats and other animals where unbalanced diets have been given, shows a difference in the growth of the nursing young, in contrast to a well-balanced diet given the mother. Philippine mothers have been shown to be unable to produce water soluble "B" when this factor was deficient in their

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own diet. Their offspring died from beriberi.

The limited diet of the negro tenement mothers in large cities, who are confined to seed products, pork, tubers, and roots, invariably causes rickets to appear in all their nursing infants. It is not unreasonable, then, to assume that we can have minor degrees of malnutrition with breast-fed babies, also that the proper gain in growth does not come as early as it should. The same thing applies more especially to the artificially fed babies.

The first thing from a pathological view point that occurs in malnutrition is susceptibility to growth of lymphoid tissue, such as tonsils, adenoids, and lymph glands. Babies on a carbohydrate diet in excess of growth needs, impress me as much more likely to have this condition.

It is easy to give children carbohydrates because they easily acquire a taste for them and they may develop a dislike for the other kinds of food. A tendency to growth of lymphoid tissue with the focal infections that follow are the forerunners of otitis media, spinal meningitis, rheumatism, bronchitis, and appendicitis.

A further condition arising from an excessive sugar diet would be intestinal fermentation, irregularity of the bowels, with a probable tendency to hyperacidity and increased peristalsis.

Then we have the pale baby, somewhat flabby and fat, with enlarged spleen and liver and possibly a change in the pancreas. In time these organs may again become normal in size. Is it not possible that some intrinsically bad effect remains, causing such a pancreas to be the chief factor of a future diabetes or the spleen of some future blood malady? Possibly the internal secretory glands, as a result likewise of malnutrition, become more sensitive to changes which we consider under the head of pluriglandular deficiencies.

Another phase or condition in malnutrition in childhood is a mechanical one. These children have a flabby, toneless muscular development, growth not commensurate with the age of the child, and very much underweight. They tire more easily and are not so enthusiastic or full of vim in their play. They may not, however, complain of anything, and may enjoy reasonable good health. It has been shown that many of these children in later life form a large part of the women in ill-health, with enteroptosis, floating kidneys, and general lack of stamina to withstand the trials of motherhood. Cases of visceroptosis and drop-heart in the male may have a similar early cause. These cases seldom reach

complete physical development of stature and of mentality.

I have always been interested in a family in my own practice where the eldest born, a boy, was allowed a great deal of candy, peanuts, etc. This child was constantly having trouble. His growth was not commensurate with his age between six and twelve. His younger sister was not allowed these things, and her growth at this period indicated a gain of about two years over that of her brother.

Another phase is the dislike created during childhood for the essential or protective foods. This can be brought about through unbalanced diets. These cases number the ones who have food idiosyncrasies due in part to anaphylaxis. They make up the victims of urticaria, asthma, eczema, hay fever, etc. As a result of this long-continued diet of carbohydrates, especially sugar, we have the way paved for the metabolic disorders of middle life.

I would like to call attention to the deficiency in calcium salts in these cases. We find calcium lactate and chloride recommended in books on therapeutics for urticaria, bronchial asthma, etc. Another condition which at its inception is probably much influenced by improper diet is tuberculosis. Authorities tell us that the people living in cities or localities where milk is a limited part of the dietary are the most susceptible to this disease. Sanatoriums are being conducted with milk and cream as the basis of treatment. One authority tells us that by the use of milk alone more and better blood can be made faster than by any other method known to him. He thinks that the nutrition of the other tissues is more certain, and waste is carried away faster than by other types of feeding. He likewise calls attention to the excellent diuretic properties of milk. In addition to tuberculosis, considerable benefit probably is had in chronic rheumatic cases. A few men have insisted that they are getting good results by this treatment in cases that certainly generally give a great deal of trouble.

Other conditions as well, like arteriosclerosis, arthritis deformans, and some nervous disorders, furnish a field for the use of milk. There is some historical basis for the use of milk. The Goths who vanquished the Romans lived chiefly on mare's milk.

Much time has been given to the study of the physically and mentally deficient child. It is not probable that we are going to be able to improve the race by laws restricting marriages of the un-

fit. It is possible, however, that through proper feeding the proportion of physically and mentally fit individuals can be increased. Experimental work on animals has demonstrated very conclusively that fat-soluble A vitamine is very necessary to normal growth. This is not found as liberally anywhere as in milk or butter. In fact, no fat, whether vegetable or animal, could take the place of butter for normal growth in experimental work. This work also showed the large place the leafy vegetables occupy in proper nutrition. The elements fat-soluble A, water soluble B vitamine, together with some mineral elements, calcium chlorine and sodium, and also proteins, are the things that are particularly found in these two classes of food. Without the use of milk it would be difficult to secure these in large enough amount. These substances are classified as our protective foods. Particular stress must be laid on milk.

The adequate presence of vitamins in food is not a question of great concern, as they are seldom deficient in our every-day diet. In this country our general diets consist of cereals and meat. These two principal parts of our diet are lacking in inorganic salts. These must be supplied in other ways. Calcium is generally lacking unless furnished by some of the protective foods. Milk furnishes the most adequate supply. Our leafy vegetable products are better chemical foods than the seeds. It is an observation of nature that carnivorous animals eat organs, such as liver, entrails, etc., in preference to skeletal muscles, thus indicating that these things supply their needs best. It has long been known that cows must be properly fed in order to give a qualitatively good milk supply.

Instruction of the public in the way of proper feeding and proper food elements should be as elementary and simple as possible. In order that milk be given in larger quantities, urge the making of bread with milk, the cooking of cabbage and onions with milk or cream, as they belong to the leafy group and are more palatable prepared that way than some of the other vegetables. Many people, especially children, do not like spinach or greens.

The leafy vegetable group comprise cabbage, cauliflower, Swiss chard, collards, Brussel sprouts, onions, lettuce, celery tops, spinach, turnip tops, etc., from which a variety of salads may be made, or, as stated, combinations with milk or cream. Authorities state that the white race in particular, as a result of a greater use of milk in their dietary, are the people who have attained greater size, greater longevity, are more success-

ful in the rearing of their young, are more aggressive, and have achieved greater things in literature, art and science.

Application of the newer ideas of nutrition will probably result in individuals attaining greater age and retaining much longer their mental powers and their physical well being.

DISCUSSION

DR. F. GREGORY CONNELL (Oshkosh, Wis.): Until we can grasp the facts that the essayist has so clearly set forth, I personally can see no ray of hope for our chronic invalids—gastro-intestinal, neurocirculatory invalids, whose numbers are increasing and becoming a very serious problem for the medical profession. In these cases of chronic invalidism the initial symptoms may arise as the result of malnutrition in infancy.

DR. OTIS H. EPLEY (New Richmond, Wis.): The other day I was looking over some old books that my grandfather had used in his practice, and among them was a book on midwifery, published about 1772 I think, printed with the old wooden type. In it was discussed the quality of the milk a nursing mother should have, incidentally stating that a wet nurse should not be red-headed, rather she should be dark-haired. Among other things the author stated that in testing the milk a drop of it should be placed on the finger-nail, and "if it runneth off rapidly it is too thin, if it standeth up as a globule it is too rich, but if it flatteneth out on the nail it is proper."

The subject of dietetics has been the problem, unperceived by the profession, which has permeated the entire field of medicine. Simply because it deals with infant feeding, it concerns every individual in whom we are and should be interested.

Another fact which has been clearly brought out by the essayist is that a great many of the ailments we have to treat and difficulty in successfully combating are those in which we neglect the one important thing, and that is the diet. In most cases the medicine we give does not cut much figure. In the main our success is due to the exercise of good judgment, and the factor of diet is so important that this paper is very timely.

DR. HERBERT H. LEIBOLD (Parkers Prairie, Minn.): A year and a half ago a friend asked me to advise him as to the best diet for his four children, and I told him to get a good cow and make milk the center of the diet while his children were in the developmental stage. He bought a cow which was presumed to be a good one, but about four months ago he came to me and said that for awhile the cow produced good milk and they were getting wonderful results, when all at once the cow began to get thin and would not eat. A veterinarian called to examine her said she had tuberculosis, and the animal was condemned and killed. The man stated that the children were apparently healthy, that he had been giving special attention to them ever since he had consulted me regarding their diet.

This incident brought home to me the responsibility we assume in giving advice in relation to these matters. The most important part of my advice to him was that the cow should be healthy, and, while there is still a question of human infection from a bovine source, the conclusions relative thereto are quite uncertain, and

infection from this source is surely a possibility. Therefore when thinking of milk, that factor should certainly hold an important place in our consideration. When we recommend milk for the developing individual, we should not only specify milk, but insist that it be clean milk.

DR. J. ARTHUR RIEGEL (St. Croix Falls, Wis.): We have all had occasion in our professional capacity to see and treat children in the first years of their life, a period during which the character of the food given them probably has a greater effect than at any time afterwards. It is most remarkable to find that very few physicians are capable of giving proper instructions to the mother as to what she should feed her baby. I do not think there is any question but that every man here has seen babies that probably at the end of a month or two or three months have lost weight, look thin, dried up, and the mother will tell you that she has tried everything. She probably has tried what two or three medical men have recommended and has found that the child is unable to digest any of those foods.

After graduation I attended the clinics of Dr. Graham, of Philadelphia, and became much interested in the subject of dietetics. During the summer months of two years I had been taking the place of a certain physician in caring for his practice, and in the winter months I was back in Philadelphia taking these clinics. Some of the men who were taking the clinics in the same sections did not think that the subject of dietetics was very important, I could see that they regarded it very lightly. From my limited experience in actual practice I felt that these things were very important. In the case of any normal infant in whose case we could not find anything that would agree with it, and for whom a wet nurse could not be secured, we were supplied with a formula which I believe all of you would find useful in many cases. This formula of course permits quite a wide variation in the amount and kinds of food products employed, but I would like to have you try it in any case wherein you cannot find anything that will agree with the baby:

I usually start them on a quart of fresh milk, getting the evening's milk if possible, and have it put away in a cool place over night. I always briefly write out the instructions for the mother.

One quart of fresh milk put in a cool place for eight hours or more. I usually have them put it in a bowl-shaped dish or perhaps a small butter jar:

Take off the upper 8 oz., which includes the cream and the milk which is the next to the top, stirring it well; then take 5 oz. of this 8 oz. of creamy milk that has been taken from the top;

| | |
|---------------------------|---------|
| Add lime water..... | 1 oz. |
| Skim milk | 1 oz. |
| Sugar of milk..... | 6¾ drs. |
| Water, q.s., to make..... | 20 oz. |

The mother has no way of weighing out 6¾ drams, therefore I get her a little glass and mark out on it the proper amount, and she fills it up to that point.

This is a sufficient quantity to feed the child during twenty-four hours. The mixture should be well stirred and then divided, first scalding bottles and nipples.

QUESTION: How often are the feedings?

DR. RIEGEL: For the first three months every two hours; during the fourth month every two and one-half hours; after four months every three hours.

As to the quantity: Probably the easiest way out is to tell the mother to increase the quantity to the amount which the baby will take at one time. That is, the baby varies somewhat in size, and as it develops it will take a little more.

When the baby wants more than is provided for in this formula, we have started out with 8 oz. of creamy milk, and we can tell her to take 2½ oz. more of it, making up 30 oz. of the mixture, which will increase the quantity by one-half.

In a practice of sixteen years I have never found a baby that could not be fed with this mixture.

DR. ERNEST L. SCHROEDER: What about constipation?

DR. RIEGEL: We have given olive oil in some cases. We usually increase the quantity of cream and put in a little more sugar of milk in the case of a constipated child, when, as a rule, we shall have very little trouble with constipation.

DR. RAY (closing): I want to call your attention to an article which appeared in the *Journal of the A.M.A.* three weeks ago. For the past five years we have all been fed up on the vitamine question, but I thought this particular article was rather interesting. It seems to me that a part of the problem in dietetics is the question of mineral salts in children, and, if that is a problem, it is just as important as any other that we have. Animal experimentation showed that where vitamins and everything else was supplied, but omitting the minerals, myasthenia and rarefication of bone soon developed.

URETERO-URETERAL ANASTOMOSIS: AN EXPERIMENTAL STUDY*

BY MINAS JOANNIDES, M.D. AND CHARLES K. HOLMES, M.D.

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Surgery of the dog's ureter has been quite unsatisfactory because it has been followed by a high mortality. Secondary injury or infection in

the kidney is one of the dreaded complications in ureteral surgery. Injury to kidney usually follows obstruction of the ureter. In the dog, obstruction in the ureter is associated with hydronephrosis. The degree of hydronephrosis is pro-

*From the laboratory of Experimental Surgery, The Medical School, University of Minnesota.

portional to the degree and duration of obstruction in the ureter. The changes that occur in the dog's kidney after obstruction of the ureter have been studied by Corbett,¹ Barney,² Scott,³ and Suzuki.⁴ Scott gives a concise picture of the changes in the kidney parenchyma after complete obstruction of the ureter. He states that the tubules are dilated first, then the convoluted tubules and lastly the glomeruli. There occurs a flattening of the epithelium of the kidney, granular changes of the epithelial cytoplasm, and occasionally breaking of the cell wall.

Surgery of the ureter has been resorted to in two types of clinical cases: first, in cases of bladder exstrophy, and, second, in cases of injury to the ureter. In cases of bladder exstrophy a uretero-rectal anastomosis is the only possible type of an operation that is logical. This operation has been one that was dreaded by everybody because almost all experimental work on the dog resulted unsatisfactorily. Hydronephrosis or infection has been a logical sequence.

Peterson⁵ wrote a very extensive article and collected all cases of uretero-intestinal anastomosis from the literature. More recently, Folsom and Caldwell⁶ report more satisfactory experimental results by the use of the Coffey⁷ technic. In spite of unsatisfactory reports in experimental work apparently the operation is quite successful in clinical cases. C. H. Mayo and Walters⁸ report good results in 35 clinical cases of bladder exstrophy. Folsom⁶ has had a similar experience.

Other types of operation suggested in the literature are Kennedy's⁹ uretero-appendiceal anastomosis in the cases of injury to the right ureter in selected cases. Knowing the common pathology of the appendix, one would prefer either the old standard uretero-rectal anastomosis or a nephrostomy rather than the operation suggested by Kennedy. Kelly¹⁰ reports a case of a woman in whom, during the removal of a myoma of the uterus, he accidentally ligated and cut the ureter. He performed a successful uretero-ureteral anastomosis. Bloodgood¹¹ performed this operation on the dog successfully. Such an operation should be a method of choice if one could have a rigid mechanism for keeping the lumen of the ureter patent until complete healing took place. We attempted, therefore, to unite the severed end of a ureter by means of a ureteral catheter.

The use of mechanical means for bridging over gaps is a very old one. It is this fundamental principle that is the basis of all mechanical drainage regardless of the anatomical location. The famous "Murphy button" could be assumed

to be based on the same principle. Gluck⁵ has joined the stump of the cervical portion of the esophagus to a gastrostomy opening and thus united two hollow organs. Turning to the ureters we find that such means have been tried by Boari¹² and Chalot.¹³ Boari used a button to anastomose the ureter to the rectum. Chalot used a tube to unite the ureter with the rectum. Recently Sullivan¹⁴ and L. L. McArthur¹⁵ used this method to unite the cut ends of the biliary ducts. McArthur and A. Schwyzer¹⁶ report satisfactory clinical results by applying a rubber tube to the cut portion of the biliary duct and inserting the tube into the duodenum.

The success of these men prompted us to apply the principle of mechanical anastomosis to the surgery of the ureter. In our experimental work we attempted to study the effect of uniting the severed portions of the ureter by bridging them over with a ureteral catheter. Our chief concern was to determine whether or not tubulization would occur around a catheter connecting the ends of a severed ureter with an intentional gap of one to two centimeters.

METHODS

Female dogs were used throughout because the peculiar anatomy of the ureter and the penis of the dog make it impossible to use the cystoscope in the male dog. In the dog the ureter is very accessible throughout its course, so that a mid-line incision affords a satisfactory exposure. After exposure the ureter was grasped with small artery forceps, was severed, and the ureteral catheter was inserted. In inserting the catheter it was found advisable to insert it first into the renal end and then into the cystic end. If such a precaution were not taken, the renal stump of the ureter could be easily lost should it slip from the forceps. Under such conditions, frequently it may be quite difficult to find the ureter. After the ureter was inserted the ends were approximated in some experiments, and in others a gap of one to two cm. was left. In the latter cases the exposed catheter was covered by means of peritoneum, which was sutured loosely around the catheter. In some animals only one ureter was used, the other being left as a control. In the rest of the animals both ureters were severed and bridged over. The caliber of the catheters used was No. 5 French, a size which was found to fit snugly in practically all ureters. The experiments were carried out under strict asepsis except in two experiments in which leakage of urine produced soiling of the field. The severed ends of the ureter were tied around the catheter

with a catgut or silk suture. Care was taken not to tighten the ligature to the point of cutting off the blood supply of the ureteral stump and thus produce sloughing. The catheter was inserted from two to five cm. along the renal portion of the ureter and well into the bladder. The abdomen was closed in layers without drainage. The catheter was left in situ until the dog was sacrificed.

RESULTS

The results of this operation depended upon the following factors: first, the amount of scar tissue formed around the exposed catheter; second, the amount of injury done to the cut ends of the ureter during manipulation; third, the obstruction in the ureter due to clogging in the catheter causing insufficient excretion of urine; fourth, the possibility of leakage of urine from the ununited ends of the severed ureter, leading to infection and peritonitis.

Seventeen experiments were performed in this series. The dogs were kept alive from two to seventy-nine days after operation. In one experiment the dog suddenly died on the table while the renal portion of the ureter was being pulled upon. In this case the cause of death cannot be satisfactorily explained in view of the fact that the condition of the dog was excellent until traction was exerted on the ureter. With the exception of this one, all the dogs recovered from the immediate effects of the operation.

The effects upon the kidney depended primarily upon the degree and duration of obstruction in the ureter. In those cases in which a gap was left, the possibility of stricture was great with the result that the excretion of urine into the bladder had to be performed wholly through the catheter. Clogging of the catheter, therefore, produced a definite obstruction with subsequent dilatation of the renal end of the ureter and also of the pelvis of the kidney. In these cases the kidney was larger than its mate and the capsular vessels showed a definite congestion. This was not true in the experiments in which the cut ends of the ureter were well approximated, and the ligature around the catheter was quite loose so that urine could pass not only through the lumen of the tube but also around it.

Cystoscopic examination of the dogs was quite unsatisfactory because the female urethra is located well inside of the vagina, and the ureteral orifices are deep down in the neck of the bladder. The ordinary cystoscope, therefore, could not be used either to remove the catheter from the blad-

der or to manipulate the catheter as it was lodged in the ureter. Because of this difficulty we were unable to study the effects on the ureter after removal of the catheter. In one animal a cystotomy was performed at a second sitting five days after the first operation. The catheter was removed through the bladder. In this case the catheter was freely movable, thus making the removal a very easy one. Unfortunately, urine leaked into the peritoneal cavity, and subsequent infection with fatal peritonitis followed.

In our series only two animals showed a well-developed hydronephrosis. In both cases more than one-half of the kidney was destroyed. In the experiments in which there was careful approximation of the severed ends, there was either a very slight dilatation of the renal pelvis or none. The involved kidney in all these cases was of the same size as its mate. The capsular vessels showed a definite congestion.

DISCUSSION

Earlier work on uretero-rectal anastomosis indicates that the operation is dangerous. On the other hand, the reports of Mayo and Folsom show that such an anastomosis is fairly safe in clinical cases. In cases of injury to the ureter, however, an uretero-ureteral anastomosis should be preferred because it is an attempt to restore the ureter to its physiological condition. By means of such an operation the kidney is again connected with the bladder and with the exception of possible post-operative stenosis in the ureter, conditions are as close to normal as any one can reasonably hope to make them. If stenosis follows such an operation, one can easily dilate the ureter from time to time, since cystoscopy has been so simplified that catheters or bougies can be easily inserted into the ureters. While healing occurs and the catheter is still in situ, it can be manipulated whenever necessary until a fistula is formed at the area where a gap is present between the severed ends of the ureter.

CONCLUSIONS

1. In the dog uretero-ureteral anastomosis is a satisfactory procedure.
2. If a gap of one to two centimeters is left between the severed ends tubulization takes place around the catheter.
3. If the severed ends are well approximated no injury is likely to follow in the kidney.
4. If there is a gap between the severed ends, stenosis of the fistula may occur and thus lead to hydronephrosis and infection.

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THE PASSING OF THE FAMILY PHYSICIAN: SOME OBSERVATIONS*

By C. E. McCauley, M.D.

ABERDEEN, SOUTH DAKOTA

In conforming to the time-honored custom of presenting a presidential address it seems fitting to pause in our activities and take stock. The business man takes a yearly inventory to find how his business stands and to plan his future actions. I believe it would be valuable for us to take an occasional professional inventory to determine our fitness, as a profession, for the work we are called upon to do.

We hear a great deal about the passing of the old family physician, of the inroads the cults are making on the profession, of group practice, of state medicine, of free clinics, etc., which are said to be taking the bread and butter away from the hard-working practitioner. New methods, appliances, remedies, and specialties appear and disappear in such rapid succession that even the dictionaries cannot keep up with the new names.

We are living in a rapidly moving world and, too often, we mistake motion for progress. Is it not possible for us to take a sane view of all this hub-bub and get a broad rational vision of our profession and its function in the world?

Is the general practitioner, the family physician, passing? I do not believe so. He is changing, but only in outward appearance. He has discarded his tile hat and Prince Albert coat, he has thrown his saddle-bags into the back seat of his Ford, and he uses an electric lighted tongue depressor in place of a tallow candle. The body and habiliments of the old country practitioner may be moulding in the grave, but his soul goes marching on in the bodies of the present genera-

tion. Human nature does not change very much, and until people are very different from what they are, the relation of patient and physician will remain the same. Can you say the family physician is passing when in any meeting of this kind you can pick out a half hundred men, still in their prime, who are leaders in their communities, who are trusted more than any other members of society, and whose basic aim is not wealth or power, but service?

The telephone, radio, hard-surfaced roads, automobile, and aeroplane are making life pleasanter in the country and small towns. These modern improvements plus the small community hospital will take the future doctor back to the people, and, I believe, the outlook was never brighter for the family doctor.

What about the cults and the fads and fancies about which we worry so much? We find doctors who see the profession going to the dogs, who advise young men not to study medicine as there is nothing to its future, who fear every new "ism" that springs up is going to rob them of all their work. Others who treat all fads with contempt and call people fools who treat by any new method. Fakes we have always had, and I do not believe there are many more of them today than there were ten or fifteen or five hundred years ago. They are the growing pains of the profession. They are offshoots from the great parent tree. Most of them wither and die from inanition; a few perhaps we should resolutely prune away. David Harum said, "Fleas are good for a dog. They make him forget that he is a dog."

*Presidential Address before the annual meeting of the Sioux Valley Medical Association, Sioux Falls, S. D., July 7 and 8, 1925.

Osteopathy, Chiropractic, Abrams, and all the others will afflict us for a time, but they will vanish into the nothingness from which they came, only to be followed by others of similar ilk. Nothing can exist for very long which is not founded upon a solid scientific base. "You can fool all the people some of the time and some of them all the time, but you can't fool them all all the time." With the multitude of new methods and devices in every line of medicine it is sometimes very difficult to know which are of value and which are worthless, which are harmless and which pernicious.

It is interesting and instructive to review the last twenty-five years and the wonderful progress which our profession has made, but there are few of us who do not acknowledge a feeling of chagrin when we recall the things we have "fallen for" in that period; static machines, wall-plates, acetozone—where are they to-day? Yet when I began practice they were all important. Friedman with his turtle cure for tuberculosis had the profession all guessing. Freud and psycho-analysis filled the medical heavens with a fearful light, which gradually faded before an aroused common sense. Roger's autohemic therapy had elements of plausibility, and in some quarters gained a large following, only to fade into the limbo of quackery.

Even to mention the names of the various fads, and pseudoscientific methods with which the profession is assailed to-day would make my paper too long and would only add to the confusion. If we analyze them we find several outstanding features. In the first place they all have big money-making possibilities, both for the discoverer and, of course, for the deluded M.D. who buys; otherwise he would not see the reason for purchasing.

Another thing is mystery; the unopened Oscillo-clast, the special secret process known only to the originator. We all love mystery. The cryptic utterances of the Delphic oracle found no readier listeners than similar fakes to-day. Take away the mystery, and nine-tenths of the fads appear silly.

Again, all these bizarre and mysterious wonders are labor-saving devices and appeal to most of us as they save us the trouble of getting down to real work. Why trouble oneself to make a diagnosis when a shot of baked blood will cure

the disease whatever it is? When in doubt give mixed phylacogen, it cures. In fact one might entitle all these fads "Practice made easy and profitable."

Let us view these things in an impartial light. If there is good in them we should be able to see it, if not they will soon disappear; like fleas on a dog, they may be a good thing for us, for they show us our own short-comings. If the professional functions perfectly there will be no fakes. The existence of them proves that there is a demand for medical services which the regular profession has not filled.

But whatever attitude we as a profession or as individuals may take toward these fancies and fads remember this: Medicine is not sectarian, medicine is catholic—it is eternal; it is truth; and this is the glorious age of medicine. Never in all history has the practice of medicine been so satisfactory as it is to-day. Never before has any group of men had the opportunity for service that the medical profession has to-day. The profession of medicine will go on above and ahead of all these hindrances and will continue in the future, as it has in the past, to perform its function in the world.

I would venture to offer only one bit of advice to the profession at large. Do your own thinking. Do not let the oratorical blasts of opponents or proponents of any brand of diagnosis, prognosis, or treatment, supersede the use of that gift of common sense which a believing public knows that you possess.

Every man in the profession of medicine owes a very solemn duty to his patient, to the public, to the profession, and to himself. This duty cannot be discharged in any other way than to "deliver the goods," in every case, at all times, under all circumstances. To do that, everlasting, unshakable honesty, thorough preparation, careful examination, thoughtful consideration of evidence and mature decision are all necessary.

Ignorance or carelessness, either of them, may be little worse than dishonesty. The true physician in this country—and there are many more of him than of the other kind—works on that basis.

Dark days may come to many of us; the future may look black, but let us remember the admonition to the early Christians that "Underneath are the everlasting arms."

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The Soo Railway Surgical Association
and The Sioux Valley Medical Association

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TESTING HUMANITY

The study of humans is a very delicate and interesting bit of work, for we are confronted by old and new problems daily. We are particularly interested in the consideration of a man's mental state, as to whether he is capable of using good judgment or whether his mind is twisted and he uses poor judgment; and these states of mind vary in every possible degree. For instance, there are the so-called "would-be highbrows," who have a very intense desire to become conspicuous or famous or who have an inordinate thirst for the intimacies of other people. These may be classified as among the snobbish set. They want to know all about little details. They want to know about others and what they do, what they think, and how they feel. Yet a certain type of them are interested only in the common, trivial details of life. Why is it, when they get out in so-called society, they talk very little of the important things of life, but they consider the trivial things as of greater importance and interest. Perhaps it is because they have a brain which tires easily, a mind which does not function except up to a certain dead level; beyond that they are helpless and hopeless. They belong to the inferior complex type of people. Why should one be concerned about what one's neighbor is doing all the time, where she goes, and how she acts, and what she does? Only because the common mind of these types of people

is interested in only the most commonplace things in life. They read inconsequential things, books and periodicals which do not make them think but simply use up a certain amount of time. These people, too, are constantly on the road to pleasure, or at least what they call pleasure, diverting their minds when the poor minds have very little to divert.

We might go on up the scale and re-grade many of these individuals until they get into a type where they become recognized as either neurotics or psychotics.

In New York it is said that no longer is there any one person typical of New York or necessary to New York. The city has become a monster, its arms encircle 9,000,000 people and it gazes with stony eyes at these 9,000,000 squirming animalculæ. Each morning it seizes 2,000,000 persons and pours them struggling into the bucket, and each night it sucks them out again, helpless infusoria—a crude and insane regurgitation. Each day it pours 5,000,000 pedestrians and 300,000 vehicles into its streets, all hurrying somewhere. Where are they going, and what are they going to do in this crowded, noisy, and tremendous city? And when winter comes the streets are blocked with snow, and the whole mass of people are disoriented because the city is as impassable as backwoods roads. (This paragraph is cited from McCoy in the Current History Magazine.) How many of these people are normal? How many are superior, very superior, and how many drop below the average in mental age? Naturally, with such a confusion of issues and people every avenue is more or less blockaded, and of course out of this huge population there are many who belong to the type who exploit crime. It makes one think of the enormous number of feeble-minded among the criminal classes; yet experience has shown that the average mental age test is no different in the penitentiaries than it is in the outside world except that those who are in prisons were unlucky enough to be found out and caught while the others are bounding around, skillfully evading attention, arrest, and punishment.

It has been said by Dr. Hirschway that "there is no criminal who is not a normal individual in practically every respect." If that be true, how are we going to classify the really defective criminal? Dr. Hirschway expresses himself by saying that the new-fangled intelligence test and psychiatry that prove nine subjects out of ten have something the matter with them, ranging from dementia precox to plumb stupidity, are of little or no consequence. He does not think that

everybody who is not an Aristotle intellectually is mentally deficient and that everybody who is normal is by nature good and kind and blameless. But this same good doctor did not wish to take a mental test, for he did not wish to be placed in the category of criminals mentally and temperamentally.

It is a very fine thing for the scientific investigator to prove that one is mentally deficient and to put one in a certain age class, but it may be a very misleading condition; for there are many people who look stupid, who seem to be below the average in intelligence, who have faculties which may be developed and they may turn out to be good workers and deep thinkers.

Dr. Charles H. Mayo thinks that, if we believed more in a veritable hell, we should be more disposed to behave ourselves. Perhaps that is true, and yet it is very difficult to make this belief a popular theory.

All this, however, does not get us very far in the wave of crime that is running over the country; that is, there seems to be no remedy for it. Because some are successful and are not penalized others follow their footsteps thinking they can escape as easily. It is very difficult to offer a suggestion for the relief of the crime situation of to-day because it may hinge upon our immediate ancestry; and if parents are not able to behave themselves, are not convinced of the fact that it pays to follow the law, their children cannot be expected to do better than they except in a very few instances where the attitude of the father or mother or both is so conspicuous that the children grow up in abhorrence of the conditions of their progenitors.

William Muldoon, who has had a great deal of experience in the observation of men, says that the greatest thing in the world is obedience to law, and that violation brings penalties; and he is speaking particularly of physical law,—that the laws of health run into morality, and morality is volitional on man's part.

As has been said before sometime, most of the criminals escape in some way, that is, the petty criminal is found to be tricky, evasive, and elusive, and he continues in his career until he commits a greater crime and is then perhaps taken in charge. Of the men who live in the penitentiaries and particularly where the honor system is being tried out, it is found that out of ten murderers working out-of-doors nine have escaped. The only real remedy is to recognize the example of one's superiors, to follow them and to grow up into real men and women. For the criminal there is more possibility of escape from

punishment because of the laxity of our legal system and the ingenuity of lawyers who are adept in framing up technicalities and securing delays in legal procedures, and working upon the sympathies of jurors and pseudoscientists. To restore justice and inflict penalties means a stricter observation and a more strict adaptation of legal processes. We are altogether too good to our criminal classes. We are altogether too easy in letting them off on mental technicalities. Most of the criminals and really most of the mentally deficient know the difference between right and wrong, and they have the power to respect it but they do not, and they will not as long as they can get away from punishment of any kind.

We read somewhere about a wise man: "The Rev. Mr. Hight" hopes to prove his "mental derangement" by showing that once he bit a mule on the nose. A man who was a former army man said that the fact that he bit the mule at that end proved his sanity! So it is with the average criminal. He knows enough to keep out of danger if there is any way around it.

THE INTERSTATE POST-GRADUATE ASSEMBLY

This great assembly was formerly known as the Tri-State Medical Society, but it has been so enlarged and increased in its membership and has taken in other states so that it must have a better and more comprehensive name. The next meeting of the society will be at the Auditorium in St. Paul, October 12th to 16th, inclusive,—five days of strenuous, wonderfully instructive work.

To the man who has not attended the Assembly it will be an eye-opener. He may think that it is too big a proposition to attend, even, but if he will go in the proper spirit and be willing to work with the clinicians from seven in the morning (that means seven o'clock) until ten-thirty at night, with hours for luncheon and dinner, he will not only improve his mind, but he will find that he will be rested at the end of the session. This may seem like a paradox, but it is true because something is happening; something new is presented every half-hour, by a new man, a man of note, one who is recognized as a big man in the profession, and his ideas of clinical material presented, even though in simple and concise form, will leave behind it a train of instruction. Men who belong to this association, who are active or honorary members, come from England, Scotland, Ireland, and France, and include the foremost men in medicine, not only in foreign countries, but in this country.

In looking over the last program it is bewildering to read the names of those who are either to be here or who are members of the Assembly. No local man in St. Paul (or at any place where the Assembly is held) is on the program, so that there can be no feeling between the St. Paul men and certainly none but the best of feeling on the part of men from Minneapolis; and the editor of THE JOURNAL-LANCET expresses himself as being glad of the opportunity to attend another meeting and to attend it so nearby; and we are willing to do anything possible to make the meeting a success. It is to be hoped that the medical profession of Minneapolis will avail itself of this glorious opportunity to hear and see men of note whom they never may have the chance to meet again, perhaps, or never have met before. Some of the men on the program, of course, are always with us,—men from this country; but men from abroad will be the main attraction.

Dr. Addison C. Page, of Des Moines, Iowa, is the president, a fine up-standing man who has been on the Executive Committee for some time. The managing director of the Assembly is Dr. William B. Peck, of Freeport, Illinois. Anyone who meets Dr. Peck will know at once that he is the manager, for he manages. And he is responsible for the success and advancement and enlargement of this Tri-State into the General Assembly. One of the most important men of the Assembly is the speaker of the House, Dr. G. V. I. Brown, of Milwaukee. He is the man who has been referred to so many times before, when we have reviewed the Tri-State meetings,—a man of presiding presence, a man who without offense in any way conducts the affairs of the meeting; and he does not hesitate to tap the honorable medical man on the shoulder and tell him he has but two minutes more to talk, hence the meeting is run on strict principles with due regard to the saving of time and for the interest of the assembled members. The Drs. Mayo of Rochester are presidents of the clinics.

One of the important features of the meeting is that the sessions are all held in one room. There is no running about from hospital to hospital or from clinic room to clinic room. Everyone hears the same thing, and thereby broadens his knowledge of medicine, and before he knows it the specialist in the various branches of medicine finds himself interested in what some man is telling about his experiences in diseases of the bones, or diseases of the gastro-intestinal system.

Again we urge all of the men who can attend the sessions to go, because they will never see

its like again unless they attend subsequent sessions.

On Friday night, the night of the sixteenth, there will be a banquet at which some of the speakers from abroad will appear and although the banquet itself may be the usual banqueting affair, the men who speak will be men of distinction and prominence. Reservations should be made for the banquet at the earliest possible moment. The men in St. Paul deserve the highest commendation for the work they have done and the money they have raised to assure the success of the meeting.

"THE MEDICAL FOLLIES"

Dr. Morris Fishbein, the editor of the *Journal of the American Medical Association*, has written a book that every physician should read and then pass on to his patients, because it is a book that the lay people ought to be familiar with, as it discusses the various cults and methods of healing, particularly. It has a brief introduction which explains the early beliefs in the healing art. It deals with "Elisha Perkins and His Wonderful Tractors." He also discusses "The Rise and Fall of Homeopathy," the past and present state of "Osteopathy" and "Chiropractic," "The Quackery of the Abrams Box," "Fads in Health Legislation," "Birth Control: An Unsolved Problem," "The Antivivisectionist and Animal Experimentation," "The Truth About Rejuvenation," "'Physical Culture' and Bernard MacFadden," "The Big Muscled Boys," "The Medical Mistakes of the Press," and "The Science of Healing."

All of these chapters are done in Dr. Fishbein's inimitable way, and there are many funny little incidents by which he impresses his point on the reader.

PROCEEDINGS MINNESOTA ACADEMY OF MEDICINE

Meeting of September 9, 1925

The Minnesota Academy of Medicine held its Annual Meeting at the Town & Country Club on Wednesday evening, September 9th, at 8 p. m. The meeting was called to order by the President, Dr. H. P. Ritchie. There were 25 members present.

The minutes of the May meeting were read and approved.

The annual reports of the Secretary-Treasurer were read and approved.

The annual election was held and the following officers were elected:
President, Henry L. Ulrich, M.D., Minneapolis;

Vice-President, Frank E. Burch, M.D., St. Paul; Secy-Treas., John E. Hynes, M.D., Minneapolis.

A motion was carried that the rules of the Academy be suspended, and a unanimous vote was given for the re-election of Dr. Hynes as Secretary-Treasurer for five years.

The Secretary read a letter from Dr. E. S. Judd inviting the Academy to hold one of its regular meetings at Rochester this year. Upon motion it was voted to hold the November meeting at Rochester.

The retiring President, Dr. Ritchie, then read his President's Address, entitled "Four Men of the Academy." These being four former presidents of the Academy: Dr. Archibald MacLaren, Dr. Warren A. Dennis, Dr. James E. Moore, and Dr. Parks Ritchie.

JOHN E. HYNES, M.D.
Secretary.

MISCELLANY

IN MEMORIAM—DR. HUGO HARTIG, 1890-1925

Hugo Hartig was born in Minneapolis, Minn., November 14, 1890, the son of Rev. Henry and Emma Bronner Hartig, and died July 26, 1925, in an automobile accident at Lake Minnetonka.

He was a graduate of the North High School, Minneapolis, and of the University of Minnesota Medical School 1914, and served his internship at the Elliot Memorial Hospital.

In 1918 he took postgraduate work at the Bellevue Hospital, New York, and in the Cornell University Medical School. In the same year he entered the military service and was stationed at Camp Sherman in the United States, and with Base Hospital No. 99 in France until May, 1919.

He became a member of the Minneapolis Board of Public Welfare in 1922 and was appointed County Physician of Hennepin County in 1923. He held a teaching position in the University of Minnesota Medical School in 1917-1918 and served on the staff of St. Andrew's Hospital until the time of his death. He was a member of the Veterans of Foreign Wars and was State Commander of that organization.

His wife, Hermina Hermanson Hartig, M.D., and four children survive him.

In all his relations with the various organizations in which he took an active part he displayed an unflinching industry, a never-flagging energy, and an ever-inspiring enthusiasm. It is rare to find a record of one man who has filled so large a place in a city as he has in his. His few years of professional life stand high on the rising curve of medical progress in his community.

J. C. MICHAEL, M.D.,
J. H. SIMONS, M.D.,
OLGA S. HANSON, M.D., Chairman,
Necrologic Committee,
Hennepin County Medical Society.

Presented before the Hennepin County Medical Society, September 14, 1925.

BOOK NOTICES

OPERATIVE SURGERY. Covering the operative technic involved in the operations of general and special surgery. By Warren Stone Bickham, M.D., F.A.C.S., Former Surgeon in charge of General Surgery, Manhattan State Hospital, New York, Former Visiting Surgeon to Charity and to Touros Hospitals, New Orleans. In six octavo volumes totaling approximately 5,400 pages with 6,378 illustrations, mostly original and *separate Desk Index Volumc.* Volume VI, completing the set, contains 989 pages with 1,224 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$10.00 per volume. Sold by subscription only. Index volume free.

Volume VI of Bickham's "Operative Surgery" devotes the first two chapters (91 pages) to operations on the seminal vesicles and prostate gland, then presents operative gynecology in 507 pages and operative obstetrics in 297 pages, takes up operations on the new-born (5 pages) and closes with "operations for deformities and disabilities not included in preceding chapters" (5 pages).

For a volume of 944 pages this is too extensive a field for intensive treatment. The text throughout is limited to a minimal discussion of accompanying illustrations. Symptoms and diagnosis are not considered, while indications and contra-indications for certain operative procedures are disposed of quite briefly.

The volume is essentially a graphic treatise of surgical technic. The illustrations, of which there are 1,224, are excellent, and detail very effectively the major steps in the many surgical and operative procedures presented.

S. B. SOLHAUG, M.D.

INTERNATIONAL CLINICS. Vol. II. Thirty-fifth series. Edited by Henry W. Cattell, A.M., M.D., Philadelphia, in collaboration with others. 311 pages, illustrated. Philadelphia and London: J. P. Lippincott Company, 1925.

Henry W. Cattell, A.M., M.D., writes a classical article, profusely illustrated by plates and figures, on Tait McKenzie's medical portraits. Medical portrait medallions were Doctor McKenzie's hobby.

In the article are illustrated and described portrait medallions of such men as William Henry Drummond, Dudley Sargent Allen, Francis Kinlach Huger, S. Weir Mitchell, William Williams Keen, John Herr Musser, William Osler, and others. The article is of value chiefly from historic and artistic standpoints.

In a monograph on the present status of affections of the kidney Dr. I. W. Held discusses, in detail, the anatomy and physiology of that organ. He reminds us that the kidney is not a secretory organ since it is a mesodermal structure and therefore unlike secretory glands, which are either endodermal or epidermal in origin.

He discusses the various pathologic conditions according to the classification of Vollhard and Fahr. Pathology, symptomatology, and treatment are dwelt upon in great detail.

Novosural as a diuretic in ordinary kidney affec-

tions is absolutely contra-indicated because it irritates the kidney. In luetic nephrosis novosural may be used because there is no nitrogenous retention in the blood.

Starchy food is best for a patient with edema, but even bread should be made salt free.

Decapsulation is advised in acute glomerular nephritis if anuria persists for a number of days and fails to respond to medical treatment. In chronic cases where the glomeruli are permanently injured surgical interference is useless.

A paper on dysentery: its diagnosis and management through the microscope by Drs. Frank G. Haughwout and George R. Callender, is of great interest. A description of the gross pathology and the histopathology of bacillary and protozoal dysentery is presented. Microscopic findings of bowel discharges are correlated with the histopathology of sections of intestine.

In addition to the pathology of the dysenteries, their differential diagnosis and medical and dietary management are thoroughly discussed.

In Manila bacillary dysentery caused by the Flexner strain is treated by intramuscular injections of 20 to 30 c.c. of serum.

In amebic dysentery emetine hydrochloride is given by hypo and orally, and rectal administrations of a combination of emetine, ether, and olive oil.

Dietary treatment is detailed.

Dr. Thomas R. Brown in discussing new growths of the digestive tract concludes that, even though chronic irritations of various kinds may in a certain number of cases cause cancer, yet, so far as new growths in the gastro-intestinal tract are concerned, this has been found to be of no aid in cancer prevention in this region. Early diagnosis and surgical removal is our only hope. If symptoms persist, or increase, or do not yield to medical treatment, exploratory laparotomy is advisable in order to arrive at a definite diagnosis.

"Personal Experience Fundamental for Prognosis in Medical Practice" is the title of an article by Christian G. H. Baumler, M.D. He relates his medical experiences in Germany during the World War.

In a clinical talk on abdominal diagnosis, Dr. John F. Erdmann goes into minute detail as to history taking, physical examination, and laboratory methods.

Pain and distress in the upper right quadrant, without weight-loss, leads to a question of gall-bladder disease, kidney disease, hepatic carcinoma, etc.; in the lower right quadrant to appendicitis, carcinoma of the cecum, etc.

Gall-bladder disease is five times as frequent in women as in men. He also mentions the fact that gall-bladder disease begins in youth.

The x-rays are important in differentiating between duodenal ulcer and cholecystitis.

Jaundice is comparatively rare in gall-bladder disease.

Dr. James W. Bruce tells us that intracranial hemorrhage of the new-born is much more common than is generally supposed. All infants should be carefully watched for symptoms.

Unless promptly treated it is apt to lead to death in a short time, to epilepsy, Little's disease, or other mental or physical disability.

Lumbar or cisternal puncture, to drain the cere-

brospinal space, or subtemporal decompression should be performed.

"The Relations of Food to Health and Vitality" is the title of an interesting and instructive article by Dr. Harvey W. Wiley.

Goiter, polyneuritis or beriberi, scurvy, pellagra, rickets, sterility, caries of the teeth, diabetes, nearly all forms of indigestion, obesity, thinness, and tuberculosis are diseases which are prevented wholly or in part by a wise selection of our foods. Animals select proper foods by intuition. The progress of cooking has destroyed much of man's instinctive judgment in the selection of his diet. So-called refined foods are unfit for human consumption. Vegetables and fruits are peeled too much and cooked too long. Natural foods which require careful mastication are of greater value to the child. De-natured foods diminish generative faculties. The result is diminished offspring and decreased vitality of the race.

In spite of all this the average expectation of life has increased. With the general introduction of wholesome foods we might hope to reach the Biblical three score and ten, which should at least be our aim.

According to Dr. Lewellys F. Barker, we now face the management of patients suffering from chronic infectious arthritis with hope and with expectation of better results than were possible ten or twelve years ago. The work of the Boston Orthopedic School and of the Chicago school of Internists is especially gratifying.

Now when a physician examines a patient with arthritis he at once thinks of concealed foci of infection where formerly such processes were not dreamed of. Much credit is due Dr. Rosenow, who first directed our attention to the significance of focal infection in connection with arthritis.

By finding and removing foci of infection, by increasing the patient's resistance, and by medical and orthopedic measures orthotherapy has been notably improved.

A lecture by Dr. Fred H. Albee on reconstruction surgery and an article on abscesses about the anus and rectum are of great interest.

Aurists will find an article on chronic purulent otitis complicated with mastoid disease well worth reading.

ARTHUR A. WOHLRABE, M.D.

NEWS ITEMS

Dr. Edward Seguin has moved from Bovey to Eveleth.

Dr. M. W. Lyons has moved from Minneapolis to Ivanhoe.

Dr. J. B. Gumper has moved from Evansville to Breckenridge.

Dr. G. S. Frogner has moved from Plaza, N. D., to Parshall, N. D.

Dr. W. A. Liebler has moved from Langdon, N. D., to Grand Forks, N. D.

Dr. M. W. Lyons has purchased the practice of Dr. J. E. McCoy at Ivanhoe.

Dr. E. A. Reils, who practiced three years in Detroit, Mich., has moved to Brainerd.

Work on the new hospital at Hendricks has been begun, and will be pushed with vigor.

Dr. C. A. Lapierre, of Minneapolis, has returned from Europe where he spent the summer.

A "drive" is under way in Minneapolis to raise \$200,000. for a 100-bed extension to St. Andrew's Hospital.

Dr. Elmer Schutz, a recent graduate of Rush, has become associated with Dr. H. R. Basinger at Mountain Lake.

Dr. E. W. Hancock, who formerly practiced in Minneapolis and later in Carpio, N. D., is now located in Lincoln, Neb.

Dr. A. W. Graham, of Chisholm, has been doing postgraduate work in Chicago, in the Chicago Eye, Ear, Nose, and Throat College.

Dr. Charles L. Swift, recently a Government physician in Alaska, has begun practice in Chamberlain, S. D., as assistant to Dr. Farnsworth.

A one week's medical short course in laboratory diagnosis and applied therapeutics will be given at the University of Minnesota next week.

Dr. J. C. J. Wiig, who formerly practiced at Wahpeton, N. D., has located at Lauderdale, Florida, after doing postgraduate work in New York City.

Dr. Carl E. Anderson, of Garretson, S. D., has taken over the practice of Dr. Joseph Nicholson, of Brainerd, Minn. Dr. Nicholson recently moved to California.

Dr. W. J. Mareley, of Minneapolis, has gone to Oteen, N. D. (near Ashville) to attend a tuberculosis conference under the auspices of the U. S. Veterans' Bureau.

Dr. Leo M. Crafts, of Minneapolis, has returned from a European trip. Dr. Crafts went to Europe in search of special material for a textbook which he is writing.

Hibbing has put a ban upon medicine shows and will issue no more permits to them. This action was taken at the request of the business and professional men of the city.

Miss Lydia Keller, formerly of Minneapolis, now of Wadena, has been appointed by the Governor of Minnesota a member of the State Board of Nurses' Examiners for five years.

Dr. Cecil A. Watson, of Minneapolis, was married last month to Miss Joyce Patterson, also of Minneapolis. Dr. Watson is a 1925 graduate of the Medical School of the University of Minnesota.

Dr. Adam M. Smith, of Minneapolis, was married last month to Miss Helen Garrigues, also of Minneapolis. Dr. Smith is a graduate of the Medical School of the University of Minnesota, class of '20.

Dr. H. E. Wilmot, of Litchfield, was married last month to Miss Dorothy Frisch, of the same city. Dr. Wilmot graduated from the Medical School of the University of Minnesota in the class of 1900.

Dr. Karl W. Anderson, of Minneapolis, was married last week to Miss Crystal Justus, of Hopkins. Dr. Anderson graduated from the Medical School of the University of Minnesota in the class of '23.

Dr. George M. Tangen, of Canby, was married last month to Miss Ruth Victor, also of Canby. Dr. Tangen graduated from the Medical School of the University of Minnesota last year, and has recently located in Canby.

Dr. Carl G. Swendseen, of Minneapolis, was married last week to Miss Helen Mae McCune, also of Minneapolis. Dr. Swendseen graduated from the Medical School of the University of Minnesota in the class of '18.

Dr. James K. Anderson, Superintendent of the Deerwood Sanatorium, has been appointed Superintendent and Medical Director of the Sunnyrest Sanatorium at Crookston. The transfer is a promotion for Dr. Anderson.

Dr. W. J. French, director of the Fargo Child Health Demonstration since its establishment two years ago, has resigned and will go to Austria to do like work. He will be succeeded by Dr. William de Kleine, of Mansfield, Ohio.

Dr. C. L. Oppegaard, of Crookston, was married last month to Miss Helen Bagley, daughter of Dr. William R. Bagley, of Duluth. Dr. Oppegaard is a graduate of the Medical School of the University of Minnesota, class of '22.

Dr. D. W. McDougald, of Minneapolis, died on Monday (Sept. 28) at the age of 48 of heart disease. He was a graduate of the Medical School of the University of Minnesota, class of '02, and was a specialist in eye, ear, nose, and throat work.

At the September meeting of the Aberdeen (S. D.) District Medical Society, held at Aberdeen, S. D., Dr. Franklin R. Wright, of Minneapolis, presented a paper on "Gonorrhoea;" and Dr. George Bateler, City Health Officer of Aberdeen, spoke on "Contagious Diseases."

Dr. James A. McLaughlin, of Minneapolis, died last month at the age of 55. Dr. McLaughlin was a graduate of McGill, class of '94, and had practiced in Minneapolis for twenty years. He served in the World War and was a member of a number of medical and other societies.

Drs. Henry Tillish and O. H. Warner, of Canby, having sold their practice at Canby to Drs. L. W. Paul and G. M. Tangen, recent graduates of the University of Minnesota. Drs. Tillish and Warner will move to Brookings, S. D., and open a clinic with a Brookings physician.

Dr. John F. Walker, of Bison, S. D., will spend the present school year and perhaps longer in a postgraduate course in eye, ear, nose, and throat work at the University of Minnesota, from which he graduated in medicine in 1908. Dr. F. E. Lister will have charge of Dr. Walker's practice.

A local newspaper at Dallas, S. D., in announcing the return of Dr. W. J. Matousek to that village after a year's absence doing postgraduate work, says the announcement of the opening of a branch of the Bank of England in Dallas would not have been hailed with more pleasure and delight. You can't beat such appreciation.

The Huron (S. D.) Medical Society, which is a live organization with years of successful work to its credit, has issued a program for the next eight months. Three men are put on the program of each meeting, and no man appears twice during the year. At the first meeting, on October 8, subjects will be presented by Drs. Cogswell, Thomas, and Sewell.

The meeting of the Post Graduate Assembly in St. Paul next week will be one of the leading medical events of the year. Many distinguished men from different parts of the world will be on the program. We print the program in full on another page, and also make editorial comment on the meeting. The Northwest will give the distinguished men on the program a royal greeting. Many hundreds of men will be present.

The physicians and surgeons of Mitchell, S. D., will hold their Fifth Annual Clinic on November 5 and 6. The clinics will be of the day order, which have been so successful in former annual meetings. The outside men already on the program for clinics are Dr. Fred M. Smith, Iowa

City, Iowa; Dr. H. W. Orr, Lincoln, Neb.; Dr. Arthur Sweeney, St. Paul; Dr. H. E. Michelson, Minneapolis; and Dr. E. S. Judd, Rochester, Minn.

Dr. Clifford R. Myre, a recent graduate of the Medical School of the University of Minnesota, who has practiced several months at Eden Valley, has purchased the residence of Dr. Carl F. Ausman at Paynesville for use as a hospital. Dr. Myre will remain in Eden Valley, using the hospital in Paynesville for his surgical work. Dr. Ausman will go abroad for extended postgraduate work, and upon his return he will locate elsewhere.

Dr. R. C. Murdy, son of Dr. R. L. Murdy, has been appointed orthopedist on the staff of the Aberdeen Clinic and Lincoln Hospital, of Aberdeen, S. D. Dr. Murdy received degrees in Arts (1919), Science (1920), and Medicine (1922) from the University of Minnesota. He took internships in the Minneapolis General Hospital and the Atlantic City Hospital, and did postgraduate work for two years in the Department of Surgery in the Post Graduate School of Medicine of the University of Pennsylvania.

The Board of Directors of the Hennepin County Public Health Association has unanimately invited Dr. Richard Olding Beard, who recently retired from active teaching service at the University, to take the Field Secretaryship of the Association upon a part-time basis. Dr. Beard has accepted the appointment, with the understanding that he will continue to devote a major part of his time to the direction of the Committee on Endowment and Building Funds of the Medical School of the University. He is Chairman and General Secretary of this Committee and has been initially responsible for the promotion of its work since its appointment.

PROGRAM

Inter-State Post Graduate Assembly of America

ST. PAUL, MINNESOTA

October 12th, 13th, 14th, 15th, and 16th, 1925

General Headquarters for all Scientific Sessions and Exhibits, Municipal Auditorium

Hotel Headquarters, St. Paul Hotel

FIRST DAY

MONDAY, OCTOBER 12TH, 7 A. M.

1—Diagnostic Clinic (Medical). Diseases of the blood or heart cases.

Dr. Charles S. Williamson, Prof. of Medicine, University of Illinois, College of Medicine, Chicago, Illinois.

2—Diagnostic Clinic (Surgical).

Dr. William S. Baer, Associate Prof. of Orthopedic Surgery, Johns Hopkins University Medical Dept., Baltimore, Maryland.

3—Diagnostic Clinic (Oto-laryngology).

Dr. Hanau W. Loeb, Dean and Prof. of Ear, Nose and Throat Diseases, St. Louis University School of Medicine, St. Louis, Missouri.

Intermission, Review Exhibits

4—Diagnostic Clinic (Surgical). Gall bladder cases, especially jaundiced cases.

Dr. E. Starr Judd, Prof. of Surgery, University of Minnesota Graduate School of Medicine, (Mayo Foundation), Rochester, Minnesota.

5—Diagnostic Clinic (Surgical).

(a) Non-specific lung suppuration such as bronchiectasis or bronchiectatic abscess of the lung in combination with a patient suffering from pulmonary tuberculosis.

(b) Cancer of the esophagus, breast, thromboangiitis obliterans, cholecystitis with or without stones.

Dr. Willy Meyer, Prof. of Surgery, New York Post Graduate School of Medicine, New York, N. Y.

AFTERNOON SESSION, 1 P. M.

6—Diagnostic Clinic (Medical). Arterial hypertension or diseases of the heart and kidney.

Dr. Elsworth S. Smith, Prof. of Clinical Medicine, Washington University School of Medicine, St. Louis, Mo.

7—Diagnostic Clinic (Surgical). General surgical cases.

Dr. Arthur M. Shipley, Prof. of Surgery, University of Maryland School of Medicine, Baltimore, Maryland.

8—Diagnostic Clinic (Medical).

Dr. William J. Kerr, Associate Prof. of Medicine, University of California, San Francisco, California.

9—"Chronic Infections of the Skull."

Dr. Charles B. Lyman, Prof. of Clinical Surgery, University of Colorado School of Medicine, Denver, Colorado.

10—"The Management of the Ordinary Anemias."

Dr. Charles S. Williamson, Prof. of Medicine, University of Illinois College of Medicine, Chicago, Illinois.

Intermission, Review Exhibits

11—Subject later.

Dr. William S. Baer, Associate Prof. of Orthopedic Surgery, Johns Hopkins University Medical Dept., Baltimore, Maryland.

12—"Bone Sarcoma" (slides).

Dr. C. J. MacGuire, Jr., New York, N. Y.

13—"The Anatomic Relation of Optic Nerve to the Para-Nasal Sinuses." (slides).

Dr. Hanau W. Loeb, Dean and Prof. of Ear, Nose and Throat Diseases, St. Louis University School of Medicine, St. Louis, Missouri.

EVENING SESSION, 7 P. M.

14—"Pernicious Anemia."

Dr. Edward W. Montgomery, Prof. of Medicine and Clinical Medicine, University of

Manitoba Faculty of Medicine, Winnipeg, Canada.

15—"The Treatment of Cicatricial Contractures of the Neck."

Dr. Charles N. Dowd, Prof. of Clinical Surgery, Columbia University School of Medicine, New York, N. Y.

16—"The Diagnosis and Treatment of Heart Disease."

Dr. William J. Kerr, Associate Prof. of Medicine, University of California, San Francisco, California.

17—"Results of Operations for Chronic Cholecystitis."

Dr. E. Starr Judd, Prof. of Surgery, University of Minnesota Graduate School of Medicine, (Mayo Foundation), Rochester, Minnesota.

Intermission, Review Exhibits

18—"Examination of Para-Nasal Sinuses with clinical demonstrations and radiographs."

Dr. Cornelius G. Coakley, Prof. of Laryngology, Columbia University School of Medicine, New York, N. Y.

19—"Newer Methods of Preliminary Medication and General Anesthesia." (slides).

Dr. James T. Gwathmey, New York, N. Y.

20—"The Preparation and Use of Thick Skin Grafts." (slides).

Dr. Harry P. Ritchie, Associate Prof. of Surgery, University of Minnesota Graduate School of Medicine, St. Paul, Minnesota.

SECOND DAY

TUESDAY, OCTOBER 13TH, 7 A. M.

1—Diagnostic Clinic (Laryngology).

Dr. Cornelius G. Coakley, Prof. of Laryngology and Otolaryngology, Columbia University School of Medicine, New York, N. Y.

2—Diagnostic Clinic (Surgical). Neck cases, especially T. B., bronchial cysts or fistulae, thyroglossal cysts or fistulae hygromas.

Dr. Charles N. Dowd, Prof. of Clinical Surgery, Columbia University School of Medicine, New York, N. Y.

3—Diagnostic Clinic (Medical). Bone, cardiovascular, blood or gastro-intestinal cases.

Dr. Joseph Sailer, Prof. of Clinical Medicine, University of Pennsylvania School of Medicine, Philadelphia, Pa.

Intermission, Review Exhibits

4—Diagnostic Clinic (Surgical). Cranial and general surgical cases.

Dr. Samuel Clark Harvey, Associate Prof. of Surgery, Yale University School of Medicine, New Haven, Conn.

5—Diagnostic Clinic (Surgical). Upper abdominal cases.

Dr. John B. Deaver, Emeritus Prof. of Surgery, University of Pennsylvania School of Medicine, Philadelphia, Pa.

AFTERNOON SESSION, 1 P. M.

6—Diagnostic Clinic (Diabetic).

Dr. Rollin T. Woodyatt, Clinical Prof. of Medicine, Rush Medical College, Chicago, Illinois.

7—Diagnostic Clinic (Surgical). Surgery of the face and various parts of the body.

Dr. Allen B. Kanavel, Prof. of Surgery, North-

western University School of Medicine, Chicago, Illinois.

8—Diagnostic Clinic (Medical). Heart and lung cases.

Dr. Edward J. Beardsley, Associate Prof. of Medicine, Jefferson Medical College, Philadelphia, Pa.

9—"The Role of Operative Surgery in the treatment of Pulmonary Tuberculosis." (slides).

Dr. Willy Meyer, Prof. of Surgery, New York Post-Graduate School of Medicine, New York, N. Y.

Intermission, Review Exhibits

10—"Hypertension."

Dr. James H. Means, Prof. of Clinical Medicine, Harvard University School of Medicine, Boston, Mass.

11—"Observations on the Gall Bladder."

Dr. Frank Boland, Prof. of Surgery, Emory University School of Medicine, Atlanta, Georgia.

12—"Thoracic Suppurations."

Dr. Arthur M. Shipley, Prof. of Surgery, University of Maryland, School of Medicine, Baltimore, Maryland.

13—"Pyloric Stenosis."

Dr. Elmer E. Francis, Prof. of Surgery, University of Tennessee School of Medicine, Memphis, Tennessee.

EVENING SESSION, 7 P. M.

14—"The Treatment of Cardiac Syphilis."

Dr. Harlow Brooks, Prof. of Clinical Medicine, University and Bellevue Hospital Medical College, New York, N. Y.

15—"Plastic Surgery."

Dr. Allen B. Kanavel, Prof. of Surgery, Northwestern University School of Medicine, Chicago, Illinois.

16—"Heliotherapy as an Adjunct in the Treatment of Chronic Surgical Conditions."

Dr. George J. Heuer, Prof. of Surgery, University of Cincinnati College of Medicine, Cincinnati, Ohio.

17—"Further Studies Concerning the Injurious Effects of the Arterial Hypertension on the Cardio-Vascular Renal Apparatus."

Dr. Elsworth S. Smith, Prof. of Clinical Medicine, Washington University School of Medicine, St. Louis, Mo.

18—"The Relation of the Human Constitution to Disease."

Dr. George Draper, New York, N. Y.

19—Subject later.

Dr. Milton J. Rosenau, Prof. of Preventive Medicine and Hygiene, Harvard University School of Medicine, Brookline, Boston, Mass.

20—"Drainage as a Factor in Renal Disease." (Slides).

Dr. Guy L. Hunner, Associate Prof. of Gynecology, Johns Hopkins University School of Medicine, Baltimore, Maryland.

THIRD DAY

WEDNESDAY, OCTOBER 14TH, 7 A. M.

1—Diagnostic Clinic (Medical). Cases of cardiac syphilis, cardiac decompensation, lung tumor

or abscess, acute rheumatic fever, angina pectoris, chronic nephritis.

Dr. Harlow Brooks, Prof. of Clinical Medicine, University and Bellevue Hospital Medical College, New York, N. Y.

2—Diagnostic Clinic (Gynecology).

Dr. Guy L. Hunner, Associate Prof. of Gynecology, Johns Hopkins University School of Medicine, Baltimore, Maryland.

3—Diagnostic Clinic (Psychiatry).

Dr. Thomas W. Salmon, Prof. of Psychiatry, Columbia University School of Medicine, New York, N. Y.

Intermission, Review Exhibits

4—Diagnostic Clinic (Medical). Hypertensive diseases.

Dr. James H. Means, Prof. of Clinical Medicine, Harvard University School of Medicine, Boston, Mass.

5—Diagnostic Clinic (Surgical). Cases of rheumatism or rheumatoid arthritis.

Dr. Charles H. Mayo, Mayo Clinic, Rochester, Minn.

AFTERNOON SESSION, 1 P. M.

6—Diagnostic Clinic (Medical). Cardio-Vascular diseases or diseases of the blood.

Dr. Maurice C. Pincoffs, Prof. of Medicine, University of Maryland School of Medicine, Baltimore, Maryland.

7—Pathological Conference supervised by Dr. Harold E. Robertson, Prof. of Pathology, University of Minnesota (Mayo Foundation), Rochester, Minn.

"Lesions of Stomach and Duodenum; a study of 400 operated cases."

Dr. Donald C. Balfour, Prof. of Surgery, University of Minnesota Graduate School of Medicine, (Mayo Foundation).

Dr. Charles S. McVicar, Mayo Clinic.

Dr. William C. MacCarty, Prof. of Pathology, University of Minnesota Graduate School of Medicine, (Mayo Foundation).

Dr. Russel D. Carman, Prof. of Radiology, University of Minnesota, (Mayo Foundation).

8—"Familiar Problems in Gynecology."

Dr. William P. Graves, Prof. of Gynecology, Harvard University School of Medicine, Boston, Mass.

9—"Diphtheria and Its After Effects."

Dr. H. B. Cushing, Clinical Prof. of Pediatrics, McGill University Faculty of Medicine, Montreal, Canada.

Intermission, Review Exhibits

10—"Duodenal Ulcer versus Cholecystitis."

Dr. John B. Deaver, Emeritus Prof. of Surgery, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania.

11—"Some Recent Revelations of the Denervated Heart."

Dr. Walter B. Cannon, Prof. of Physiology, Harvard University School of Medicine, Boston, Mass.

12—"The Significance of Arterial Hypertension."

Dr. Wilder Tileston, Clinical Prof. of Medicine, Yale University School of Medicine, New Haven, Conn.

13—"Carcinoma of the Rectum."

Dr. Alfred T. Bazin, Prof. of Surgery, McGill University Faculty of Medicine, Montreal, Canada.

EVENING SESSION, 7 P. M.

14—"The Diagnosis of Abdominal Tumors." (slides).

Dr. Joseph Sailer, Prof. of Clinical Medicine, University of Pennsylvania School of Medicine, Philadelphia, Pa.

15—"The Liver and its Function in Relation to its Surgical Diseases."

Dr. Samuel Clark Harvey, Associate Prof. of Surgery, Yale University School of Medicine, New Haven, Conn.

16—"Renal and Ureteral Stones."

Dr. Edward L. Keyes, Prof. of Clinical Surgery, Department of Urology, Cornell University School of Medicine, New York, N. Y.

17—"Post-Graduate Instruction in our own Offices."

Dr. Edward J. Beardsley, Associate Prof. of Medicine, Jefferson Medical College, Philadelphia, Pa.

Intermission, Review Exhibits

18—"Osteotomy of the Os Calcis for extreme cases of Flat Feet." (slides).

Dr. John P. Lord, Prof. of Orthopedic Surgery, University of Nebraska School of Medicine, Omaha, Nebr.

19—"Treatment and Prognosis in Pericarditis."

Dr. Maurice C. Pincoffs, Prof. of Medicine, University of Maryland School of Medicine, Baltimore, Maryland.

20—"Modern Medical Education, Progress or Retrogression."

Dr. Eugene E. Murphey, Prof. of Medicine, University of Georgia School of Medicine, Augusta, Georgia.

President's Reception and Entertainment

FOURTH DAY

THURSDAY, OCTOBER 15TH, 7 A. M.

1—Diagnostic Clinic (Surgical). Renal and ureteral stone cases.

Dr. Edward L. Keyes, Prof. of Clinical Surgery, Department of Urology, Cornell University School of Medicine, New York, N. Y.

2—Diagnostic Clinic (Pediatric). Rheumatic fever and after effects in children of school age.

Dr. H. B. Cushing, Clinical Prof. of Pediatrics, McGill University Faculty of Medicine, Montreal, Canada.

3—Diagnostic Clinic (Surgical). Acute abdominal lesion cases.

Dr. Alfred T. Bazin, Prof. of Surgery, McGill University Faculty of Medicine, Montreal, Canada.

Intermission, Review Exhibits

4—Diagnostic Clinic (Surgical).

Dr. Arthur Dean Bevan, Prof. of Surgery, Rush Medical College, Chicago, Illinois.

5—"The Five Most Important Obstetrical Mistakes."

Dr. Joseph B. DeLee, Prof. of Obstetrics, Northwestern University School of Medicine, Chicago, Illinois.

AFTERNOON SESSION, 1 P. M.

6—Diagnostic Clinic (Medical). Abdominal diseases, especially of the liver.

Dr. Wilder Tileston, Clinical Prof. of Medicine, Yale University School of Medicine, New Haven, Conn.

7—Diagnostic Clinic (Surgical). Management of cases of prostatic obstruction.

Dr. Hugh Cabot, Prof. of Surgery, University of Michigan School of Medicine, Ann Arbor, Michigan.

8—"Pneumococcus Peritonitis."

Dr. Charles L. Gibson, Prof. of Surgery, Cornell University School of Medicine, New York, N. Y.

9—Subject later.

Rt. Hon. Lord Dawson of Penn, G. C. V. O.; C. B., London, England.

10—"Focal Infections."

Dr. Charles H. Mayo, Mayo Clinic, Rochester, Minn.

Intermission, Review Exhibits

11—"The Etiology of Anaemia and Its Importance in Diagnosis and Treatment."

Dr. Duncan A. L. Graham, Prof. of Medicine, University of Toronto, Faculty of Medicine, Toronto, Canada.

12—"Re-study of Operations for Radical Cure of Hernia, including Inguinal, Femoral, Umbilical, Post-operative Hernias associated with Undescended Testis and Diaphragmatic Hernia."

Dr. Arthur Dean Bevan, Prof. of Surgery, Rush Medical College, Chicago, Illinois.

13—Subject later.

Mr. Philip Franklin, F. R. C. S., London, England.

14—Subject later.

Dr. Thomas W. Salmon, Prof. of Psychiatry, Columbia University School of Medicine, New York, N. Y.

EVENING SESSION, 7 P. M.

15—"The Relative Roles of Surgery and of Radiation in the Treatment of Tumors of the Breast."

(a) Dr. F. E. Bunts, Prof. Principles of Surgery and Clinical Surgery, Western Reserve University School of Medicine, Cleveland, Ohio.

(b) Dr. U. V. Portmann, Cleveland Clinic, Cleveland, Ohio.

16—"Joint Ankylosis—Surgical Measure for its Prevention and Relief."

Dr. Nathaniel Allison, Prof. of Orthopedic Surgery, Harvard University School of Medicine, Boston, Mass.

17—"The Physiology of the Female Pelvic Floor."

Dr. Ernest F. Tucker, Prof. of Gynecology, University of Oregon School of Medicine, Portland, Oregon.

18—"Syphilis and its Relation to Eye Diseases."

(Dr. Joseph Schneider's Foundation Address).
Dr. William H. Wilder, Prof. of Ophthalmology, Rush Medical College, Chicago, Illinois.

19—"Diagnosis of Diseases of the Rectum."

Dr. L. J. Austin, Prof. of Surgery, Queen's Uni-

versity Faculty of Medicine, Kingston, Canada.

20—"The Use of Septal Flaps in the Treatment of Unilateral Clefts of the Hard Palate."

Dr. James E. Thompson, Prof. of Surgery, University of Texas School of Medicine, Galveston, Texas.

21—The Extrapleural Thoracoplasty operation on the Tuberculous Patient.

Dr. Arthur A. Law, Associate Prof. of Surgery, University of Minnesota Graduate School of Medicine, Minneapolis, Minn.

FIFTH DAY

FRIDAY, OCTOBER 16TH, 7 A. M.

1—Diagnostic Clinic (Surgical). Abdominal and gastro-intestinal cases.

Dr. Charles L. Gibson, Prof. of Surgery, Cornell University School of Medicine, New York, N. Y.

2—Diagnostic Clinic (Surgical). Joint involvement, particularly cases of suspected tuberculosis of either the knee, hip or other joints.

Dr. Nathaniel Allison, Prof. of Orthopedic Surgery, Harvard University School of Medicine, Boston, Mass.

3—Diagnostic Clinic (Medical). Cases of cardiac lesions or signs of interference with cardiac function.

Dr. J. C. Meakins, Prof. of Medicine and Director of the Department, McGill University Faculty of Medicine, Montreal, Canada.

Intermission, Review Exhibits

4—Diagnostic Clinic (Medical).

Rt. Hon. Lord Dawson of Penn, G. C. V. O.; C. B., London, England.

5—Diagnostic Clinic (Surgical).

Dr. George W. Crile, Prof. of Surgery, Western Reserve University School of Medicine, Cleveland, Ohio.

6—Diagnostic Clinic (Medical). Cases of anaemia and mediastinal tumor.

Dr. Duncan A. L. Graham, Prof. of Medicine, University of Toronto, Canada.

AFTERNOON SESSION, 1 P. M.

7—Diagnostic Clinic (Surgical). Cases of Anaemia.

Dr. William J. Mayo, Mayo Clinic, Rochester, Minnesota.

8—Diagnostic Clinic (Surgical).

Sir William Arbuthnot Lane, Bt., London, England.

9—Pathological Conference supervised by Dr. Harold E. Robertson, Prof. of Pathology, University of Minnesota (Mayo Foundation), Rochester, Minnesota.

"Benign Hypertrophy of the Prostate, its management and results."

Dr. William F. Braasch, Prof. of Urology, University of Minnesota Graduate School of Medicine, Mayo Foundation.

Dr. Herman C. Bumpus, Assistant Prof. of Urology, University of Minnesota Graduate School of Medicine, (Mayo Foundation).

Dr. Verne C. Hunt, Assistant Prof. of Surgery, University of Minnesota Graduate School of Medicine, (Mayo Foundation).

Dr. Waltman Walters, Mayo Clinic.

Dr. Wm. C. MacCarty, Mayo Foundation.

10—"Circulatory Failure in Heart Disease."

Dr. J. C. Meakins, Prof. of Medicine, and Director of the Department, McGill University Faculty of Medicine, Montreal, Canada.

Intermission

11—"The Cause and Prevention of so-called Catheter Cystitis and Retention of the Urine."

Dr. Hugh Cabot, Dean and Prof. of Surgery, University of Michigan School of Medicine, Ann Arbor, Michigan.

12—"The Treatment of Gastric Ulcer."

(a) "Indications for and the Technique of Dissection of the Stomach for Ulcers."

Dr. George W. Crile, Prof. of Surgery, Western Reserve University School of Medicine, Cleveland, Ohio.

(b) "The Medical Treatment of Peptic Ulcer." Dr. John Philips, Assistant Prof. of Therapeutics, Western Reserve University School of Medicine, Cleveland, Ohio.

(c) "The Patient versus his Lesions."

Dr. George W. Crile, Cleveland, Ohio.

13—"The Association of Lesions of the Bone Marrow, the Liver and the Spleen in certain Blood Dyscrasias."

Dr. William J. Mayo, Mayo Clinic, Rochester, Minnesota.

FOREIGN GUESTS

Rt. Hon. Lord Dawson of Penn, G. C. V. O., C. B., London, England.

Sir William Arbuthnot Lane, Bt., London, England.

Mr. William Blair Bell, F. R. C. S., Prof. of Obstetrics and Gynecology, University of Liverpool Medical Dept., Liverpool, England.

Professor Vittorio Putti, Bologna, Italy.

Mr. Philip Franklin, F. R. C. S., London, England.

Dr. H. L. McKisack, Consulting Physician, Royal Victoria Hospital, Belfast, Ireland.

Dr. W. H. Parkes, C. M. G., C. B. E., Auckland, New Zealand.

BANQUET

The following distinguished citizens of the world are expected to be present and take part on the banquet program:

Honorable Theodore Christianson, Governor of Minnesota.

Dr. George W. Crile, Cleveland, Ohio.

Rt. Hon. Lord Dawson of Penn, G. C. V. O., C. B., London, England.

Sir William Arbuthnot Lane, Bt., London, England.

Mr. Charles H. Markham, President of the Illinois Central Railroad.

Dr. Charles H. Mayo, Rochester, Minnesota.

Dr. William J. Mayo, Rochester, Minnesota.

Sir Henry Thornton, President of the Canadian National Railroad.

Banquet Program subject to Rearrangement and Additions.

Position of Matron of Hospital Wanted

A widow who has had a course in institutional training desires a position as matron of a small hospital. Address 291, care of this office.

Good Location in Minneapolis for a Physician

Good location in North Minneapolis for a young physician with some experience. Scandinavian preferred. Address 293, care of this office.

Minneapolis Offices for Physician and Dentists

At 2400 Hennepin Ave., front rooms on second floor, steam heat, electric light, etc. Very desirable offices at very low rental. Call at corner store or telephone Kenwood 0060.

Assistantship Wanted

A 1923 graduate of a Class A school desires an assistantship to a good general practitioner or small clinic until April 1, 1926, when he is to enter a large clinic. Address 287, care of this office.

Practice for Sale

An old-established unopposed general practice in Northeast North Dakota. Plenty of work and good pay. Good residence, completely modern. Moving to the city. Terms very reasonable. Address 286, care of this office.

Laboratory and X-Ray Technician Wants Position

Can do Wassermanns, blood chemistry, blood counts, spinal fluids, gastrics, feces, basal metabolism, etc.; also x-ray work; a graduate nurse. Prefer location in Twin Cities. Address 282, care of this office.

St. Paul Office Wanted

An Eye, Ear, Nose and Throat man wants to share office rooms in St. Paul. Would sublet from established surgeon, general practitioner, group, etc. Experienced and in good standing. Address 288, care of this office.

Practice for Sale

In a city in North Dakota, mainly surgery and office practice. Collections average \$12,000. Established for years. Complete equipment. Good hospitals. Will introduce. No real estate. Real opportunity. Address 292, care of this office.

Physician's Office in Fine Location in Minneapolis

Over drug store, corner Penn Ave. and West Fiftieth St. at end of the Oak and Harriet car line. Location unsurpassed. District growing rapidly. Dentist across the hall. Nearest physician nearly one mile. Rent, \$35 a month with heat. Inquire at Rood's Pharmacy, 2300 West 50th St. (telephone Walnut 2413), or telephone to owner, Hyland 3129.

Assistantship or Partnership Wanted

In town of 5,000 or better with man doing surgery or E. E. N. & T. or combined with general practice. By 1916 graduate; 35 years of age; good hospital training; seven years general practice. Desires opportunity of gaining surgical experience and obtaining permanent location in good residential town. Address 297, care of this office.

Physician Wanted

To locate in a good neighborhood in Minneapolis. A suitable suite of rooms adjoining dentist's office with general waiting room above a corner drug

store in an up-to-date brick building. Address Chicago Avenue Pharmacy, 3757 Chicago Ave. or telephone Colfax 0906, Minneapolis.

Assistant Wanted

A young man capable and desirous of advancement is wanted for temporary or permanent position with a clinical group in a good Minnesota town. A future for the right man. State experience, ability, nationality and salary expected. Address 283, care of this office.

Position Wanted

A registered nurse, who is a graduate of the Chicago Lying-In Hospital (1924) and has had institutional experience in obstetrics, a year and a half work in anesthetics, some experience in x-ray work, desires a position in a hospital or clinic in Minneapolis. Address 294, care of this office.

Minneapolis Office for a Physician for Rent

Minneapolis office for physician, etc., at 7th St. and Nicollet Ave. Third floor, corner suite, and two private offices and reception room; newly decorated and in first-class condition. These offices are on Minneapolis' busiest corner where thousands of people pass daily. Address 295, care of this office.

Position Wanted as Technician

A well-trained laboratory technician; graduate of recognized school; competent to take complete charge of clinical or hospital laboratory; well grounded in Wassermanns, blood chemistry, urinalysis, tissue technique, bacteriology, and clinical microscopy; open for immediate appointment. Address 290, care of this office.

Part-Time Work Wanted in Twin Cities by a Physician

A physician with thorough training, particularly in Internal Medicine, who is a graduate of the London Hospital and is going to work at the University Clinics, desires part-time work in the Twin Cities, especially internal medical work, laboratory work, or general practice. Best of references. Address 296, care of this office.

Office Position Wanted

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NEUROLOGY: A CLINIC*

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SAINT PAUL, MINNESOTA

It is very gratifying to me to see the interest the doctors in South Dakota take in the material that is presented. Dr. Billingsley has collected some cases which I will present to you.

CASE 1.—This first patient is fifty-two years old, a farmer by occupation. He is married. There are no children in the family, but one died in infancy.

In January, 1925, the patient had a mild attack of influenza and was rather drowsy afterwards. In March, 1925, his mental change became noticeable. He cannot walk alone without falling in every direction. He takes very short steps, is silent, and cannot remember anything. He says that Cleveland is our President. He has no interest in his surroundings and does not know where he is. He has soiled himself on several occasions and has had nocturnal enuresis. His knee-jerks are exaggerated, the right more so than the left. There is no clonus. The superficial abdominal reflex is exaggerated. The pupils are small, equal and contract to light. His teeth are in poor condition.

This man's history is rather peculiar in that he has gradually deteriorated, both mentally and physically. After his influenza he complained of drowsiness, but not to the point of sleeping sickness. There was lack of power to concentrate and mental deterioration all along the line. Along with this came the physical deterioration. He had a tendency to take short steps and to fall backward or to one side. He says he is unable to retain an erect position. There is no history of definite paralysis.

The patient looks well but his memory is entirely at variance. He says this is the month of March, 1924, and does not know the town he is in,

but mentions cities in his neighborhood. He does not know who owns the farms north, south, east, and west of his own. He is totally oblivious of all things connected with his previous life. He does not talk much, shows no interest in things, is completely disoriented at times and has had incontinence of both bowels and bladder.

The question as to the nature of his trouble is the thing of present interest. One would consider paresis in the second or third stage, but there is no history of any symptoms and the onset occurred last January. We might consider encephalitis as a probable cause of his deterioration, except that there is no definite history of any attack of influenza or any of the somatic signs of encephalitis. We have here a condition which resembles in its acute onset the slow onset of old age. He has a senile dementia, no doubt, at fifty-two. I have seen this occur at forty. Senile degeneration is a condition of its own. A man can be senile at forty and simply old at ninety. He can lose all his faculties at forty and retain them at ninety.

How do we determine the senile element? By the gradual loss of all the refinements of life. We find, for instance, that as the man grows older his memory is telescopic. He can remember things that happened thirty or forty years ago but cannot remember the day of the week or where he left his shoes. It is as if the shelf of memory was so crowded with objects that the things he put on last do not stick, but fall off. So it is with the refinements of life. The man begins, as he degenerates, to be careless about his clothes. He goes out without buttoning his clothes, particularly those parts which should be buttoned. He not only eats his food but wears it. He tells risqué stories in the presence of ladies, he gets lost in his own house, he accuses his old wife of running around with young sheiks. These are perfectly characteristic

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delusions. This man has loss of memory of recent things. He has no recollection of the ordinary things of life. His steps are slow, short, and feeble. He has not much muscular power and does not pay much attention to where he is going. He falls to the back usually but is likely to tumble in any direction.

His blood pressure is 235, systolic; 138, diastolic. He has rigid arteries; they are rope-like, and there is failure of proper nutrition of the brain, which causes a general deterioration, which we call softening of the brain.

The interesting feature of the case is the rapid onset. Within three or four months he has degenerated into a chronic, senile dement. He has greatly exaggerated knee-jerks. The superficial abdominals are absent. The pupils are small, react sluggishly to light and he has a lot of very bad teeth.

CASE 2.—This case is one of multiple sclerosis. There is a distinction between Parkinson's disease and multiple sclerosis, but the etiology is much the same. We used to find in books on nervous diseases overwork and exposure to cold mentioned as being etiologic in diseases of the brain and cord. We have now outlived that age of guesswork and have substituted for it the theory of infection. We find that the infections are due to localized centers, the teeth, the tonsils, the gall-bladder, or some other focus where pus exists. Multiple sclerosis advances by reason of its infectious inroads here and there in the brain and spinal cord. If we have a little abscess at the root of a tooth or an abscess in the tonsil, it is feeding the blood with pus. A little germ wanders up in the vessel and finds its way to the very small terminal vessels and there sets up a small area of inflammation, not larger than a pin point. This sets up a localized encephalitis which heals, but leaves a little scar. Soon another and another, and scattered through the lenticular nuclei and spinal cord we find these little areas of infection. That is what multiple sclerosis is. It is a direct infection which produces multiple scar tissue at various points throughout the brain and cord, and it produces perfectly definite symptoms.

This woman is forty-nine years old. You will notice at first the mask-like expression. The muscles of the face are immobile. When she smiles she does so slowly. Whenever any emotion strikes her the response of the face is slow. Her speech is retarded. The family history is negative. Her personal history is negative, except for the removal of the appendix and a cystic ovary some years ago. She never had influenza. About ten years ago she noticed that the right arm was lame and she could not move it readily. Later the right leg became affected. Sixteen months ago the left arm became practically helpless, and now it is not as strong as the right. A peculiar phenomenon is that if she wants to use the left arm the right arm wants to go with it. The left leg is perfectly normal. She has occasional numbness on the right side. Her gait is slow, and her speech is difficult. Her vision has failed somewhat recently. The sense of smell is diminished, and at times she has difficulty in breathing. This has been particularly noticeable during the last six months. The bowels are fairly normal. She does her own work as well as she can.

Her articulation is slow, and her voice is weak. The eye movements are normal. There is no nystagmus, which is usually present in multiple sclerosis. The abdominal reflexes are present, although they are usually absent in multiple sclerosis. There are certain signs, notwithstanding these things, which make me think this is a case of multiple sclerosis. One of the things is intention tremor, which is characteristic of this form of disease. All of the reflexes are greatly exaggerated. There is no Babinski, and the vibration sense in the right leg is not recognized as vibration. She recognizes some vibration but not the proper degree. Her attitude when she stands is characteristic, with the knees bent forward.

These cases show a tendency always to progress. The woman has very pronounced pyorrhea along the lower incisors. A fact was stated to me during the examination by her local doctor, who said that sixteen months ago when the left arm became paralyzed she had just lost a child from infantile paralysis, but she did not know it. This case is masked to a certain extent by a superimposed infantile paralysis on top of multiple sclerosis.

In paralysis agitans we have the pill-rolling motion with the arm at rest. When they exercise it stops. In multiple sclerosis we have no motion with the hand at rest but coarse shaking when in action. In other ways the two diseases correspond pretty well. In paralysis agitans there is tremor when the hand is at rest which stops when it is in motion. In multiple sclerosis there is tremor when in motion and none when the hand is at rest. There is the further distinction that loss of the abdominal reflexes and nystagmus are found in multiple sclerosis and not as a rule in Parkinson's disease. So far as the expansion, the gait and the reflexes are concerned, they are practically identical.

The etiology is supposed to be scattered spots of scar tissue throughout the brain and spinal cord.

CASE 3.—This man had the usual childhood diseases, and he lost his left eye as a result of an accident. He has been married for seventeen years. His wife has had five children and no misarrriages, although he says his trouble began about seventeen years ago.

He is forty-three years old, a traveling salesman. His trouble began with urinary incontinence, unsteadiness of gait, and shooting pains down the legs. About ten years ago he began to have recurrent attacks of severe epigastric pain, paroxysmal in character, accompanied by vomiting and occurring every few weeks. Eight years ago he was given several Swift-Ellis treatments. This was followed by a course of thirty-six mercurial inunctions, but he continued to have the attacks of pain.

He was first seen by his present physician in December 1923, in such an attack. The blood Wassermann reaction was positive, and he was given six intravenous injections of 0.9 gm. of neoarsphenamin at weekly intervals. Since then the gastric crises have been relatively infrequent. At present he complains chiefly of an unsteadiness of gait and a feeling of numbness in the soles of his feet. He has no pain in the legs.

This is a typical case of tabes, with inability of the pupil to contract to light, but it does respond, to a very mild degree, to accommodation. The

other eye is glass. The hands and arms present no particular features. His knee-jerks are completely absent, there is no Babinski and no Achilles jerks, so he undoubtedly has a posterior cord disease.

He walks remarkably well for a man who has had seventeen years involvement. He has no Charcot joints, although we expect to find these after seventeen years of tabes. If he shuts his eye and tries to look up he tends to stagger, and he has much more difficulty in going down than upstairs. He has no complete incontinence. He has had the girdle sensation. One thing that is perfectly characteristic of tabes and is found in no other disease is the anesthesia along the dorsal roots. In the cases in which one is in doubt as to whether the condition is tabes or not, if we can elicit the anesthesia along the dorsal roots we can be sure of the diagnosis. In ninety-nine cases out of a hundred we will find the dorsal anesthesia. It is just as characteristic of tabes as are the Argyll-Robertson pupil and the absent knee-jerk.

CASE 4.—This is a case of lateral sclerosis. The man is forty-two years old, married, and the father of four children. He had the ordinary diseases of childhood, smallpox, and a mild attack of influenza in 1921. He denies venereal infection. In the fall of 1921 he noticed that he was walking poorly and that he could not dance. His vision began to fail, as did his sexual power. He had difficulty in walking downstairs. His urination was slow and difficult, and his bowels were constipated. He had pains in his legs occasionally and formerly had the girdle sensation, but this has now disappeared. His right pupil is larger than the left. He has tremor of the tongue but his facial muscles are normal. His reaction to test words is normal. His arms and hands are normal. The abdominal and cremasteric reflexes are absent. His knee-jerks are greatly exaggerated, there is ankle clonus, the Achilles jerk is somewhat exaggerated, there is also a Babinski on both sides. He has some incoördination and there are root zones of anesthesia.

Examination shows a little doubtful inequality of the pupils. At one time we thought the right pupil was a little larger than the left, but later we could not be sure of this.

We have here a characteristic involvement of the lateral columns without much toe-drop although there is some in the right foot. It was much worse than it is at present. There is absence of the throw in the gait, which you saw in the case of tabes a few moments ago. There is involvement to a greater or less degree of the motor roots.

The prominent symptoms are those of lateral sclerosis. He has the increased knee-jerks, the Babinski, the ankle clonus, toe-drop, but what about the absence of the abdominal and cremasteric reflexes and the anesthesia of the back? There is such a thing as combined sclerosis. Has this man also got a modified involvement of the posterior columns? It seems so, and yet I hesitate to say so because of the negative Wassermann reaction and the other findings. I would not wish to make a diagnosis of combined degeneration of the spinal cord unless I knew he had a syphilitic infection at one time. We will let the posterior end of it develop as it will and call it simply lateral sclerosis

for the present. He is considerably better than he was and may make quite a gain.

CASE 5.—This looks like a case of chorea, as though no other diagnosis were possible, but it is not chorea.

This little Dorothy is six years old. She stands with her head held forward and seldom raises her head. I want to call your attention to the gait. You notice the irregular posture of the leg and the tendency of the thumb to be inside when she begins to shake. She is quite choreic.

The history of this case is peculiar. She has had mumps and measles, but no other diseases. She was a premature child, still born, and it took half an hour of vigorous effort to bring her to life. She was a delicate and feeble child, and at first when she began to walk she would fall backward. It was difficult for her to maintain her equilibrium. Her mother did not notice that there was much the matter with her until she was about two years old, when she was walking, and there was an irregular twitching of the body and hands. She was in practically constant motion. This has persisted, and there has been practically no time since the age of two when she has not been in constant motion. She has not been taught. There are five other children but she is as bright as the rest.

Examination shows that the right eye turns up more than the left. The left facial muscles are weaker than the right. She will not protrude the tongue. The left leg tends to turn in, but this tendency is not so marked in the right. There is a certain throwing gait and instability of the muscles of the left side of the body. The twitching which she goes through, which she has not exhibited for you so markedly, is of the general choreic type, but with the thumbs inverted. She seems to have the athetoid stiffness of the cerebral palsies of childhood. In hemiplegias in childhood we sometimes see the athetoid movements of one side, but this child has them on both sides. At birth she had a cerebral hemorrhage of the left side to a small extent but more to the right, and this is an end-result of cerebral palsy. It is not chorea, although to the average observer it would seem to be. The knee-jerks are present, there is no Babinski, and no ankle clonus. It is a case of athetosis following cerebral palsy of childhood.

CASE 6.—I have not seen this patient before, but it is a case of Little's disease. The child is five years old, and her mother says she has never been normal. The head has always been large, and the left side is much more prominent than the right, as you can see. The lids fail to cover the eyes properly. It is a combination of hydrocephalus and Little's disease. The head is flattened on one side and bulging on the other. The left arm is rigidly contracted, as is the hand. The spasticity is most marked on the left side. She is said to have a good memory, and she will play with toys if she likes them. She never has walked.

We have a general spasticity of cerebral origin. Cases of Little's disease are caused by bilateral hemorrhage over the cortex of both sides of the brain. In cases less severe than this we find that the legs have a tendency to cross, like scissors, and run the knees together. The combination of

hydrocephalus and Little's disease is unusual. She keeps the eyes turned to the left more than to the right, but the mother says she does not do this so much under normal conditions. There is, undoubtedly, some obscure optic paralysis here, and I have no doubt the child would see double if we could investigate the eyes properly.

CASE 7.—There is no difficulty in making the diagnosis in this case. This man is forty-five years old. His hand began to shake about a year or a year and a half after he had an attack of influenza. He has not an intention tremor but a tremor when the hand is quiet. When the hand is in action it is entirely without tremor. There is no tremor during voluntary exercise of the muscles. There is little or none of the mask-like expression. There has been no extension of the disease. It is still in the beginning stage. There is a little immobility of the face, but it would not be called mask-like. The hand stops twitching when he goes to sleep, but starts when he awakens. There is no apparent difference in the strength of the two hands. There is no nystagmus. The ocular movements are entirely normal. In this disease we frequently find when the patient wrinkles up his nose that the muscles begin to twitch after a while. There is sometimes a little twitching of the head.

There is one little trick about detecting tremor. In the goiter cases for instance, in case you are uncertain about tremor, if you cover the fingers with a handkerchief you can see the handkerchief shake when you cannot be sure of it in the fingers.

This man has definite hammer toes on both feet.

There is no Babinski. When he walks you can notice the tendency of the left knee to bow forward a little, and there is a tendency toward spasticity in the left leg.

This case and the other one I showed you present traces of difference between a paralysis agitans and a multiple sclerosis, which are so often confusing. I have had the unfortunate experience in the last four or five years of seeing many young people with the Parkinsonian syndrome following influenza. Many patients only eighteen to twenty-five years of age come in with a typical Parkinsonian syndrome. I think the most abominable plague we have had in recent years has been the influenza. As the Irishman says "It is the disease you are sick with a year after you get well." That is true. I have seen at least a dozen cases of the Parkinsonian syndrome in young people in the last six months as the result of encephalitis.

As to treatment: We do not know what to do. We do not know what causes the disease or how to treat the sequelæ. When a patient comes in with a beginning Parkinsonian syndrome there is one remedy par excellence and that is iodid of potassium. I have found some relief from the intravenous injection of sodium iodid, about thirty grains twice a week. I think the early recognition of this disease is of assistance. They are dreadful things to contemplate when we consider the things that follow: the Parkinsonian syndrome in the young girl or boy, and the other symptoms that so frequently develop. We must follow the advice of Dr. Geist and quarantine not only our infantile paralysis but also our influenza cases.

THE PREVENTION OF HEART DISEASE AND ITS CONSEQUENCES*

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The importance of the problems dealing with the prevention of heart disease can be appreciated only when we realize that this is the greatest single cause of death in the United States to-day, accounting for 12.8 per cent of all deaths and 19.2 per cent of all deaths at the age of forty or over. Heart disease levies the heaviest toll in the years of middle life, the years of greatest productivity. The vast incidence of heart disease in the apparently healthy person is demonstrated by the rejection of from 4 to 5 per cent of draft registrants because of heart disease, by the rejection of 2 per cent of all life insurance applicants because of heart disease, and by the incidence of heart disease in 1.6 per cent of the school children of New York City. Ten per cent of the hospital beds of our general hospitals are occupied by patients with heart disease, and 25

per cent of patients at city dispensaries have heart disease. About 13 per cent of patients registering at the Mayo Clinic for all causes are found to have organic heart disease. That heart disease is a steadily increasing cause of death and disability is evidenced by the fact that it has increased 42 per cent as a cause of death in fifty years in the State of New York.

THE CAUSES OF HEART DISEASE IN CHILDHOOD

Rheumatic fever.—Of the diseases causing heart disease in children and young adults, rheumatic fever has the first place. In the children's heart clinic at the Massachusetts General Hospital, this was the determined cause in 86 per cent of the cases. In the heart clinic for adults it was the cause in 54 per cent of the cases. Studies by Lambert and Conner showed the presence of heart disease in 76 per cent of patients with rheumatism under ten years of age. The

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etiology of rheumatic fever has been long in dispute, and the work of Poynton and Paine, in 1900 and 1910, has not been generally accepted, although definitely confirmed by Rosenow, in 1914. These workers recovered streptococci from the joints of patients with rheumatic fever and were able to grow them artificially and to produce by animal inoculation multiple joint lesions, which subsided and healed spontaneously and were not septic arthritis, and also endocarditis and pericarditis. Recently Clawsen has been able to isolate pure cultures of streptococcus viridans in a considerable number of cases of rheumatic endocarditis, and has been able to reproduce the typical lesions of rheumatic fever, including the joint lesions, endocarditis, and the characteristic Aschoff bodies in the myocardium. Emmerson, Poynton and Paine, and others have long considered rheumatism unquestionably a communicable disease, and accurate studies of its family incidence in Boston showed an incidence of two or more cases in one family in thirty-nine of one hundred families studied. With rheumatic fever must be included chorea and probably erythema nodosum.

The recognition of cardiac involvement in cases of rheumatic fever is often difficult in the early stages, and the signs of involvement may not be evident for several months or years, especially in cases of chorea; hence the necessity for continued observation and repeated examinations.

The great tendency toward recurrence must be realized. Its prevention should include the careful elimination of all foci of infection, diseased tonsils, periapical abscesses (often present in deciduous teeth), diseased sinuses, prostates, cervixes, gall-bladders, and so forth. The tendency toward initial attacks and recurrences after tonsillectomy is well known, but the consensus of opinion is in favor of removal of the tonsils. The early recognition of recurrence is important so that treatment may be prompt and vigorous in the hope that further damage may be prevented. The patients should be instructed concerning the nature, importance, and urgency of these symptoms. The milder cases of chorea and rheumatism, often attributed to growing pains, and cases of frequently recurring sore throat are those most often neglected.

Scarlet fever and diphtheria.—Two other causes are scarlet fever and diphtheria. In these diseases again the importance of carefully supervised convalescence should be emphasized, and it should not be forgotten that valvular lesions following scarlet fever are often not evident for some months after the acute illness.

CAUSES OF HEART DISEASE IN LATER LIFE

In a series of cases of heart disease beginning later in life, White found the arteriosclerotic type in 23 per cent, the syphilitic in 11 per cent, and the hypertensive in 9 per cent.

Syphilis.—With improvement in diagnostic and therapeutic methods, the incidence and severity of the syphilitic type should diminish. The mortality rate in syphilitic heart disease, reported by Willius and Barnes, strikingly emphasizes the value of early recognition. In the early group there were no deaths; in the moderately advanced group 11 per cent died, and in the advanced group 38 per cent died. The disease can be diagnosed early only by repeated systematic reëxamination of all syphilitic patients. Examination must not await the advent of cardiovascular symptoms, since these do not appear on an average until eighteen years after the initial infection.

Arteriosclerosis and hypertension.—In cases of arteriosclerosis and hypertensive heart disease some premonitory signs are usually evident. Their recognition and the early institution of more rigid measures will lead to better results. Of these measures the avoidance of obesity is one of the most important. In cases of hypertensive heart disease, extreme physical exertion, all excesses, particularly those in diet, must be avoided, and additional periods of rest must be instituted, and social and psychic factors, which are often of the greatest importance in these cases, must be carefully considered. On rearrangement of habits at thirty-five years of age may depend freedom from heart disease at fifty years, and here perhaps lies the vindication of golf, for surely sedentary habits are among the chief contributory factors.

Chronic infectious arthritis.—The frequency of infectious valvular disease in cases of chronic infectious arthritis has been pointed out by Boas and Rifkin. They found it undoubtedly present in 17.5 per cent of their cases, and doubtfully present in 13.7 per cent. Hench found heart disease in 46 per cent of cases of chronic arthritis of all types. In this group the eradication of all foci of infection is important.

PREVENTION OF DISABILITY

Care of the individual patient.—The prevention of the disabilities arising from heart disease is perhaps a more hopeful part of the problem. The amount of damage, valvular and myocardial, must be determined, as well as the cause and the degree of activity of the disease. Here the im-

portance of the clinical history will equal that of the physical findings. The degree of myocardial disability can be largely determined by the employment of simple tests and exercises, and by the degree of breathlessness and the alteration of pulse and blood-pressure so induced. Once the extent of damage has been determined, the patient can be properly advised concerning his activities, and it is in this connection that the greatest good has come from the work of organized heart clinics in larger cities. They have classified these cases, advised special training when necessary, and aided in the securing of suitable employment. By following these patients and making repeated examinations, they have gradually accumulated important data concerning the effects of the various types of work, and have at the same time guarded the welfare of the patient. Similar work has been done in the schools.

Where these social agencies are not available, it becomes the responsibility of the physician so to advise the patient that he may avoid further attacks of heart failure. Patients must be advised of the early symptoms of heart failure and urged to use every effort to live within their limitations. They must be encouraged by the possibility of living useful lives. They have a great tendency toward introspection and neurosis, and the undue fear of sudden death must be overcome in both the patient and his friends. The importance of these "mental hazards" cannot be overestimated.

The greatest care is needed in the diagnosis of existing disease if the establishment of cardiac neurosis on false premises is to be avoided. Brush says, "Cardiac cases need particularly correction of neurosis and faulty mental attitudes, upbuilding of general physical and heart-muscle strength through short periods of activity alternating with rest, and the inculcation of ways of life that will carry on into the main pursuits which are happiness and service."

Organized methods.—Of the agencies at our disposal to further these ends, none is yet entirely perfected. In June, 1924, the American Heart Association was formed along lines similar to those of the National Tuberculosis Association, embracing both professional and lay membership. By its national scope it will be able to utilize every means of expression, acquaint the laity with the importance of heart disease, and coordinate the work of separate groups in the study and prevention of heart disease. Its direc-

tion by our most able cardiologists and its certain resources through a large contributing membership will assure its success. In the larger cities the cardiac clinics, the convalescent homes and camps, and the occupational schools are playing a large part. The widespread interest in this movement is evidenced by the large numbers of these clinics, not confined to the larger centers as New York and Chicago, but found in such smaller cities as Davenport, Iowa.

In Minnesota the Minnesota Heart Association was organized in 1924 by a group of men particularly interested in heart disease. It is conforming its policies to those of the national association.

In the rural districts the responsibility will lie with the physician himself. Much can be accomplished by (1) continued observation of the juvenile patient; (2) better use of school physicians and school and county nurses in bringing these cases to light; (3) the instruction of the teachers in the recognition of, and the importance of, signs of chorea, mild rheumatism, and repeated sore throat in their pupils; and (4) the promotion of dental hygiene and the early attention to diseased tonsils. The consideration of rheumatic fever as a definitely infectious disease will mean lessened incidence. The instruction of the laity through public health lectures and demonstrations is fundamental. People are interested in health as they have never been before, and they will respond to such instruction if they have an opportunity to hear it. The last and most personal, and probably in the end the most potent, means will be periodic examinations of both adults and children.

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FRACTURES NEAR AND INTO THE ELBOW JOINT*

BY DANIEL WILLIAM MATTHEI, M.D.

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Injuries to the elbow present some of the most difficult problems we have to deal with, both as to diagnosis and treatment. Results are very often open to criticism, and it behooves us to review this subject frequently in order to keep up with the newer methods of treatment.

Fractures near the elbow joint are the supracondyloid fracture of the humerus; the fracture of the external epicondyle (this is rare); and fracture of the internal epicondyle. Fractures into the joint are T or V or Y fracture of the humerus; fracture of the external condyle; fracture of the internal condyle; fracture of the olecranon; and fracture of the head or neck of the radius. Any of these may be complicated by dislocation of either the radius or the ulna, or both. Fractures complicating dislocations where the latter is the primary injury are fracture of the shaft of the ulna, complicating dislocation of the head of the radius, and fracture of the coronoid process, complicating backward dislocation of the ulna.

Examination.—If the patient is at the place where treatment is to be given it is usually advisable to give an anesthetic. Both the well and the injured elbow should be bared and carefully compared. Inspection may at once show swelling, deformity, and ecchymosis. There is evident loss of function.

Landmarks.—The bony landmarks are the external epicondyle, which is not very prominent, the internal epicondyle being more prominent; the olecranon process; the head of the radius below the external condyle; the posterior surface of the ulna, continuous with the olecranon; and the capitellum.

Relations.—The axis of motion of the elbow joint is on a line through the condyles from the outside in and down. When the forearm is extended the olecranon and the condyles are on a line; when flexed to a right angle, they form a triangle. This relation is also described as follows: A plane parallel with the humerus and passing through the condyles will cut the tip of the olecranon; the external supracondyloid ridge can be more easily palpated than the internal; the head of the radius can be felt in the pit or groove below the external condyle; and the capitellum

can be felt above the head of the radius.

Measurements.—External condyle to acromion; internal condyle to styloid process of the ulna; distance between condyles.

The carrying angle.—The axis of the joint is not transverse. It slopes from the outside in and down. When extended the forearm is bent outward about 10° , and when flexed it is bent inward about 10° —sometimes more or less, the usual figures given being 6° to 15° . In pronation the carrying angle disappears when the forearm is extended. The elbow joint has no lateral motion. Each prominence is to be examined, its relation noted, and the forearm manipulated, such as pronation, supination, flexion, and extension. These points in the examination determine the diagnosis. The diagnosis should take not only these points into consideration, but also the injury to the soft parts, immediate and remote.

When practicable a skiagram should be taken for diagnosis; if not possible, the fracture should be reduced at once and x-rayed later. If available, the fracture should be reduced under the fluoroscope.

Mechanism.—The mode of production of an injury, especially a fracture, is of great importance, both as to the diagnosis, what has happened, and what to do. It is important to have a mental picture of how the accident occurred and in treating the reverse process. In general the fractures in children are hypertension fracture caused by indirect violence from a fall on the hand, and in adults they are due to direct violence, machinery accidents, and falls on the elbow.

In falls on the elbow the olecranon acts as a wedge and forces the condyles apart, producing a fracture of either condyle or both, or a T or V or Y fracture. The external epicondyle is very seldom fractured, but, if so, is caused by direct violence. The external condyle is often fractured by indirect violence in a fall on the hand, the force being transmitted through the radius. Fracture of the internal epicondyle is due to direct violence and is often separation at the epiphyseal line. Supracondyloid fractures and separation of the epiphyses are usually due to indirect violence, such as a fall on the hand. If this fracture is due to direct violence, the displacement is usually forward or anteriorly. In falling on the hand so as to dislocate the radius,

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the force is continued; the shaft of the ulna may be broken.

Separation of the epiphyses must be differentiated in the diagnosis, and, though treatment is identical, it is important to x-ray the healthy arm, as well as the injured one, for comparison of the multiple centers of ossification.

There are four centers of ossification which appear as follows: in the capitellum, 1 to 2 years; internal epicondyle, 5 to 6 years; trochlea, 11th year; external condyle, 12th year. The capitellum, trochlea, and external condyle are fused at about the 12th or 13th year and form the epiphysis, which is united to the diaphysis in the 15th to the 20th years. The internal epicondyle unites at about the 18th year. The older the child, the more likely a part of the diaphysis is detached with the epiphysis, or the more likely there is stripping-up of the periosteum.

Complications.—The complications to be considered are immediate and subsequent. First, in the immediate, if compound, sepsis; second, dislocations inward, outward, backward, and, if in the radius, upward; third, injury to the soft parts, any degree, and involving any and all surrounding structures.

Later: First, ulnar nerve; second, ankylosis; third, Volkmann's ischemic contracture; fourth, myositis ossificans traumatica.

All of these later complications are due to faulty treatment and should be prevented.

Compound fractures should be treated with the utmost asepsis. If due to a puncture by the bone and the wound is small, the skin wound should be cleaned with benzine and iodine applied, the hair shaved away, the wound covered with gauze, and the case treated as a simple fracture unless infection supervenes. If the wound is large, after doing the above the wound itself should be cleaned in addition with Dakin's solution, all foreign material, blood clots, and dead tissues removed with the most careful non-hand-contacting technic. Usually Dakin's tubes should be inserted until the infection has been overcome.

Ankylosis, if not due to infection, is most often due to faulty position of the fragments or excessive callus formation. The former should be recognized and corrected, and the latter prevented. There is a marked difference of opinion of authorities on this point, some of the best advocating rest for four or five weeks, but I believe the preponderance at present is in favor of early massage and carefully guarded motion.

Early nerve involvement is usually due to penetrating foreign bodies, and, if severed, requires suture. These cases do not concern the

general practitioner very much, for he will usually refer them to the specialist, but the later ulnar nerve involvements do, as they are usually the result of poor work in the first place. Late ulnar nerve involvement is due to inclusion of the nerve in the callus or scar tissue in fracture of the internal condyle, or in fracture of the external condyle if not held in place, resulting in the increase of the carrying angle and consequent stretching of the nerve.

Volkmann's ischemic contracture is due to an excessively tight dressing, and the prevention is obvious.

Myositis ossificans traumatica is due to a severe strain or dislocation in which there has been a slight tearing of the periosteum or muscle fibers carrying osteogenetic cells into the muscle, for which reason dislocation should be treated as fractures and put up in acute flexion to give the torn tissues an opportunity to heal.

Fractures of the olecranon.—Separation of fragments are due to one or more causes: First, tear in tendon and fascia; second, effusion; third, flexion. If the separation is not great, a long internal splint is used, extending from the axilla to the hand. This is well padded, especially in the hand, and a pad is placed over the upper fragment and strapped to the hand with adhesive tape. If the separation is great it must be sutured either by the subcuticular or the open method.

Of the remaining fractures, the various methods of retaining reduction are, first, acute flexion, (a) adhesive, (b) posterior molded or metal splint, (c) Lund swathe; second, internal or external angular splint; third, external molded splint; fourth, Thomas' traction arm splint; fifth, Jones' humerus splint; sixth, aeroplane splint.

The acute flexion method is definitely contraindicated in the fractures of one or both condyles when the displacement is forward, as it would tend to increase the deformity. These are probably best put up in a Jones' splint or other arrangement which holds the lower fragment back in place.

There is one golden rule regarding the fractures of the elbows; they should all be treated with the elbow fully flexed and the forearm supinated with the single exception of the fracture of the olecranon, which requires full extension.—Oxford Surgery.

The advantages claimed for this method are the following:

1. The triceps acts as a splint posteriorly.
2. There is no room for callus in front, as the coronoid fills the coronoid fossa.
3. Extension is easier to obtain than flexion should there be a stiff joint.

4. Preserves the carrying angle.

5. Flexed position of the forearm more handy than extension, should the joint be stiff.

For supracondyloid fractures, fractures of the capitellum, internal epicondyle, especially if small, separation of the epiphysis, and fractures of the head or neck of the radius and of the coronoid process, the position of acute flexion is the method of choice. In case the head of the radius cannot be reduced it should be removed. A new head forms rapidly. In fractures of the condyles on the other extreme we have the advocates of open operation for all fractures of condyles, holding them in place by wire, peg, nail, or screw. These are the cases that have the complication involving the ulnar nerve.

It seems to me that, from the standpoint of a general practitioner, a safe rule would be, if the fragments can be kept in place by any method he is familiar with and the carrying angle maintained, then he will obtain a good result, but if he cannot do this he should refer the case to a specialist. The skill of the operator is of more consequence than the method used.

DISCUSSION

DR. MARTIN W. ROAN (Bismarek, N. D.): In the first place the elbow-joint is a ginglymus or hinge-joint and, as the essayist has stated, allows no lateral motion. Therefore I think that a fracture of the internal epicondyle, the internal condyle, or the external condyle, especially in children and up to 15 years of age, should be treated in acute flexion, as the triceps in these cases serves as a brake or splint. In adult life, when the bone is more brittle, acute flexion is not always the best treatment. In fracture of the head of the radius, if of such a character that it is impossible to be reduced, in persons over 15 years of age, the head of the radius should probably be removed, but up to 15 I think I would be very reluctant about removing the head of the radius because by careful manipulation it usually can be pushed back into place. Unless there is some good reason for open operation of the elbow-joint I would advise by all means to leave the joint alone and put the arm up in acute flexion.

Where the tip of the olecranon process is broken off the way we have been treating these fractures has been to put them up in the extended position for ten days and then gradually moving them up to 10 degrees, in another ten days 10 degrees, in another ten days 10 degrees, and again in ten days 10 degrees, until in forty days we have the arm up at right angles.

DR. ANGUS E. MACMILLAN (Stevens Point, Wis.): I have had two cases of dislocated head of the radius, and in neither case was I able to reduce the dislocation and hold the head in position. I could reduce it very easily, but could not keep it reduced. The first patient went to Dr. Henderson, of the Mayo Clinic, who directed her to go back home and leave it just as it was. The fact that the first

patient had gone and come back with this advice kept the second one from going, otherwise I should have had the second patient go also, because I could not retain the head in position. The capsule was torn so widely that when we put the head in it came right out. We sometimes have dislocation of the head take place, but the capsule has not completely let go, and in those cases the head will go back and remain in position. I later had opportunity to talk with Dr. Henderson on the subject, and he said he never had been able to put the head of the radius back and make it stay where the capsule was completely ruptured. I have read a great deal in the literature about just slipping those right back, and after getting them back to flex the arm in order to keep the head in position, and I am still waiting to see this accomplished where the capsule has completely let go. Both of these girls have the head out, but they can play the piano, and both have almost perfect flexion. The arm comes up until the head hits the humerus. The result in either case is not perfect. I do not see why the head of the radius should be removed.

DR. CLARK C. POST (Barron, Wis.): I would like to ask how soon one should commence passive motion with the arm in that position.

DR. JOHN H. RISHMILLER (Minneapolis, Minn.): I would like to answer Dr. Post's question as to when one should commence to produce motion in joint fractures. When one has a fracture into a joint, it does not make any difference where located, the joint should not be moved as otherwise callus formation is stimulated and more or less bony ankylosis is produced. When one has non-union those are the fractures where we should stimulate callus formation by active motion. When fractures extend into the joint, the more motion one produces the more stiffness of the joint one will obtain. We should commence motion as soon as possible to prevent atrophy of the muscles and to prevent adhesions of the tendon sheaths. These two factors, atrophy of the muscles and adhesions of the tendon sheaths, frequently prevent the patient from resuming his work in regulation time. Muscles are so easily atrophied and it takes such a long time to return them to normal function. The same applies to the binding adhesions of tendon sheaths, particularly about joint fractures of the wrist, when, if passive motion is not early instituted, the fingers will be stiff longer than the regulation time of disability.

DR. MATTHEI (closing): In my cases I have not commenced passive motion very early, not as early as has been advocated by some. I follow the older teaching, putting the arm up in acute flexion and gradually letting it come down in a few days. I usually see the patient the next day, and, depending upon his convenience and whether he happens to find me in when he does come to town, I try to see him twice a week for two weeks and after that once a week and gradually let the arm down, then take the dressing off, massage the arm, but doing very little passive motion. There has been considerable controversy on this point, but I follow the older teaching altogether. For a time I thought possibly I had been doing wrong, but on studying the question I find I have a bit of authority on my side.

As far as dislocations of the head of the radius are concerned, they will not stay "put." We know that the annular ligament is a firm tense ligament which surrounds the head of the radius like a sling and forms three-fourths of the circumference of the socket for the pivot joint of the proximal radio-ulnar articulation, the remaining fourth being formed by the radial notch of the ulna. The external lateral ligament arises from the external epicondyle and passes as two fasciculi to the annular ligament with which a portion of its fibers are continuous. Now, if the annular ligament is completely ruptured, I agree that it is useless to remove the head of the radius. This procedure is indicated only in those cases where the head of the radius is separated from the shaft and displaced. Each one of these cases is a rule unto itself. Some of the best men in the country refuse to take care of any of them unless they can reduce the dislocation or fracture

under the fluoroscope. The external landmarks are very distinct and prominent about the elbow, nevertheless we cannot always say whether or not we have secured a good reduction.

There is one point which I have not been able to find anywhere and have never tried, namely, what sort of support applied above the condyles is used to hold them down. I do not know whether that is possible or not. It is the slipping up of the condyles that causes the trouble, and it was that feature which impelled Dr. Murphy to advocate nailing in all instances. At the Tri-State Society meeting, held in Des Moines a month ago, Dr. Lewis made the same statement,—that in all cases of fracture involving the external condyle, which changed the carrying angle, the bone should be fastened. Those two statements are so diametrically opposite to all our teaching in past years that I chose this subject.

GOITER CLINIC WITH DEMONSTRATION OF CASES*

By DR. GUSTAV SCHWYZER, M.D., F.A.C.S.

MINNEAPOLIS, MINNESOTA

The thyroid gland with its different pathological phases offers a great variety of clinical pictures. The patients that I have brought along this morning will illustrate the most salient points of pathology of the thyroid. I shall show you first some characteristic cases of myxedema and shall then gradually take up the form of hyperfunction of the gland; namely, hyperthyroidism. Between these two extremes I shall present some of the less common varieties which we occasionally come across.

CASE 1.—This woman is forty-one years of age, and we saw her first in 1917. Our status of October, 1917, was as follows: the pale looking woman with only 55 per cent hemoglobin has almost a waxy appearance in her face, pale lips, pale mucous lining of the mouth, and pale conjunctivæ. We notice puffiness of the eyelids, chiefly of the upper lids. There is a difference in her pupils, the left one being dilated. The skin is strikingly dry over the back of the nose, cheeks, and chin; less dry on the neck, but more so on the chest, hands, forearms, and elbows. The hair is coarse, and the growth scant. The ankles are swollen. The patient complains of tiredness and can sleep at almost any time. She has no special pains except headaches.

She came to us on account of her prolonged menses and run-down condition through them. The gynecological findings were negative except for a tear in the cervix.

We made a diagnosis of myxedema, non-operative. At this time the metabolic rate was minus 28.2 per cent.

We put the patient at once on thyroid extract,

to which medication she responded very promptly.

When we examined her in February, 1925, we learned that she had been without medicine, and the picture of myxedema was again pronounced. At that time we found the metabolic rate minus 31 per cent.

It is interesting to know that the patient's two daughters, one twelve and the other sixteen years old, have adenomatous thyroids, while on the patient herself there is absolutely no thyroid gland to be made out.

This fact is interesting in connection with the next case because that woman (whose status I am going to give you) also has two daughters, seven and eleven years old, in whom we find diminished thyroid glands; in fact, we are unable to outline the gland by palpation.

CASE 2.—It will be difficult for you gentlemen to recognize the picture of myxedema in this case, as she has been under medical observation and to-day has a metabolic rate of plus 12 per cent, which is a normal rate. When we saw her three years ago she also had a puffed face and swollen eyelids. Her cheeks were distinctly cyanosed, the lips thickened, the skin of the face rough, slightly scaly, the complexion was waxy with the tint of cyanosis, the fingertips were slightly cyanosed, and the skin over the chest and shins was dry. Although the speech was well articulated, she said that she had difficulty in speaking; that is, in moving her tongue, which felt very heavy. At that time she was twenty pounds heavier than she had formerly been and complained of constant pains in the legs. These pains extended downward, toward the hip and along the front part of the thighs toward the feet, and were combined with muscular weakness. She had difficulty in getting up; in fact, shortly before she came to us she had fallen on account of this weakness.

Her mental condition was most characteristic, and her attitude toward the world had entirely changed.

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She was depressed, and had no ambition and no interest in current events. The daily papers and magazines which she had formerly read did not interest her any more. Previously she was always fond of social affairs; she now hated to see anyone come to the house as a visitor. She slept well, and her pulse was distinctly slow, between 50 and 60, but regular. Her hands were cold and the metabolic rate was minus 24 per cent.

We placed her on thyroxin and calcium, but found that thyroid extract was of the most value. As I mentioned before, her metabolic rate is now plus 12 per cent.

CASE 3.—The third case in this line that I wish to present is a deaf and dumb woman, aged forty-four years, who, by the way, is the mother of two very bright and normal children. This woman had been operated on three times for goiter before she came to us. We removed a cystic goiter on the left side, which was the size of an orange and caused severe compression of the trachea. Even at that time she had the appearance of myxedema, but no test was made in those years. A basal metabolism test made in November, 1919, disclosed a minus 33 per cent. This condition was corrected and brought up to plus 8 per cent by means of two and one-half grains of thyroid extract three times a day.

A goiter excision too extensively done can bring on another condition which is more acute than the myxedema and for that reason is more apt to be fatal unless promptly recognized. This disease is called tetany and is liable to set in within twenty-four hours after the excision of a goiter. This condition is produced by the excision of too much parathyroid tissue. These little glands, numbering from three to five, are planted into the posterior capsule of the thyroid, situated in the upper and lower horns. A parathyroid gland is only the size of a pea and of slightly greyish-yellow color. We have seen some of these glands at times during goiter operations.

Sandstroem, in Sweden, the same man who gave us the first scientific explanation of the physiology of exophthalmos, discovered these parathyroid glands in 1880. For years the theory as to their function was that these parathyroid glands had a detoxicating effect in taking care of the poison coming into the system through the intestines. This theory has now been overruled by the research work of Salvesen, who made experiments on dogs at the Physiological Institute, University of Christiania, about three years ago. Salvesen parathyroidectomized a number of dogs, some partially and some totally, and brought out the fact that the parathyroid gland takes care of the calcium level in the blood. A certain concentration of calcium is necessary for the normal function of the muscles and nerves.

The next step, then, was to substitute artificially the calcium that was lacking in the blood. This has been successfully done by supplying it intravenously or by mouth. No doubt it could also be given by rectum. Where quick action is imperative, about 20 c.c. of a 5 per cent solution is given intravenously once a day. It will be well to remember that the calcium solution injected into the subcutaneous tissue has a necrotic action which is very painful. Care must be used to inject the solution into the vein itself.

In comparing the lack of parathyroid with the lack of thyroid tissue and the means by which each of these conditions is overcome, we recognize that the parathyroid function has to do with the inorganic metabolism, while the thyroid controls the organic metabolism. In this fact may lie the explanation of why the thyroid extract does not control the tetany while calcium does. Tetany from lack of parathyroid tissue is represented in the next case.

CASE 4.—This woman came to us two years ago and at that time presented the symptoms in the arms, hands, and fingers which are shown in the pictures which I will pass around. She informed us that she had been operated on for goiter six years before and that on the third day following the operation she had an attack of such contraction of her forearms, hands, and fingers that she thought she was going to die. At the same time she had difficulty in her speech. Her tongue felt thick and almost immovable. This condition remained the same for weeks and improved only slowly, and these queer "spells" would recur every four to six weeks, remaining for a day, or perhaps for two or three days.

When we saw her, in February, 1923, her metabolic rate was plus 6 per cent. Medication in the form of 2 grams of calcium three times a day controlled the condition at once. To-day she feels well if she uses 2 grams of calcium twice a day. From time to time she interrupts the taking of the medicine because she feels really well, but after a while the onset of another "spell" reminds her of the medicine.

CASE 5.—I have another such case in town on whom I did the second goiter operation, the first one having been done elsewhere. The one lobe of the thyroid gland was very radically removed. She came to us on account of a tumor the size of an egg, symptoms of pressure, and constant pain in the left arm. We searched for a supernumerary rib and so on, but were unable to make out anything definite by x-rays. Finally we decided to explore surgically. I removed only a part of the tumor of the neck and noticed a prolongation of the growth into the chest, an intrathoracic node the size of a walnut. The outside and inside goiters were connected by a band of tissue. The intrathoracic part was totally removed. Three days after the operation the patient had symptoms in her fingers, hands, arms, and elbows very similar to the ones I can show in a picture which I have kept since 1895.

The picture dates back to Kocher's Clinic, where we had such a characteristic attack of cramps in the upper extremities, a symptom we used to call the "Rhombberg symptom." The patient had no treatment at the time and subsequently died. Our case is under control with calcium, but as four years have elapsed since our operation and the patient still needs the calcium, it is evident that parathyroid compensation which is known to occur at times is not very probable in our case.

CASE 6.—This young man is twenty-one years old, and his thyroid has become uniformly enlarged. It is of solid consistency and shows no hyperthyroidism. There is no expansile pulsation, no bruit. The patient has, however, a tight feeling in the neck, and we learn that toxicity previously existed. About six months ago his heart was pulsating very nervously. Thus, there is so much more indication for an excision, which is to be done tomorrow morning.

CASE 7.—This vigorous gentleman came to us three years ago on account of a goiter, due to a suppurative strumitis. He always had a small goiter, the size of a plum, in the middle line of the neck for about fifty years. Three days before he came to us he became hoarse and felt a tightness in his neck, with pain in the region of the goiter. He noticed he could not button the collar band of his shirt. When we examined his neck we noticed that the small median goiter which he had had for so many years had become the size of a fist. His pulse was 116; temperature, 101° F. We excised a good-sized tumor under prevertebral anesthesia, and this cystocolloid goiter contained liquid pus. Culture of the pus was negative.

CASE 8.—Briefly, I will demonstrate to you a case of intrathoracic goiter. The specimen consists of two large, subclavicular lobes of very hard consistency. The case is of special interest on account of the sudden increase in the size of the goiter, and this increase was due to multiple hemorrhage within the goiter tissue. The etiology for the hemorrhagic tissue within the goiter remains unexplained.

The diagnosis of intrathoracic goiter was easy in this case because of the location of the goiter, the dyspnea, and the change in the voice. Many of these intrathoracic goiters have a peculiar, characteristic voice.

Toxic adenoma has no pronounced exophthalmos, no periodically returning diarrhea, but in common with the exophthalmic goiter there are tachycardia and general nervous symptoms. Moreover, there is a marked differentiation in the history of the goiter. The toxic adenoma develops in a goiter which has existed for a long time, sometimes for years.

CASE 9.—An example of this toxic adenoma is this woman, one of our recent cases, with a typical history of fatigue, nervousness, tachycardia, and so on. Her basal metabolic rate was plus 57 per cent, but in less than two weeks under Lugol's solution and rest in bed, the metabolic rate came down thirteen and one-half points, to 43.6 per cent.

The extreme hyperthyroidism, the exophthalmic goiter, usually has a sudden onset. Frequently patients say they never knew they had a goiter, and the family history is negative as to goiter, but all the other symptoms, the general nervousness, and the cardinal symptoms such as tachycardia, the eye symptoms, and exophthalmos, Graefe's, Möbius' and Stellwag's are present.

CASE 10.—This man represents an interesting and very difficult case surgically. His basal metabolism test did not correspond to the clinical symptoms. He is a musician and plays the flute, so is accustomed to expand his chest and hold his breath for a long time. This habit interfered with the breathing test. He had pronounced exophthalmos. We ligated first, but following this step the improvement was slow, in spite of Lugol's solution and so on. A double resection of two large lobes, the size of a fist, was done months after the ligation.

CASE 11.—This patient had a basal metabolic rate of over plus 57 per cent, which came down by means of ligation and other treatment to plus 35.8 per cent. Three months after the ligation we excised the large goiter, following which she made a prompt recovery and again enjoys good health.

CASES 12 and 13.—The next two women have been ligated, but have disappointed us by their metabolic rates. Not only do we see that the exophthalmos has not receded, but the tachycardia is still very pronounced, especially in the one case.

One of the most difficult problems in our judgment of these cases is to know just when the excision of the goiter can be safely done. The basal metabolism test has given us here a wonderful aid, and I sincerely believe that we can excise a goiter if the metabolic rate decreases. But as there are possible errors with the breathing test, as with any other laboratory test, we must hold firmly on to the clinical picture, and when the metabolic rate goes down we must see the general symptoms improve. One of the best clinical signs of improvement is the increase in weight.

THE PRESENT STATUS OF DENTAL FOCI OF INFECTION*

By G. O. GOODMAN, D.D.S.

MILBANK, SOUTH DAKOTA

It is a most commendable motive that prompts a joint meeting of these societies each year. We come here to take counsel together in order that we may contribute our share of service to relieve our patients from those ills which are a part of the burden of suffering humanity.

I take it that both the medical and the dental professions have the same ultimate goal,—the conservation of the patient's health.

The subject of foci of infection in the teeth in their relation to disease has been tremendously abused in the last few years, but in the light of a better understanding of the subject we are at last coming nearer the truth. It is only from the chart of past experience and by the compass of our present knowledge that our professions can determine what methods of practice they must follow into the unknown future.

Any one of us, if he has been observing and has been in active practice for a number of years, realizes that periodically the professions are carried away by some fad. We get to seeing one thing and see it so hard that it shuts out the vision for all other things; for instance, we see a man extracting some twenty teeth for a patient seriously ill with typhoid, and the patient dies. Extracting a lower molar to cure stomach trouble (so called) just because it happened to be the only treated tooth the patient had. The tooth had never troubled, and an x-ray showed nothing abnormal. Advising a patient with as fine a set of teeth as I ever saw to have them extracted—this time to cure backache. Extracting all of the teeth of a chronic invalid; said "she would never be well as long as she kept her teeth." The diagnosis was at least partially correct, but she has never been well since, either.

These are just a few of the cases that have come to my attention. For obvious reasons I have selected only those who have traveled a considerable distance from home in order to secure this advice. This diagnosing was not done in South Dakota, yet I think none of us would question the sincerity of the men who did diagnose these cases. I have merely called your attention to them in order to show how a narrowness will at times creep into our professions.

It affects our methods of practice and tends to result in great danger to our patients. Nothing but the bitter experience of our patients stops these fads and brings the practitioners to their senses. This is one reason why the fad of extracting as a cure for every disease is passing away.

Before we enter into any definite consideration of focal infection in relation to general health it is necessary to recognize the fact that the teeth are responsible for only one phase of this important subject. We all know that infected tonsils will produce exactly the same conditions as infected teeth, likewise infected sinuses, infected gall-bladder, infected ovaries in the female, infected prostatic gland in the male, and a sluggish intestinal tract.

For our convenience I am going to consider the subject of infected teeth in relation to our general health under two heads: 1, those peripherally infected, that is, those infected through destroyed (nerves) pulps; and 2, those parietally infected, that is, through pyorrheal lesions.

To begin with, we find that all mouths are infected, but not all people develop manifest lesions from such infections.

It is also interesting to note that it is only in the West and the Middle West that the professions are so afraid of pulpless teeth.

While still recognizing the evil influence of oral foci, we realize that it is not only unsafe, but unwise, to focus the attention too exclusively on the teeth, neglecting other parts of the body, which not infrequently harbor more serious foci of infection than do the jaws.

At a medical meeting a few months ago a physician made the remark that the teeth were often condemned first because they were so easy to see. The one controlling factor, which affects our efforts and influences our results more than all others, is the diagnosis. This brings up the question of superficial examination, and who has not been guilty of this? Thousands of teeth have been lost because they were so easy to see, and a simple inflammation has frequently been considered as a focus of infection. If any thing in the general examination leads to the suspicion of focal infection, of course a careful dental examination is indicated. It is to be remembered that the physician feels a certain responsibility

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for the patient's health, and consequently he should demand and get the proper co-operation from the dentist.

It is most unfortunate that the public generally has the idea that they can have the dentist look over the teeth and express an opinion free of charge. This opinion is practically worthless to the physician and may be dangerous to the patient. What the physician wants to know is whether all teeth are vital; what teeth, if any, are diseased; whether any teeth should be unqualifiedly condemned; and whether some are possible harbors of infection, but cannot be condemned positively.

Such an examination must be quite extensive and, as a rule, requires the *x*-ray. This is too valuable an aid to be neglected whenever there is suspicion of disease, but it must never be forgotten by either physician or dentist that a Roentgen ray shows only the result of infection.

It seems almost unnecessary to emphasize the fact that the physician has not been fair to his patient unless he urges dental treatment whenever he finds a grossly unhygienic mouth, regardless of any bearing it may have on the patient's immediate condition. In a similar manner, the dentist must recognize a certain responsibility for the general health of his patient. It is often his duty to call patients' attention to their general condition and urge a medical examination.

In treating dental infections there is more or less involvement of osseous tissue, and the necessity for and extent of surgical interference is dependent upon the degree of destruction of the affected parts, the virulence of the invading organism, the duration of the infectious process, and the resistance of the patient. The character and degree of involvement of the network of osseous tissue comprising the alveolar process governs in a large measure the prognosis of any infected tooth.

There can be little doubt that the same general rules obtain in the matter of healing of infectious conditions about the teeth and jaws that apply in other parts of the body. The teeth are of connective-tissue origin, and, as we all know, connective tissue is fundamentally the great reparative tissue of the body, although histologically the filled-in area, or repair patch, may differ from that tissue which is being replaced.

After all has been said and done the general surgeon will agree that in cases of osseous infection, compound fracture, or say osteomyelitis, he awaits graciously upon the work of a bounteous nature to fill in and do her work. Here

again, and, as usual, we are utterly dependent upon the immunizing forces of the patient. For the past few years we have been ignoring these facts when it comes to the teeth. Yet their neighboring tissues have a copious supply of nutrient materials necessary for a rapid and satisfactory repair job. This does not mean that every infected tooth can be controlled. In order to be successful in the treating of oral infections it is necessary to learn everything possible about the patient's general condition, including the primary and secondary causative factors. If, at the start, the examination is sufficiently complete and accurate there will be no time lost in attempting to save teeth which are hopelessly involved.

If a tooth cannot be cured of its infection it should come out, but every pulpless tooth is not an infected tooth by a long way, and many infected teeth can be treated successfully. I do not believe that a tooth once infected is always infected; nor do I believe that even one-half the ailments which are attributed to pulpless teeth are due to them.

As evidence of a changing attitude towards pulpless teeth, I will quote a statement made recently by one of the most ardent advocates of the theory of oral sepsis being such an important factor in the causation of metastatic infection, Dr. E. C. Rosenow, of the Mayo Foundation. The doctor says: "Owing to the reparative power of the cementum, it would seem possible to devitalize teeth safely whose pulps are sterile and whose canals may be properly filled, provided the operation is done in an aseptic manner."

Pyorrhea is an ancient disease. It has existed almost from time immemorial, yet its cause remains unidentified, although a great variety of efforts have been made to determine it specifically. It is a predetermined fact that there is no special microorganism involved, but, on the other hand, the disease is due to a mixed infection. Some authorities contend that at least one major factor leading to the breaking down of gum tissues is to be found in diet deficiency, since inoculation alone is insufficient to produce a characteristic lesion, but positive results were attained through diet changes.

When a comparatively low resistance to streptococci and other pyogenic organisms exists we always find that the disease will progress much more rapidly.

Take the average case, it is not difficult to secure temporary results in treating pyorrhea that are very satisfactory. The problem to solve is that of preventing a recurrence of the infec-

tion. Nearly all men who have become renowned for their success in the treatment of this disease are men possessing very strong personalities. These men seem able to control their patients to such an extent that by directing them in hygiene and diet they have been successful in building up their resistance. This building up of the resistance seems to be the key-stone to the obtaining of a successful result.

It has been proved, and is being proved every day in the practices of careful men, that a very considerable number of teeth which are both periapically and periodontally infected can be cured and will heal in the same manner and to the same degree that infections in other parts of the body are healed.

After years of research work devoted to all phases of focal infection the observations very emphatically seem to refute the idea that it is necessary to force our patients into a toothless condition.

Recent statements by leaders of both professions, sounding a note of warning, would indicate that our ideas of focal infection are changing. Prominent physicians and surgeons have rightfully spoken a warning to the medical profession as to the unfavorable reaction, on the part of their patients, which is almost certain to follow reckless and ill-considered sacrifice of the teeth.

Occasionally there is a physician who advises wholesale extraction of teeth on general principles. He oftentimes just nonchalantly orders them out without any examination or investigation worthy of the name. Such a situation is rather difficult to handle gracefully. His attitude is much the same as that of a physician who once discussed a paper of mine. His theory is that the brain of to-day is developing so rapidly that it is robbing the teeth of their share of nourishment; that they will soon become unused organs and so will be lost. We are simply facing the inevitable, so why make any effort to save them? I did notice, however, that the doctor was taking excellent care of his own teeth.

For many of the opinions and thoughts expressed in this paper we are indebted to those self-sacrificing students of both professions who spend their lives working for the welfare of humanity, and not for any selfish gain. While each year brings us a little nearer to the truth, the opposing opinions still expressed by various writers show that the problem of dental foci of infection remains unsolved. Pyorrhea, in spite of all its cures, is still with us and will be with

us as long as we live. These and countless others should not be problems of medicine and dentistry alone, but of science in general.

BOOK NOTICES

ABT'S PEDIATRICS. By 150 specialists. Edited by Isaac A. Abt, M.D., Professor of Diseases of Children, Northwestern University Medical School, Chicago. Set complete in eight octavo volumes totalling 8,000 pages with 1,500 illustrations, and separate index volume free. Now ready, volume IV containing 865 pages with 373 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$10.00 per volume. Sold by subscription.

This volume consists of an unusually complete consideration of the subjects which are covered. It is not merely a compilation of the work of others, but each writer has his own original work and observations to contribute. The volume is well illustrated, and the bibliography is complete, including both American and foreign literature. It is of interest to note that in each field there is considerable space devoted to the physiology underlying the disease discussed.

Diseases of the pleura, gangrene and abscess of the lung, are well covered by Dr. Henry Heiman. The physical signs and methods of treatment are clearly presented by this writer. The rare pulmonary conditions, such as infarctions, malformations, and new growths, are discussed by Dr. Oscar T. Schultz with a fairly complete review of the literature concerning these rarer conditions. Dr. Everts A. Graham is selected for the surgery of the thorax. He goes at length into the physiology of pleural effusion and the principles governing the operative treatment. He presents his results of the investigations on the effect of pneumothorax upon pleural pressures. He emphasizes the danger of early operation in empyema during the stage when the patient is suffering from marked respiratory distress and a low vital capacity due to his pulmonary involvement. The operative methods and results of operative treatment are discussed by Dr. Graham, including not only his own results but also those of other thoracic surgeons. It would be of considerable benefit to the clinician to consult these pages before advising any type of thoracic surgery.

An excellent chapter is contributed by Dr. Carl J. Wiggers on the physiology of the circulation. This is clearly presented so that the important features of the dynamics of the circulation in health and disease may be understandable to the clinician. To the pediatricist the material on the prenatal circulation and the circulation during the various age-periods, up to that of adolescence, will be of special interest.

The chapter on the physical examinations of the heart in normal children by Dr. Max Scham gives a complete treatise on the physical findings in the heart of the normal child, emphasizing the peculiarities of the growing heart as they are related to clinical diagnosis. The material presented is based partly upon original observations and partly upon

a comprehensive review of the literature. The subject matter is presented in a clear systematic manner and should be of considerable practical value to the pediatricist. Congenital heart disease is also well covered by the same writer. Dr. Seham also presents a chapter on electrocardiography. With the exception of a review of the very meager literature on this subject, the entire chapter consists of the author's original observations. All the features of the physiological electrocardiogram in childhood have been comprehensively studied by the writer. Those working with the string galvanometer will find frequent occasion to consult this chapter when attempting to interpret the electrocardiogram of infancy and childhood.

Acquired disease of the heart and blood vessels is covered by Dr. Murray H. Bass. In addition to the usual material found in text-books on this subject, the writer includes considerable data concerning diagnosis and treatment from his own observations, which is of very practical value.

Diseases of the blood is the contribution of Lucas and Fleischner. The massive literature concerning the physiology of the blood, blood formation and destruction, coagulation, and chemical aspects of the blood, is thoroughly reviewed, and the various divergent views and theories presented in an unprejudiced manner. In addition to the theoretical considerations, the diagnosis and treatment of the various blood diseases is gone into very completely in a manner which will enable the clinician to make practical application of it.

Dr. Lester J. Unger discusses blood transfusion in infants and children. He emphasizes his method for direct transfusion and seems unnecessarily prejudiced against the indirect citrate method. He neglects to mention the intraperitoneal method of transfusion.

T. C. Hempleman writes on diseases of the spleen, discussing the theories of splenic function and also covering the various diseases of the spleen and the general diseases in which enlargement of this organ occurs.

Dr. Alfred Friedlander on the thymus, reports the results of nine years of experience with the x-ray method of treatment of thymic enlargement in this country. He describes the technic which he is using and includes a number of radiographic illustrations showing the results of irradiation of the thymus.

Dr. Nelson W. Janney writes on diseases of the thyroid gland. He presents his classification, which is quite inclusive. He does not consider it necessary to divide the hyperfunctioning gland into two types (1) exophthalmic goiter and (2) toxic adenoma, as suggested by Plummer, and he uses the term *thyrotoxicosis* for the entire group. He also discusses hypothyroidism and the disturbances of the parathyroids, including the manifestations and treatment of tetany.

Dr. R. G. Hoskins reviews the disturbances of the other endocrine organs. He does well to exclude a large mass of the literature, which is confusing and largely controversial, and considers only those experimental and clinical observations which have a sound basis. He takes a very conservative position in his discussion of the mechanism and treatment of the various endocrine disorders.

Dr. Emil Goetsch covers the subject of infantilism. He divides infantilism into two large groups: (1) a

true dystrophic type, in which there is a uniform retardation of development due to some unknown cause arising in intra-uterine or early extra-uterine life, and (2) a type resulting from a disturbance of one or more of the ductless glands. Dwarfism, including a comprehensive classification of the various types of dwarfs, is discussed by Dr. C. P. Emerson.

The anatomy and physiology of the lymph nodes and the clinical manifestations of the diseases of these organs is the contribution of Dr. Jesse R. Gerstley.

The methods of estimating renal function are reviewed by Dr. Robert D. Curtis with especial reference to the application of these methods to children.

Dr. Wilbert C. Davidson writes a chapter on the subject of enuresis presenting the various theories regarding the etiology and outlining the methods of treatment.

Nephritis is the contribution of B. Raymond Hoobler, and it would seem that the classification and terminology of chronic renal disease which is presented is necessarily complicated and without sufficient pathologic basis.

Dr. Henry F. Helmholtz is selected to treat pyogenic infections of the urinary passage, and he covers the theoretical and practical considerations of this subject very thoroughly. He includes an extensive bibliography in which there are a number of his own publications. Dr. Arthur Collins in discussing urinary lithiasis calls attention to the fact that this condition is not rare in children and is often overlooked. The chapter on renal tuberculosis and the rarer conditions, such as amyloid disease, parasites, tumors, and malformations, is written by Dr. Oscar T. Schultz. A short but interesting discussion of postural albuminuria is given by Dr. Kenneth D. Blackfan. A most extensive and complete review is that of Dr. Samuel Amberg on the urine in infancy and childhood. Every characteristic and constituent of the urine in health and disease is discussed, and a bibliography of more than four hundred publications is reviewed. Dr. Louis E. Schmidt presents a chapter on diseases of the bladder, including cystoscopy, which, he believes, should be practiced more frequently in children. In addition the writer discusses the diseases of the male genitalia, outlining the diagnosis and methods of treatment in a complete manner.

This valuable volume is completed by a chapter on diseases of the female genital organs by Palmer Findley. The largest portion of the chapter is devoted to a consideration of the congenital anomalies, the essential features of which are shown by a number of excellent illustrations.

—M. H. NATHANSON, M.D.

Vol. V is devoted to orthopedic diseases of childhood, the diseases more often encountered in the tropics, also tuberculosis, syphilis, malaria, and certain other rarer diseases as actinomycosis.

In the section on orthopedic surgery, edited by Dr. Arthur Steindler of Iowa City, each phase of this section is written by someone particularly interested. That the selection of topics for discussion has been opportune may be judged by some of the titles: "General Pathology of Bone in Children," "Tuberculous Disease of the Bones and Joints," "Congenital Dislocation of the Hip," "Wry Neck

and Postural Deformities of the Spine," "The Care and Treatment of Healthy and Painful Feet," "Infantile Paralysis," and "Cerebral Spastic Paralysis."

Then the main joints of the body are described in normal and pathological state. The work is well illustrated, the reading material is tersely put, and the bibliography is excellent and is given after each subject.

The chapters on tuberculosis and syphilis cover the subject well. Heliotherapy might be stressed more though the reader is referred to Rollier. The chapter on "Syphilis" states the problem as understood in one of the largest clinics of syphilis in the world, at St. Louis.

The material is excellently presented, but the absence of a bibliography or correlation with other clinics makes it difficult for the reader to judge for himself. The essentials of treatment of congenital lues are emphasized, and the results of treatment and determination of a cure are discussed in a very common sense way.

The diagnosis and treatment of malaria is very aptly described by men familiar with the disease in children, and an extensive bibliography is given.

The last chapter of this volume is a short dissertation on "Infection and Immunity," which gives the general principles underlying prevention in pediatrics.

—L. F. RICHDORF, M.D.

Volume VI of Abt's Pediatrics deals with body temperature, infectious diseases, anesthesia (general and local) peculiarities of surgery in childhood, fetal malformations, vulvovaginitis, and arthritis deformans.

Each of these, as well as the many subdivisions of infectious diseases, has been written by a well-known authority and has been treated in such a clear, concise and logical manner that it may be easily read and understood by the beginning medical student, yet its completeness makes it of unestimable value to the specialist.

Many illustrations illuminate the work, those on fetal malformations being especially instructive.

—E. F. ROBB, M.D.

1924 COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION, Rochester, Minnesota. Octavo of 1,331 pages, 254 illustrations. Philadelphia and London: W. B. Saunders Company, 1925. Cloth, \$13.00 net.

An attempt to review the 1924 papers of the Mayo Clinic and Foundation is quite some task. The research, experimental, and clinical work which has been done there in a year is quite characteristic of the type of work they always perform, and is commendable.

In writing this review I feel very much like the farmer who, after hearing ex-president Vincent of the University deliver an address, sat gasping with his mouth wide open and could only utter "some speech."

The work is divided into nine parts as follows:

1. Alimentary tract.
2. Urogenital organs.
3. Ductless glands.
4. Blood and circulatory organs.
5. Skin and syphilis.
6. Head, trunk, and extremities.
7. Brain, spinal cord, and nerves.

8. Technic.

9. Miscellaneous.

Much work is presented on the alimentary tract, but the experimental and clinical work done on the liver and gall-bladder is by far the outstanding feature of this section.

The section on urogenital organs presents a variety of work.

The thyroid, pancreas, and suprarenals furnish the bulk of the work done on the ductless glands.

The department on the blood and circulatory organs should prove highly interesting to the internist.

Skin and syphilis presents the usual pictures of the much neglected disease.

The work on the head, trunk, and extremities should interest every general practitioner.

The section on the brain, spinal cord, and nerves is highly technical and is of interest only to the nervous and mental specialist and the neurosurgeon.

Many new interesting features have developed under technic.

And under miscellaneous the reviewers found the most interesting papers of the volume. It is strange that one has to always read a book through in order to enjoy the climax. Here we find most interesting papers by Drs. W. J. Mayo, C. H. Mayo, H. E. Robertson, Louis B. Wilson, and others. Everyone should read what Robertson and Wilson have to say. All surgeons read what W. J. Mayo has to say about "Masters of Surgery in the Early Years" and we are all made aware that a surgeon is not made in a day.

Surgical specialization is dwelt upon from several interesting standpoints.

The last article in the book should interest, very keenly, every member of the Medical School faculty and every graduate of the Medical School of the University of Minnesota, for it contains a report to the Board of Regents of the University by the directors of the Mayo Foundation.

—O. S. WYATT, M.D.

THE CRIPPLED HAND AND ARM. A Monograph on the various types of deformities of the hand and arm as a result from abnormal development, injuries and disease, for the use of the practitioner and surgeon. By Carl Beck, M.D. Cloth, 243 pp., 302 illustrations. Philadelphia and London: J. B. Lippincott Company, 1925. Price, \$7.00.

This is a brief and concise presentation of the anomalies, congenital and acquired, to which the hand and arm are subject. With this is given clearly the means by which the expert plastic surgeon is able to repair the deficit of embryologic development or the damage done by the various physical agents which cause the various terrible pathologic entities demonstrated in the text.

The book is written so that any practitioner can understand it with ease, and is, indeed, written with that in view, that the general practitioner, not a specialist, may become posted on the difficulties encountered in this field of surgery. Many of the final deformities of physical trauma result from maltreatment early in the history of the case, and proper posting and warning of general practitioners likely to come in contact with these cases are the purposes of this very excellent presentation.

—DANIEL H. BESSESEN, M.D.

THE JOURNAL-LANCET

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THE PITUITARY GLAND

In an article in the October tenth issue of the *Journal of the A. M. A.*, Dr. Charles H. Frazer and Dr. Francis C. Grant, of Philadelphia, analyze 100 cases of pituitary disorder, especially from the standpoint of surgical treatment. It is rather interesting to note that the authors state that the merits of glandular therapy are passed over because their experiences have been barren of results, and this applies only to patients who have already developed pressure symptoms. However, it is admitted that some patients have responded to glandular feeding, but those are infrequent cases. They depend entirely upon the nature of the lesion, and they are treated by the administration of pituitary extract, with or without the thyroid extract. But it is conceded by both men that the relief other than surgical is the exception rather than the rule. Perhaps one difficulty is in the manner and method of administration of pituitary extract. It is claimed by the men who make gland substances that the average physician uses too small a dose, and they are inclined to suggest that from 15 to 30 grains a day is a proper amount; they think perhaps the lack of success in some cases is due to the fact that there is an indeterminate quantity of extract in the preparations—no one knows definitely. The same condition applies to thyroid therapy. What is suitable for one case may be wholly unsuited to another, and the method of gradual ap-

proach and close observation of the effect of either of these extracts should be carefully noted until there is some rule of fair and reasonable degree of certainty.

However, we had hoped that the time had come when we knew more about the pituitary body. Perhaps we do, but we are not always in a position to suggest when and how to administer treatment; for in Dr. Frazer's cases the ages in which the pituitary body is disturbed range from below ten years and up to seventy years; he finds that the larger number occur in from thirty-one to forty years of age, and from forty-one to fifty years of age. Then, too, the interval between the onset of the first symptom and the patient's entering into the clinic varies very decidedly,—from one year to twelve years; and in the hundred cases analyzed, in 12 cases the duration of the symptoms has not been stated. But it is quite evident from the records that the largest number occur between the first and sixth years. With this knowledge and after very careful research into all the causes and conditions and symptom groups, the authors have reached the conclusion that even in the normal dimensions there are many variations. "Surgery of the pituitary body as practiced to-day has limitations proportionate in large measure to the duration of the lesion. When surgery is recognized as an essential factor in the treatment of pituitary lesions in the early stage, before optic atrophy is advanced and before the terminal stages of functional disorder are reached, there will be a decided improvement in the operative results and a lower mortality. The surgeon has been handicapped because he has been confronted so often with terminal effects."

Dr. Frazer further believes that the first evidence of visual disturbance usually is a contraction of the temporal field; eventually both temporal fields will be lost; probably then a provisional diagnosis could be made and confirmed by roentgen-ray study. The patient then might receive a course of treatment by feeding him pituitary gland or extract or both; or he might be treated by radiation. But, if this fails and the fields remain stationary or become contracted, if there is a suggestion of beginning optic atrophy, this is the time, if the patient expects to be operated on, for the proposition to be put to him, and unless he avails himself of this seemingly one chance he will probably lose the sight of both eyes. Then, too, the patient is confronted with the fact that there may be a recurrence of his trouble. Fortunately, not very often. And Dr. Frazer thinks that a course of roentgen-ray

treatments after an operation limits the probability of a recurrence.

This is a serious problem, and one which is not to be entered into lightly and certainly one in which an operation should be performed only by an expert.

PERNICIOUS ANEMIA

One of the most trying diseases which a physician is called upon to treat is called pernicious anemia, which begins in a very indefinite way and frequently is not recognized until the cells show their characteristic qualities. Many cases are unrecognized, too, because of the complication of nervous and mental phases. Not infrequently a patient complains of numbness in one or more extremities, occurring in isolated patches, sometimes involving one or both lower extremities but more commonly the patch-like form of subjective amnesia, and sometimes an objective amnesia presents itself. Then, with the absence of typical blood findings, the physician must work out a basis for diagnosis, and very often the history of the individual will furnish what is needed, for it is not uncommon for the history to cover a period of one to two years without a blood finding. In addition one must always consider the mental side of these patients. They are confused, they very easily forget, their memory for recent events is decidedly impaired, and the mental condition continues for an indefinite period before a correct diagnosis is arrived at. Granting that in these cases the blood findings do not appear, we must then consider the individual, the typical characteristics of an anemia, which may be looked upon as primary, together with the gradual and slow development of symptoms, either mental or nervous.

In a paper of the August twenty-first issue of *Medizinische Wochenschrift*, Determann speaks of the spirochetes in pernicious anemia. He believes that the corpuscular elements which Meessen described lately as spirochetes in the blood of patients with pernicious anemia are broken up hemoconia, according to Türk. Determann found the same element frequently in the blood of normal persons, so that this is not a very satisfying cause or even a blood finding, but it is worth while to investigate at all events.

The most confusing situation is the treatment of these cases. Their nutrition is poor, as a rule, and they are flabby in appearance. Their skin assumes a decidedly yellowish tinge, and their hemoglobin is uniformly low, at least lower than normal. Sometimes it is reduced down to 20 or

30 points. But if the nervous symptoms be present, and these other conditions prevail, there ought not to be much hesitancy in determining that a pernicious anemia must be considered, if a carcinomatous condition can be left out. The treatment is largely symptomatic and largely speculative. One of the new ideas is to give large doses of dilute hydrochloric acid, from 30 to 60 minims, three times a day. As this has been found useful in individual cases, it is not a uniform remedy by any means. Some people are unable to take it at all; they not only reject it, but are made worse by it and frequently decline to take it even in small doses. On the supposition that pernicious anemia may be due to some infection from some remote source which is not demonstrable, a 1 per cent solution of mercurochrome injected intravenously has been found by some authorities to be a decidedly beneficial agent. And as the patient improves the dose may be diminished from 20 c.c. of 1 per cent solution to 15 c.c. and from 15 c.c. to 10 c.c. A few cases have been reported as practically recovered under this administration; but until more satisfactory reports have been received the remedy is not yet a safeguard.

The further difficulty is the feeding of these people, the administration of proper foods that improve their blood status as well as their general condition. The administration of arsenic, of course, is an old-time remedy, and so far as one can determine it is of very little value. That there are more cases of pernicious anemia than we had previously supposed there is no doubt, and one should be constantly on the lookout for this while investigating a suspected cancer case.

THE PREVAILING EPIDEMIC OF COLDS

The writer is hesitant about approaching this subject because he has so often been accused of ascribing colds to weather conditions, which he still believes have a part to play in the resistance or non-resistance of the patient. But the widespread nasopharyngeal, gastro-intestinal, and bladder disturbances (both gall-bladder and cystic) have demonstrated that there must be something wrong in the atmospheric conditions and that there must be a decidedly increased number of bacteria which are floating over the country. This bug does not choose very wisely his victim; he attacks the poor as well as the rich, and he is present in the face of all persistent circumstances. He outrides most of the remedies that are applied, or misapplied. The only comfort and consolation one gets out of the failure to

annihilate the bacterium causing a mucous-membrane condition of this sort is that people of all faiths, medical or non-medical, are blowing their noses or having increased intestinal conditions which are very annoying to say the least. It is highly improbable that any belief in a certain faith which has been so widespread in recent years is able to cure or even ameliorate the symptoms, and it is undoubtedly true that there are certain persons who have to go through a cold, however well treated, as the cold takes its own sweet time in getting out of the system.

One theory has been advanced, that when a person is infected with the cold germ it invades an enormous territory of mucous membrane and that only a part of it is involved in the acute and disagreeable processes. After that has run its course the individual is better able to resume his or her occupation, and wait until the next wave comes along in which the environment is unfavorable until there is a renewal of the same exquisitely disagreeable conditions. So it is possible that one section of mucous membrane may burn out its infected area while other areas are quiescent for a time and then are lighted up by some provocative cause.

It is rather surprising that more physicians are not suffering from these epidemics, as they are in constant contact and sometimes in very close communion with cold victims, yet they seemingly escape until their resisting power is reduced, when they are overcome just as the ordinary individual is laid out. There is no question but what rooms containing crowds of people are more apt to have floating germs than those that are properly ventilated. For instance, churches, theaters, or lecture-rooms, unless they are supplied with moving air, must contain enormous numbers of bacteria. Hence, when one goes into a crowded room and the next day feels as if one had a cold, it can easily be ascribed to a badly ventilated room. Some of our public auditoriums are properly ventilated. They have their own system of renewing the air every few moments and very naturally they keep the air in circulation and throw out the old and stale residue which remains after a public gathering. These places seem quite safe, and there seems to be much less likelihood of a person taking cold there than when he goes into a stuffy, illy ventilated room.

It is rather extraordinary, perhaps, to say that the doctors in their medical gatherings are responsible for badly ventilated quarters, and when ten or fifteen medical men are gathered together in a room that is not properly cleared from its bad air, and many of the men in attendance are

smoking, it stands to reason that something is going to happen. Yet you will see this in any medical meeting-room, except those that are conducted on hygienic principles. A small dining room which holds a committee of ten to twelve, with three or four smoking at a time, not only chokes up one's membranes but makes them irritable, and they are unable to resist the invasion of an infection. However, doctors are generally known to ignore most of the rules of sanitation. They are like Jurgen; they will take a chance—once, at least!

There are probably more remedies for colds than for almost any other known disease, and the poor victim who is suffering from an enormous increase in the mucous discharges from his nose and throat is given more free advice than can be broadcasted from the latest radio station; and this advice contains remedies from a to z,—some that have existed since prehistoric times, some that are popular with Indian medicine men, others that came up from the crowd through the eclectic, and many of them that are warranted and guaranteed by the patent-medicine man and also advocated by the proprietary preparations. Some of them are wonderfully good. And if one needs a list of remedies, Mark Twain, in his writings, gives the advice that he got when he had a cold. Of course, one man's remedy is another man's poison. That accounts for the fact that so much free advice is accepted by the unfortunate victims, and they go from washing their noses with a gallon of salt water to snuffing powders, from exercise to complete inertia. The latter is the best remedy. The popular idea that one should go to bed and stick it out for a few days until one gets better and is rested sufficiently to meet the vicissitudes of life is a good one. Unfortunately, there are a large number of us who cannot go to bed at the proper time, and we go on with our work and hope and expect that in time we will recover, which we do.

Scientists who have been investigating the kind of germ that is responsible for these colds are still with their heads under water, and no one has definitely isolated a germ which is responsible for all these colds and catarrhal conditions. There seems to be but little question that there is a great similarity between the infections that follow the influenza which are allied in their way to poliomyelitic and encephalitic infections. They must be of the same type of germ, but probably exist under different strains. And if the streptococcus has a divisibility into 500 different types, who knows where his pet germ lies?

One of the old-time remedies which is at least

reasonable and relieving is to take 5 to 10 grains of old Dover's powder, to which may be added a grain of calomel, and it may be supplemented in the morning by 10 grains of quinine, and in many instances the patient is decidedly benefited,—at least he sweats out a lot of his old fluid and gives the mucous membrane a chance to clear itself. But when anyone has a good substantial cold, and can spare the time, he would get over it much faster in bed than out. But if he is unable to do so, the cold will gradually wear itself away. This is not an advertisement for any specific remedy for colds!

NEWS ITEMS

Dr. O. D. McCartney has moved from Carpio, N. D., to Williston, N. D.

Dr. J. E. Brosseau, formerly of Frankfort, S. D., is now located at Argyle, Minn.

Dr. A. H. Pederson, of St. Paul, has returned from Vienna, where he spent the summer in special study.

Dr. W. V. Lindsay, of Winona, was elected president of the Winona County Public Health Association last month.

Dr. Einer W. Johnson, of Bemidji, has returned from a year's work in Europe, working in Vienna most of the time.

It is said that more than one-third of the 161 children recently examined at the free clinics in Freeborn County needed medical aid.

The new addition to the Women's Section of the Rochester State Hospital will soon be ready for occupancy. It will accommodate 125 patients.

The drive to raise \$100,000 for an addition to St. Andrew's Hospital, Minneapolis, was successful, and the addition to cost \$200,000 will be built.

The business men of Egan, S. D., are heartily in favor of establishing a hospital in that place, and plans for building one are now under consideration.

Dr. L. H. Fowler, of Minneapolis, was married last week to Miss Rachel Wilson, of Stillwater. Dr. Fowler is a Minnesota Medical School graduate, class of '21.

The School for Nurses conducted by the University of Minnesota opened this year with an enrollment of 387 students, or nearly twice as many as last year.

Dr. W. A. Kennedy, of St. Paul, was married last week to Miss Helen M. Dore, also of St. Paul. Dr. Kennedy is a graduate of the University of Minnesota, class of '18.

The Eastern Montana Medical Association met at Glendive, Mont., on October 2. The principal paper presented was by Dr. John A. Evert, of St. Paul, on "Compound Fractures."

Dr. Cecil J. Watson, of Minneapolis, was married last month to Miss Joyce Patterson, also of Minneapolis. Dr. Watson is a 1925 graduate of the Medical School of the University of Minnesota.

The Minnesota State Board of Nurses held examinations for the three days on October 2, 3, and 4, at St. Paul, Rochester, Crookston, and Duluth. Over 400 nurses registered for examination.

Dr. R. T. Sitar, of St. Paul, was married last month to Miss Pauline Lewis, of Madison, Wis. Dr. Sitar is a recent graduate of Wisconsin and is doing his internship work at the Ancker Hospital, St. Paul.

Dr. Harold Hayes, of 22 West 74th St., N. Y. City, is compiling a collection of short stories written by doctors, and he will be glad to be informed of the names of authors who have written fiction of this kind.

The architect who has drawn plans for two additions to St. Joseph's Hospital at Dickinson, N. D., estimates the cost of construction at \$40,000. A chapel and twelve good-sized rooms will be added by the two wings.

The Health Clinic Car of North Dakota, maintained by funds received from the sale of Christmas Seals, has completed its fifth annual summer tour, and its work is equalled only by the work of the early medical pioneers in that state.

Morris is to have a new hospital. A hospital organization has been formed with Drs. Amos Leuty and E. T. Fitzgerald, respectively, president and secretary, and enough stock has been sold to insure the success of the undertaking.

The Hennepin County Tuberculosis Association has opened a life-extension clinic at the Wells Memorial Settlement House in Minneapolis, to be opened every Thursday evening till June 1, 1926. It is in charge of Dr. H. P. Bacon.

Dr. Edwin J. Simons, of Swanville, was married last month to Miss Hazel Coyotte, of Stewart. Since his graduation from the Medical School of the University of Minnesota, class of

'23, Dr. Simons has practiced in the hospital at Long Prairie and has recently moved to Swanville.

Our South Dakota readers should not overlook the Fifth Annual Clinic of the Mitchell (S. D.) physicians and surgeons to be held in Mitchell, on November 5 and 6. The work done by clinics of this kind is very interesting and instructive. Attendance upon two or three such clinics is almost equivalent to a month of postgraduate work. The influence of them is broadening to any man.

As this issue of THE JOURNAL-LANCET goes to press the meeting of the Inter-State Postgraduate Assembly in St. Paul has progressed far enough to warrant the assertion that it is one of the greatest medical gatherings ever assembled in America. The registration is now above 2,000, and the enthusiasm of all present marks the success of the meeting. Surely, this is the day of "dry clinics."

A notable scientific article on "Gastric Excretion of Neutral Red" appears in the *Journal of the American Medical Association* of September 12, by Dr. Percy B. Davidson, of Boston; Dr. Edward Wilcox, of Brussels, Belgium; and Dr. Crossman D. Haagen, of Boston. Dr. Haagen is a graduate of the Medical Department of the University of North Dakota, a number of whose graduates have recently distinguished themselves in original medical work.

The following are the committees who will have charge of arrangements for the 1926 meeting of the North Dakota State Medical Association at Minot, May 25 and 26, 1926: Arrangements and place of meeting,—Drs. E. M. Ransom, O. T. Peterson, F. E. Wheelon, Andy Carr, and H. M. Erenfelt; reception,—Drs. L. H. Kermott, T. N. Yeomans, J. T. Newlove, A. Carr, Sr., O. T. Peterson, and A. Sinamark; banquet,—Drs. J. R. Pence, J. L. Devine, and A. J. McCannel; registration and badges,—Drs. H. G. Knapp, O. Haroldson, A. Carr, Sr., and G. C. Hanson; hotel reservations,—Drs. F. E. Wheelon, J. T. Newlove, and E. C. Stone; scientific program,—Drs. A. D. McCannel, P. A. Nestos, M. J. Fardy, R. W. Pence, and A. L. Cameron.

THE KINGSBURY (S. D.) COUNTY MEDICAL SOCIETY

The regular meeting of the Kingsbury County Medical Society was held in Arlington, S. D., September 18, with an attendance of 70 per cent. According to the usual custom the members and

their wives were entertained at a splendid banquet by the hosts, Dr. and Mrs. Hopkins and Dr. and Mrs. Grove, of Arlington.

At 8:00 P. M. the members of the Society conducted the business and scientific session, the program of the evening being a dry clinic with cases presented by Drs. Grove and Hopkins. The first two cases were sisters with hypothyroidism, the first showing the improvement under active treatment and the second was about starting treatment. This was followed by three cases of mixed spinal sclerosis with the histories and clinical findings very carefully worked out. This was a very unusual group for such a relatively small territory and created considerable interest.

The sixth case presented was for comparison with the previous trio because of somewhat similar beginning, but as the clinical data were not yet completely worked out no conclusion was reached.

This was followed by a report by Dr. Grove of the case of the brother of Case 6, which was a typical history of pernicious anemia with the development of a rather extreme ascending spinal sclerosis.

Dr. Hopkins then read a case report of a traumatic popliteal aneurism with a successful operation with a recurrence after three years and a second recent operation giving detailed measurements and pictures of the condition.

The program was closed with a general discussion on organotherapy. This was a valuable and interesting group of cases, and deep interest was taken by all present, as evidenced by the spirited discussion following each case and at the end of the clinic.

The Kingsbury County Medical Society believes it has the right idea as to society meetings, and the meetings always take the general plan outlined above, beginning with a banquet to which the members' wives are invited, the ladies holding their own kind of meeting separately following the banquet.

This Society is completing its fourth year. Attendance at meetings is often 100 per cent, and the fellowship and good will, and mutual esteem with which meetings are characterized are the natural result of comparatively frequent social and business meetings. This attitude is carried out in the same manner in all daily contacts in practice also and is to be considered a great achievement for the Society.

Other results of Society work were the satisfactory solution of the problem of the medical

care of county charges and the compilation of a county wide dead-beat list.

GEORGE B. IRVINE, M.D.,
Secretary.

THE CANCER INSTITUTE AND THE
TODD MEMORIAL HOSPITAL
OPENED BY THE UNIVER-
SITY OF MINNESOTA

The Cancer Institute and the Todd Memorial Hospital, units of the University of Minnesota Hospitals, were opened last week. The aims and purposes of the Cancer Institute are well stated in the following quoted message received from the American Society for the Control of Cancer at the laying of the corner-stone of the building.

On the occasion of the laying of the corner-stone of this institute The American Society for the Control of Cancer desire to extend to the founder, and to those through whom her noble gift has been made, an expression of the appreciative interest with which it regards this undertaking.

The Institute is to be a high-class laboratory in which well-trained, unselfish investigators will search for the underlying truths concerning cancer, and it will well represent the effort which is being made throughout the length and breadth of the land to advance the cause of cancer control in a scientific and practical manner.

There is the utmost need of such work, for there is no specific against this disease. To control cancer we must prevent it as far as that can be accomplished, diagnose it as accurately and early in its progress as possible, treat it as skilfully as may be in the hope of effecting a cure, and endeavor to lengthen the lives and ameliorate the sufferings of incurable cases by whatever means our present limited knowledge and long experience have shown are best.

It is the hope and the expectation of the American Society for the Control of Cancer, under whose leadership the organized campaign against this disease is being carried on in the United States and Canada, that the new Institute to be opened in connection with the University of Minnesota will take its place beside the most efficient organizations of its kind, and that others, suggested by this fine example, will be established elsewhere.

It is scarcely conceivable that a more beneficent use could be made of money than is represented by this gift, and in recognition of it the American Society for the Control of Cancer takes pleasure in extending the congratulations not only of its thousands of members, but of all persons—and they are without number—who realize the magnitude of the cancer problem, the difficulty which has through the long centuries attended its solution, and the need of providing every possible facility for its control.

The Todd Memorial Hospital is an eye, ear, nose and throat hospital.

The completion of these units brings the total

capacity of the University Hospitals to 300 beds.

Among the special features of the building may be mentioned the *x*-ray and radium laboratories and the Cancer Outpatient Department with its examining and treatment rooms and offices on the ground floor of the building; a two-story amphitheater type lecture-room having a seating capacity of 154, located in the north section of the building; the Frank C. Todd Memorial Room for the use of the ophthalmology and otolaryngology staff, located on the fifth floor; and large open porches with southern exposure on each of three floors for the use of the patients.

The terms of acceptance, by the Board of the Regents of the University of Minnesota, of the gift from the Citizens' Aid Society for the erection and equipment of the Cancer Institute specifically provide for the admission and care of patients who are financially able to pay for care and treatment furnished to them. This class of patients is eligible for admission whether resident in the State of Minnesota or elsewhere.

The University Hospital offers three services to which patients may be admitted, depending upon their economic status, as follows:

1. A Free Service, which is open to residents of Minnesota only, to which applicants must be certified as eligible for admission by a member of the Board of County Commissioners of the county in which the patient resides, under the provisions of Chapter 411, Session Laws of 1921, as amended by Chapter 265, Session Laws of 1923.

2. A Pay Service open to those who are able to bear the cost of hospital service, at minimal rates only, and who cannot pay charges for professional services. Admission to this service may be secured upon the application therefor made by the patient's local or family physician.

3. A Pay Service which, within the limitations of the necessarily small number of beds available for the purpose, is open to those who are able to pay both a hospital charge, covering such accommodations as they may choose, and charges for any professional services which they may require. Admission to this service may be secured through reference by the patient's local or family physician or by direct application to the Superintendent of the University Hospitals. Patients are admitted to this service irrespective of their place of residence.

Position of Matron of Hospital Wanted

A widow who has had a course in institutional training desires a position as matron of a small hospital. Address 291, care of this office.

Locum Tenens Wanted for Three Weeks

In a town near Minneapolis beginning October 24. Physician can reside in hospital. Address 305, care of this office.

Good Location in Minneapolis for a Physician

Good location in North Minneapolis for a young physician with some experience. Scandinavian preferred. Address 293, care of this office.

Location in North Dakota Wanted

Where a good practice can be developed from the start. By a capable, experienced, general practitioner, aged 40. Address 304, care of this office.

Practice in Minnesota Offered

A practice can be had in a town of about 400 or 500 in a large and growing community in Northern Minnesota by purchasing a small amount of office furniture. Address 305, care of this office.

Practice for Sale

An old-established unopposed general practice in Northeast North Dakota. Plenty of work and good pay. Good residence, completely modern. Moving to the city. Terms very reasonable. Address 286, care of this office.

Office Equipment for Sale

To settle up a deceased physician's estate, his office furniture, surgical equipment, instruments, cabinets, sterilizers, etc. are offered at a great sacrifice. Call on or address Dr. Wesley Bishop, 616 La Salle Building, Minneapolis.

Physio-Therapy Technician Wants Position

I have four nurses who have just completed a private course in Physio-Therapy and general office work. Can fill office position by October 20. For further information, write Dr. Iver S. Benson, Montevideo, Minnesota.

Practice for Sale

In a city in North Dakota, mainly surgery and office practice. Collections average \$12,000. Established for years. Complete equipment. Good hospitals. Will introduce. No real estate. Real opportunity. Address 292, care of this office.

High-Grade Technician Wants a Position

A graduate of the Ancker Hospital Laboratories with a year and a half experience in a Minneapolis Hospital and two years in a large Clinic. Can do all routine laboratory work, and chemistries and bacteriological work. Address 301, care of this office.

Assistant Wanted

A young man capable and desirous of advancement is wanted for temporary or permanent position with a clinical group in a good Minnesota town. A future for the right man. State experience, ability, nationality and salary expected. Address 283, care of this office.

Physician Wanted

To locate in a good neighborhood in Minneapolis. A suitable suite of rooms adjoining dentist's office with general waiting room above a corner drug store in an up-to-date brick building. Address Chicago Avenue Pharmacy, 3757 Chicago Ave. or telephone Colfax 0906, Minneapolis.

Position Wanted

A registered nurse, who is a graduate of the Chicago Lying-In Hospital (1924) and has had institutional experience in obstetrics, a year and a half work in anesthetics, some experience in x-ray work, desires a position in a hospital or clinic in Minneapolis. Address 294, care of this office.

A Physician Wanted

A reliable physician, of good habits, to locate in a town of two hundred, on a railroad, excellent territory, and to co-operate with a Clinic in a nearby large town. Give full references and qualifications in first letter, also all necessary personal information. Address 299, care of this office.

Minneapolis Office for a Physician for Rent

Minneapolis office for physician, etc., at 7th St. and Nicollet Ave. Third floor, corner suite, and two private offices and reception room; newly decorated and in first-class condition. These offices are on Minneapolis' busiest corner where thousands of people pass daily. Address 295, care of this office.

Office Space for Rent

In new downtown building in Minneapolis with a group of physicians. New X-Ray and Clinical Laboratory. Two rooms and common waiting room; \$50 a month. Liberal reduction in rent to start. Free parking space for your own and patients' automobiles. Address 302, care of this office.

Position Wanted as Technician

A well-trained laboratory technician; graduate of recognized school; competent to take complete charge of clinical or hospital laboratory; well grounded in Wassermanns, blood chemistry, urinalysis, tissue technique, bacteriology, and clinical microscopy; open for immediate appointment. Address 290, care of this office.

Assistantship or Partnership Wanted

In town of 5,000 or better with man doing surgery or E. E. N. & T. or combined with general practice. By 1916 graduate; 35 years of age; good hospital training; seven years general practice. Desires opportunity of gaining surgical experience and obtaining permanent location in good residential town. Address 297, care of this office.

Technician Wants Position

In doctor's office, clinic, or hospital. Seven years experience in doctor's office as assistant, technician, book-keeper, and stenographer. Experienced in x-ray, laboratory work and physiotherapy. Six months hospital experience and anesthetics. Permanent position desired. Available at once. References furnished. Address 303, care of this office.

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STUDIES IN PHYSICOCHEMISTRY AND THEIR RELATION TO CLINICAL MEDICINE*

BY WILLIAM J. MAYO, M.D.

ROCHESTER, MINNESOTA

Happiness is a state of mind, not necessarily a state of body. Many persons in poor physical condition are happy and pay comparatively little attention to physical ills until they are so far advanced that they cannot be cured. There are others who have no physical ills but are unhappy who believe that their unhappiness lies in some malady. These patients may be relieved by an appeal to the emotions.

Many of the various "pathies" and cults are based on appeal to the emotions in response to the desire of the people for a remedy for ills, real or imaginary. The assertions of the cultists as to the cure of incurable disease are based on the fact that the patient's mental state is improved; the disease did not actually exist. In the regular medical profession the purpose of the seven or eight years of training beyond the high school, in the universities and medical schools and hospitals, is to make possible proper diagnosis of physical disease.

The cults succeed one another, new ones appearing as the older ones are shown to be without real merit in the presence of actual disease. Each generation in an advancing civilization has seen improvement in the popular understanding of physical disease, as is evident on looking back through the early history of medicine. In the ten thousand years of Egypt's history there were

eight complete relapses into barbarism. As relics of Egyptian culture are uncovered they show little evidence of understanding of the nature of physical disease. The emotions apparently were stirred by tributes to the various gods; devils were exorcised as the spirit prompted.

To the genius of Aristotle, who lived in the fourth century before the Christian era, we owe the development of the deductive method of reasoning, on which science has securely rested. Aristotle was interested in all living things, in the method of growth, life processes, and in the manner in which life terminated. The Aristotelian methods, developed by the unaided eye, were to endure for two thousand years unchallenged by a competitor.

The seventeenth century was for England one of the great centuries in literature and scientific discoveries. It was the time of Shakespeare and of Harvey, who applied to medicine the inductive methods of reasoning of Bacon. We think of Harvey in relation to the circulation of the blood, but we should think of him, rather, as the founder of experimentation and research, as the builder of methods by which controlled experimentation, often vivisection, could be made to parallel clinical experience. Harvey's only aid was the simplest type of magnifying instrument, hardly to be called a microscope.

The seventeenth century produced also Sydenham, the clinician, and John Mayow, who was

*Address before the public session of the South Dakota State Medical Association, Sioux Falls, May 20, 1925.

one of the first of the physician chemists. The observations and experiments of Mayow led later to the discovery of oxygen. To-day, after nearly three hundred years, we are just beginning to understand those fundamental problems which connect physicochemistry with the medical sciences. The impetus given by the work of Harvey, Sydenham, Mayow, and their contemporaries led to rapid advance in knowledge of the sciences in relation to clinical medicine.

In the succeeding two hundred years there were no outstanding names in medicine. In the latter part of the eighteenth century John and William Hunter did much to put medicine on a sound foundation. John Hunter, the surgical pathologist, had that divine discontent which leads to progress. Working with inferior microscopes, by his investigations he related general pathology to clinical medicine, and made England the center of medical progress for the succeeding century. William Hunter, the physiologist, studied the normal functions of life, and correlated them by the inductive method.

Advance in clinical medicine since the time of the Hunters has been rapid. In the middle of the nineteenth century, because of the development of better microscopes, the French came to the front scientifically. Recently there was celebrated the centenary of the birth of the chemist-physician, Pasteur, who rendered greater service to mankind than any other mortal. Pasteur drew from the foundations of pure science inspiration which led to the discovery of new knowledge, on which was to develop the germ theory of disease. The Germans, with their characteristic thoroughness, patience, and scientific acumen, aided by animal experimentation, developed the relation of Pasteur's discoveries to the microbic origin of disease, giving us our knowledge of tuberculosis, malaria, and typhoid fever, which until recent years have exacted such a heavy toll of human life. Most of us can remember when typhoid was common. Preparations for a fall epidemic of typhoid were made as regularly as preparations to handle the autumnal crops.

Through knowledge gained with the perfected microscope, a pure water supply was made possible, with its beneficent result, prohibition. When Vienna introduced a pure water supply from the mountains, her per capita consumption of spirituous and fermented liquors dropped spontaneously 40 per cent. The introduction of a pure water supply in the various states in our own country has been followed by a temperance movement and, finally, by prohibition. The drink habit is one of the many forms of individual

protection resorted to by nature to save man from filth diseases which cause death, or that which is worse than death, intellectual deterioration. Much of the objection to prohibition in this country has come from aliens who formerly lived in countries where water is not much used for drinking because it is not pure. These people do not understand drinking water exclusively, because they have had to depend on wines and beer for a sterile drink. In the Civil War the deaths from disease were many times the number of those from injury. In the Spanish-American War more than 90 per cent of all the disabilities were the result of disease from impure water and contaminated food. In the last war medicine was triumphant. For the first time in the history of the world the number of deaths from casualties in war was greater than the number of deaths from disease.

To the microscope also we owe pasteurization of milk, which has brought freedom from cholera infantum and contributed to freedom from typhoid and the practical eradication of malaria and yellow fever.

The public has been almost unconscious of the growth of preventive medicine and public hygiene, and but little has been accomplished along these lines in comparison with all that may be done. Smallpox can be wiped from the earth; it has been eradicated in Germany. The continuation of the disease, due to the ignorance and prejudice of some and the indifference and selfishness of others, is a disgrace. The periodic medical and dental examination of school children and adults alike is of primary importance in guarding against infections. Infections are responsible for metabolic changes which later result in disease of the nervous system, of the heart, the kidneys, and the liver in middle age. Even with the ineffectual health measures which have been instituted, marvelous good has been accomplished. In the last fifty years the average lifetime of man has been increased more than fifteen years; as much more could be added in the next twenty years if the facts now in our possession were effectively employed. We have been promised in the Bible three score and ten years. To-day we can vision this as approaching.

The extension of life from the average age of 43 to 58 has brought an enormous number of persons into middle and later life, with the result that there are naturally more deaths from the characteristic diseases of middle and later life, affections of the heart, kidneys, and liver, and from cancer, but, fortunately, through the microscope again, new channels open for the

cure or prevention of these conditions. Where sight goes, knowledge and wisdom appear. The senses of taste, smell, and hearing are deficient in man as compared with many animals, but the sense of sight is connected by direct pathways with the entire thinking part of the brain.

The whole fabric of the great advances in biologic science in the last generation was woven with microscopy, but the microscopic limit of 1/10 micron, or 1/250,000 inch, has been reached. The eye, aided by the microscope, was able to reveal not only the objects themselves, but usually also their size, shape, color, and other distinctive characteristics. All the particulate substances studied were obedient to well-understood laws, for instance, gravity. To-day we face the ultramicroscopic field in relation to scientific progress as our forebears faced the realm of science when Pasteur promulgated his theories. Again it is the eye that carries us forward.

Light is an electromagnetic phenomenon. When a beam of light is subjected to dispersion, it is divided into its different rays, which are recognized by the retina in the order of their wavelengths as the colors of the normal spectrum. The longest ray is red, the second orange, the others, in sequence, yellow, green, blue, and violet. On the relative length of these rays has been based the colorimetric system, which has been of extraordinary value in aiding the eye to recognize the minute. The production of colors en masse has facilitated the application of the dyes to the scientific study of the ultramicroscopic field. Evans has shown that the elimination of dyes from the blood stream, when the dyes are introduced intravenously, is purely a filtration phenomenon.

When Brown, the English botanist, working in Bristol, began the observations which culminated in his written communication of 1827, he focused attention on a subject of enormous importance. The questions he raised a century ago require all the resources of modern science for an answer. Brown noted, as man undoubtedly had noted from time immemorial, that when a pencil of bright light was thrown into a dark room, there were to be seen in the air certain rapidly moving particles of which there was no other physical evidence. On experimentation he noted with the microscope the continual movement among minute particles suspended in a liquid. Because of his investigations the peculiar vibratory motions of these particles were called "Brownian movements." The most important contribution to a proper understanding of these phenomena was that of Thomas Graham, Master of the Mint in

London, who, in 1861, published his painstaking observations which led to the first detailed description of colloid bodies. Graham's work was largely based on dialyses of colloid-sized substances through parchment paper. These observations led to the investigation of the colloid field, which included those ultramicroscopic particles lying between 1/10 and 1/1,000 micron, or 1/250,000 and 1/25,000,000 inch. The disclosures of the colloid field have supplied the knowledge lacking with regard to substances which lie between those things which can be seen with the eye aided by the microscope, and the molecule and the atom, physical knowledge of which depends on other scientific evidence.

Colloid chemistry has yielded extraordinary results in agriculture and the industries; from it there is now being built a new physiology of man, a better understanding of vital phenomena and their relation to the metabolic processes, internal secretions, and immunizing substances.

Oxygen constitutes on the average 47 per cent of the atmosphere, water, and the known earth. Considering that the base of the brain can live only from seven to ten minutes without oxygen, it is surprising that there is in the body no mechanism for storing a reserve of oxygen or producing it under stress. All life is the result of combustion. Oxidation, or the union of carbon with oxygen, gives rise to the heat and energy necessary for life processes. All foods contain carbon, hydrogen, and oxygen. The carbohydrates include the sugars, the common coal of the body, which commonly furnish heat and energy. The excess fuel is stored as fat, which again is composed of carbon, hydrogen, and oxygen, in different combinations.

A study of the fats explains the ability of the camel to go with little water or food for long periods, and how life is maintained in hibernating animals. While the sugars undergo rapid metamorphosis, the hydrogen in the fats is not so rapidly dissociated from carbon, and the result of its oxidation is the slow production of heat, energy, and, notably, water, all of which are so necessary to life. The amino-acids resulting from protein metabolism are readily convertible into sugar. All proteins contain nitrogen and most of them a little sulphur, elements which give form and stability to the tissues and facilitate the deposition of other elements, such as calcium. When the proteins are broken down the nitrogen waste is eliminated, largely through the kidneys as urea.

Normally, complex carbohydrates are not available as such, but are decomposed into simple

sugars before they are oxidized. Glucose is the specific form into which carbohydrates are converted before they can be utilized by the body. It is now possible to prepare in the laboratory a glucose solution which, injected into the veins, will temporarily supply energy and maintain life. This is but one application of the pure science of physicochemistry to clinical medicine. To-day restoration of the sick can be as precisely accomplished in the living body as similar chemical exchanges can be brought about in the test tube. The estimation of retained excretory substances is now accurately made from studies of the blood, whereas formerly they were inaccurately estimated from the excretions, as, for instance, the urine. The whole problem of excretory or filtration organs, such as the kidney, has been greatly simplified.

The function of the kidney may be briefly defined as the filtration of non-colloid constituents of the blood plasma through the capsule, and the resorption of threshold bodies in solution through the tubule cells. The kidney is chiefly a filter whose function is to eliminate metabolites, such as urea, chlorids, and creatinin from the blood. Estimations of the substances in the blood afford the most reliable prognostic index to renal function. Finally, the kidney eliminates excess water in order to maintain a proper physical state of fluidity, that the molecular constituents of the blood plasma, glucose, amino-acids, and so forth, may be maintained in the condition necessary to permit chemical exchanges.

Through studies of the blood has come the remarkable improvement in the results of operations on patients with reduced renal function. When the blood urea rises from the normal of 26 mg. to above 125 mg., operation becomes serious, unless it concerns obstruction to elimination by the kidneys. When the blood creatinin rises from the normal of 2 mg. to above 5 mg., a serious barrier to excretion is present, and the patient is in danger; when it rises above 10 mg., the patient will probably die unless the barrier is removed. The percentage rise and fall of the blood chlorids, from the normal of 560 to 650 mg., must be watched. When there is retention of chlorids, edema may occur. In high intestinal obstruction the chlorids of the blood may fall markedly, and this is frequently associated with an alkalosis and its clinical manifestations. This alkalosis is better expressed by the rise of the carbon-dioxid combining power from a normal of from 56 to 65 per cent by volume to a point above 100, often to 150 or 160 per cent, sometimes leading to tetany.

Rehabilitation of the blood in cases of renal incompetency consists in giving fluid in the form of sodium chlorid and glucose solution rectally, subcutaneously, or, if the condition is acute, intravenously. Braasch, Bumpus, Hunt, and Walters, by rehabilitation, careful preparation for operation, and proper after-care, based on these considerations, of patients with prostatic hypertrophy, were able to perform prostatectomy in a series of 186 consecutive cases with but one death. In high intestinal obstruction the problem is to restore the body fluids with water, which also aids elimination of urea, and to restore the chlorids by giving chlorid of sodium, not bicarbonate of soda, in the water, since alkalosis exists. Glucose is added to maintain oxidation in the body for heat and energy and to check destruction of body tissue. This promptly reduces the toxemia. Balfour, Eusterman, McVicar, and Weir, with these methods of rehabilitation, restoring by biochemical means the vital capacity of patients, have had remarkable results in operations for surgical conditions of the stomach and duodenum. In a series of 400 consecutive cases of cancer and ulcer of the stomach and duodenum Balfour has been able to lower the operative mortality to less than 1 per cent. Of the four deaths which occurred, one followed jejunostomy for an acute perforating gastric ulcer with general septic peritonitis. In this series of 400 cases resection of the stomach was performed in 118 cases with two deaths. A large percentage of the resections were made for cancer, four for duodenal ulcer, and the remainder for gastric and gastrojejunal ulcer.

We have long known that patients with diabetes must have a proper amount of carbohydrates, both before and after operation, to furnish the sugar necessary to prevent acidosis and coma. In acidosis the carbon-dioxid combining power may drop to 10 per cent by volume or lower, and require restoration by intravenous administration of bicarbonate of soda. Insulin is of great value in the prevention and control of acidosis. Owing to precise methods of regulating the diabetic metabolism applied by Wilder and Adams, we are to-day able to perform major operations on the properly rehabilitated diabetic patient with a mortality not exceeding that of the average. After 141 recent major operations on diabetic patients prepared by these methods, four deaths occurred. Fourteen patients with severe diabetes recovered.

The surgical mortality in cases of jaundice in which patients have been properly prepared for operation by restoring the blood-calcium content

has been reduced from above 10 to less than 3 per cent, as shown by Walters. By the use of the Rowntree-Rosenthal test with the intravenous injection of the dye, tetrasulphonephthalein, we are able accurately to gauge the functional capacity of the liver, thereby avoiding many deaths from toxemia due to failure of hepatic function.

Physicochemistry of the human body concerns life itself. A proper understanding of these vital processes is necessary to every man who prac-

tices medicine, no matter what his specialty may be, and as for the surgeon the newer knowledge is changing his outlook. By calling to his aid the scientist, the internist, and the various specialists, he is able to bring relief to a large number of patients who formerly were looked on as beyond help, or who, unprepared for operation, were subjected to a high risk. Rehabilitation is to be a master word in medicine, in the fulfillment of the ancient promise that the years of man shall be three score and ten.

MECHANICAL VS. CHEMICAL METHODS IN THE TREATMENT OF WOUNDS*

BY H. WINNETT ORR, M.D., F.A.C.S.

LINCOLN, NEBRASKA

Our teachings regarding the treatment of wounds may be expressed briefly as follows: In aseptic wounds, either the result of injury or of surgical operation, we continue to treat them by aseptic methods and depend upon the body resistance of the individual to take care of any minor amount of infection that may be present. In the care of infected wounds, however, we have been taught to depend upon treatment by antiseptic methods. This has usually meant frequent changing of dressings impregnated with supposedly antiseptic chemicals, usually in solution. By most of the antiseptic wound treatment methods the wounds, the injured parts, and the patients have been subjected to a great deal of disturbance by mechanical irritation, chemical irritation, movements, pain, etc., so that it has been a great question sometimes whether the method of treatment has not caused more distress than the injury itself.

During and since the World War particularly it has been taught that in a few acute cases we may employ primary or secondary closure of wounds. We have found that this may be done even in the presence of infection, if that infection has been reduced sufficiently by antiseptic treatment. It is my purpose to show that the application of the latter method is capable of great extension if we add to the other methods that have been employed adequate rest for the wound, for the injured part, and for the patient. That is to say, one finds that with proper protection of wounds and proper immobilization of the in-

jured parts so that, as nearly as possible, complete rest may be obtained in the physiological sense, the defensive agencies of the body are adequate to take care of a considerable amount of infection without the elaborate and complicated methods of antiseptic treatment that have been and are being commonly employed.

A thorough application of the principle of rest to these cases will make a great deal of difference, not only to the individual patient, but to entire wards and hospitals. It is a fact that during my war experience I found great differences in wards and even in different hospitals as to the comfort, progress and results of similar patients under different conditions as to supervision, staff, and methods of wound treatment.

Among the agencies that contributed most to the welfare of patients in every way, nothing impressed me more than the results of adequate splinting and the simplification of methods of wound treatment. This has led me since that time to develop a technic for wound treatment which, to a large extent, does away with chemical antiseptics, wet dressings, frequent changes of dressings, etc.

In this paper I shall speak principally of infected bone wounds. This includes all forms of acute and chronic osteomyelitis and infected fractures. Moreover, in my discussion I shall confine myself almost entirely to the principles although it may be worth while to illustrate by one or two cases to show how the technical methods suggested work out in practice.

In considering this method it is necessary to lay aside one's teachings in regard to previous methods and approach the entire subject from a

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somewhat different angle. Suppose for example, we have a patient with acute osteomyelitis of the tibia of one week's duration. There is a swollen leg, high temperature, leukocytosis of 24,000, excruciating pain, etc. What are the indications in the matter of treatment?

Ochsner, A. J., *California State J. of M.*, 1924, XXII-p3 (Utah, M.S.) says: "Primary operation should consist of splitting the periosteum to and above and below the painful area and lifting one to two centimeters on each side; as a rule this should be the extent of primary operation. Hot moist dressings with electric light treatment hasten recovery."

It is my opinion that this is wrong. I shall outline what I consider to be the ideal treatment in a moment.

Dr. C. C. Chatterton, of St. Paul, says: "Moist dressings, hypochlorite, normal saline, or boracic acid may be used as aids to drainage, but discontinued upon any signs of maceration of the skin. A small catheter may be introduced in the opening and Dakin's method used or tidal wave irrigation with various antiseptic fluids introduced, but hospitalization is necessary in this type of treatment." As I shall show you in a moment, I think also that this is wrong.

Finally, Dr. Dean Lewis, of Chicago, than whom there is no better surgeon, refers to this kind of a case as follows: "In the acute cases in which a subperiosteal abscess has formed, I believe that drainage of the abscess is first indicated. If the fever does not subside and the general condition improve or there is definite evidence of a suppurating process in the marrow the cortical bone should be removed and the marrow cavity drained."

My reply to all the above suggestions is the same—that of course the indications in such cases are for drainage for the relief of the infection to as great an extent as possible and for a continuation of that relief. One must say, however, that drainage in such cases must always include drainage of the entire infected part including drainage of the interior of the bone. Drainage in the acute stage does not involve removal of all the diseased bone. This is dangerous. If the patient can be relieved of, say, 75 per cent of his infection and if the wound and the diseased extremity can be put at rest with a suitable non-irritating dressing and an immobilizing splint, then it is my belief that nothing more should be done, particularly no active antiseptic dressing which involves wet dressings, disturbing of the splint, frequent disturbing of position, etc.

An outline of the care that I propose is as follows:

Drainage of the infected area. A simple window drainage is sufficient. Vaseline gauze pack covered with plain sterile gauze to afford continuous drainage and at the same time protect the patient from infecting organisms from the outside. Finally the application of a cast which fully immobilizes the diseased extremity, and the placing of the patient in bed in a Balkan frame in such a position that rest for the patient as well as the diseased part will be obtained, is also necessary.

Finally, the cast is not to be opened unless there are definite signs of progressive infection or inadequate drainage. In most cases this first dressing and the cast will be let alone for two or four weeks. There are no drainage tubes, no wet dressings, no disturbance of the wound or the injured part or of the patient. There is no pain or secondary infection by unnecessary dressings. There is a minimum of discharge. It will be found that the amount of discharge at the end of two or three weeks is usually less than will be found daily if daily dressings are being done. There is usually no post-operative temperature, and rapid healing occurs in correct position with a minimum of deformity, stiffness, and disability.

The following two cases illustrate the manner in which this treatment is carried out.

CASE 1.—Philip M., aged 18, came under my care on September 30, 1923, with a gunshot wound of the elbow. The entire charge of the gun passed through the olecranon and the external condyle of the humerus just above the head of the radius. He had lost a considerable amount of blood but was not in bad condition. Operation consisted of a rather hasty débridement. There was not enough tissue to repair the soft part or the skin defect so his wound was dressed with a sterile vaselin pack and a body and arm cast put on. (Shoulder abducted, elbow flexed, hand dorsiflexed and supinated.) No dressing was done until the fourteenth day, at which time the boy was up and walking about, free from pain, and had had no fever. The parents were anxious to have him at home so the superficial dressings were inspected. There was a small amount of seepage, but no evidence of inflammation, and the boy was permitted to go home. During the next six weeks he was dressed three times. On November 23, photographs were taken in the cast then the cast was removed and an aeroplane splint put on. Final complete healing was slow on account of the very thin layer of scar tissue which formed over the lower end of the humerus. In May, 1924, however, he had been healed for some time and there was complete ankylosis of the elbow, including the head of the radius. At this time a modified procedure was done to give some motion in the elbow and particularly movement of the hand. A fascia flap was inserted between the ulna and the humerus and around the upper end of the

radius. This was not dressed for one month. A week later he began with voluntary movements, diathermy, and gentle massage and with some use of the arm on an aeroplane splint. Since that time he has made good progress and presents the position shown on the photograph. In this case there was no antiseptic treatment except the use of iodine for sterilization of the skin at the time of dressings. He never had any infection that gave him a rise of temperature. His wounds healed rapidly and the ultimate result has been excellent considering the amount of damage done to the parts.

CASE 2.—A. S. H., aged 24 years, is reported because he presents an entirely different picture. This man was injured on August 13, 1923. I saw him six weeks later. In the meantime, the story goes that four weeks after his accident, which was a simple fracture, a plate was put into his leg which became infected. After that the plate was removed. Following this he ran a septic course, and when seen by me in October he had an extensive osteomyelitis of the tibia with high temperature, severe deformity of the leg, and poor general condition. An extensive drainage operation was done with a removal of dead bone and other infected tissue. A pin was put through the heel, and the leg was extended on the table to full length and fairly good position. The wound was packed with vaselin gauze, and a cast was put on up to the hip. His acute sepsis subsided, but about a week later he developed a rise of temperature. When this was investigated it was found that a new abscess had developed near the knee. When this was evacuated his temperature again subsided, and there was no further trouble on account of acute sepsis after that time. Dressings were done at intervals of from two to six weeks. Casts were kept on until October, 1924, that is, just one year. Since that time he has been walking in a caliper splint and has apparently made a complete recovery.

As you have discovered, my argument is for simple dressings infrequently disturbed and for efficient splinting. The underlying principles are not new, but the method is so different that I have had difficulty in persuading surgeons to try it. A few, however, are already convinced of the value of this method. Others have started in this direction, but have not carried it far.

Van Arsdale, in 1893, and Gallant, in 1897, were using balsam of Peru and castor oil for infrequent dressings. Taulbee, in 1898, had discarded chemical antiseptics. He says, "I was a follower of Lord Lister for many years but have long since advanced beyond the point of recognizing his teachings demanding the destruction of germs by the direct application of dressing saturated with chemicals capable of producing death of such germs." As for me, I am persuaded that better splinting and simpler dressings will demonstrate not only the advantages that I have enumerated above but that they will contribute to a definite lowering of mortality in com-

pound infected injuries, just as did the efficient early application of Thomas splints in femur cases on the battle fields of France.

DISCUSSION

DR. C. N. CALLANDER (Fargo, N. D.): Dr. Orr made the statement that he would at once drain. I want to ask how—whether he makes an elaborate drain or whether he drills through the cortex into the medulla and continues to drill up and down the shaft until he determines the source of infection. Then having splinted and spliced the fragments in contact, what does he do? The tissues above and below are involved. How does he drain the wound following the removal of the splint, and what is the effect on the adjacent joints?

I also wonder whether or not with the multiple initial drainage we can hope always to avoid the picture we saw yesterday in the patient with the complete femur sequestrum.

DR. ORR (closing): Now that we have heard of the primary drainage of the acute infections there is greater danger, in operating on such a case, of doing too much. It is quite possible if a careful clinical diagnosis is made to determine within a small area the localization of the lesion. If that is done and a small slit made and a drill hole made with a small drill (three or four or half a dozen if necessary) right into the marrow or where you think the focus of infection is, the limb can be put up in the vaseline gauze pack and immobilized. But if you have done the same thing, if you have put the drill holes in and applied the pack and put the child to bed without any immobilization that child will scream with pain for days. I heard patients in Great Britain and France scream with pain whenever they were moved because the immobilization was not sufficient. This is damaging to the parts, and the immobilization is the most important thing in treatment. If you examine the marrow cavity and find it lying full of pus you do not need to go far. The cauterization method, as done by Ryerson and many others, is not the first thing to do in the first stage. That is for later use. The first thing to do is to allow the patient to be relieved of 75 per cent of the infection and give him an opportunity to fight the thing out by himself.

As to motion of the adjacent joints: that is a good point. You find after taking off the cast that the joint is very stiff. The question is, shall you manipulate the joint, with the patient shouting every time you do it? Shall you have the physiotherapist do it, or shall you let the patient himself do it? I have seen most of the so-called physiotherapeutic methods in France, and I came to the conclusion that the fellow who got along best was the fellow who worked it out himself. I do believe in diathermy or hot baths for a few minutes, but I think the prolonged hot baths, with a temperature of 120° F., do more harm than good. A short application of diathermy, twenty-five or thirty minutes, and putting the patient to work with a broom or a hoe and shovel have accomplished more than has having more things done for him.

In the case of an injured knee in a child you do not need to do any of those things. Just put him on his feet and tell him to run around, and

by the time he is twenty he will have a good functioning leg.

In regard to Dr. Callander's last question: If the sequestrum is removed at the first operation there will be no further sequestra, but if the first opera-

tion does not remove the entire focus of infection, if there are areas that are not supplied with blood, then there will be more sequestra.

I think from 75 to 90 per cent of these cases can be prevented by proper early drainage.

TECHNIC IN X-RAY WORK*

BY FRANK I. DARROW, M.D.

FARGO, NORTH DAKOTA

The technic of making skiagraphs is not the art that it was even ten years ago. The various factors concerned are so well known now that the making of the pictures is approaching an exact science. This is mainly due to the Coolidge tube and some of the newer instruments for measuring the factors that control the amount and penetration of the rays that leave the tube. I have been told that a green girl can be trained to take a beautiful and complete set of pictures of normal bones and organs in ten days' time. I feel that every one in the practice of medicine who requires skiagraphs to aid him in diagnosis should have knowledge of how they are made in order that he may properly evaluate the information they give, whether he reads the skiagraphs himself or has them interpreted for him. In other words, to know the value of the information given one must have some knowledge of the source. I shall show you how to determine the quality of the end result, namely, the film itself. There are four factors concerned:

1. *Distortion*.—Distortion manifests itself in an improperly shaped shadow or a magnified one. Distortion is affected by the distance of the object from the film, the distance of the tube from the film, and the position or alignment of the tube, object, and film. The minimum of distortion is ideal.

2. *Contrast*.—Contrast is the percentage of difference between the darkest blacks and the whitest whites, and it is limited between the clear film and dead black. The maximum of contrast is not necessary, but we must have enough to see the things we are looking for. It is especially desired in the showing of soft tissues. By increasing the time of exposure or the milliamperage we obtain contrast. It is well to remember that *contrast* and *detail* are two different factors, frequently confused, and they are obtained in a different manner.

3. *Detail*.—Detail brings out lines and contours sharply, and there is considerable qualitative difference in detail. The same factors, with some additions, control detail that control distortion, and in a way these factors are closely related.

(a) Distance of the object from the film. The closer the object is to the film the better the detail.

(b) If the tube is too close detail is poor.

(c) Proper alignment improves detail.

(d) The size of the focal spot of the tube used affects detail very markedly.

(e) Scattered and secondary radiation affect detail.

1. Scattered rays are those from other parts of the tube than the focal spot.

2. Secondary rays may come from anything the primary rays strike.

Detail is especially important in bringing out (1) pathological lesions in bones, especially early lesions such as osteomyelitis; (2) the extent of lung lesions especially where the diagnosis cannot be made out by physical signs.

4. *Radiographic density*.—Density is the factor most frequently varied. This quality is best understood by looking at a film as a whole, and you will say this is a light film while that one is dark. Your detail and contrast may be practically the same in both films. Radiographic density may be controlled by the voltage, time or milliamperage. It is best controlled by the voltage or time.

A good plan is to train your technician to set their factors for contrast, detail and distortion and work for the particular radiographic density you desire.

This will be a matter of personal taste and while one of us might prefer light films, another may desire dark ones, and it is purely a personal factor as to which are the better for one's purpose.

There are one or two points of x-ray technic

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which deal with protection of the patient and have medicolegal aspects:

(1) How much exposure can be safely given? The following simple rule is a good one:

Rule.—With a gap of 3 to 9 in. and a focal skin distance of not less than 15 in. using a 1 mm. aluminum filter, never give more than 1,200 milliamperes seconds and in case of the scalp not more than 900.

This applies to any one skin area. Do not attempt to duplicate the limit in from two to four weeks. This rule is common practice and will stand up in court. The use of 1 mm. of aluminum permits the use of 40 per cent more exposure.

(2) The protection of the patient and operator from high-voltage current should be stressed. Deaths are reported every year.

(3) Films should be rigorously guarded to prevent fire. Underwriters are beginning to make new rules for the storing of films.

(4) Every year we read of barium sulphide being taken in place of barium sulphate. Just remember druggists are used to dispensing barium sulphide as a depilatory and use care in prescribing barium sulphate.

The new Coolidge tube which has recently been developed and will probably soon be on the market is essentially a high-milliamperage tube. It has the following capacity:

100 milli at 87 k.v.p., 30 sec.
or 1,000 milli at 87 k.v.p., 1 sec.
(5 in.)

This is going to be especially useful in lung work, where we are limited in our time of exposure and consequently cannot put enough energy through our tube to get the proper contrast necessary to bring out the soft lung structure.

Another point I wish to mention, which, while not as new as the tube, may not be known to you. That is the pre-reading voltage meter. This meter is so connected that the voltage can be read before the current is put through the tube. Your machine can be standardized by a sphere gap, and thereafter you can depend on this meter for accurate k.v.p. measurement.

This has the advantage of giving accurate voltage and is quite a saving on tubes as it is not necessary to try out the current, especially if the supply is a constant or you have a stabilizer to keep the milliamperage constant.

X-RAY TREATMENT*

By A. J. CLAY, M.D.

FARGO, NORTH DAKOTA

X-ray treatment covers a large field. I shall attempt to bring only a few thoughts to you.

Radiation treatment is not in competition with surgery, but should be considered in the light of an aid.

Since 1895 the following methods of treatment have been used for inoperable cancer:

1. Bacteriotherapy. Example, Immunizations.
2. Chemotherapy. As introduction of salvarsan into the blood stream.
3. Physical means:
 - (a) X-rays.
 - (b) Radioactive substances.
 - (c) Fulguration.
4. Miscellaneous:
 - Organotherapy.

None of these except x-rays and radioactive substances have stood the test, and neither of these agents is sufficiently efficient.

It is only within the past five years that radiation has received respectable recognition. In the early days of x-ray treatment the old gas tube was used. This had very little efficiency, though some operators made rash claims for results obtained. These claims were not well founded.

Next came the Coolidge treatment tube, and with this instrument many wonderful results were obtained in superficial malignancies. This was the turning-point, and radiation was given more consideration; however, deep-seated malignancies were not favorably influenced, and the next step made was to develop a machine and tube that had greater penetration and a more powerful action in these deep-seated growths.

In this country this new type of machine has been in operation for the past three years. In comparing capacity of the old and new type machines, the old had a volt capacity of 100,000 volts, whereas the new has a working voltage of 250,000 volts.

Such a powerful agent must necessarily be

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handled with care and caution. The working out of its fitness, efficiency, and technic has been given over to the men who have had considerable experience in treatment work. Probably Dr. James T. Case, of Battle Creek, Mich., has done more work with it than any other man in this country.

One of the difficulties in treatment is protection of tissues external to the deep growths. Another is the protection from destructive processes in tissues and vital organs adjacent to the tumor.

Now, this brings up the thought, how do *x*-rays act in the tissues to bring about a cure?

1st. Is it as a result of action on the tumor cell or the capillaries in the tumor?

or

2d. Is it a stimulation of the defensive forces in the tissues surrounding the tumor?

There are two outstanding theories:

Theorizing in *x*-ray work is as prevalent as in any other branch of medicine. Citing theory in other branches, at the Mayo Clinic they contend that cancer of the stomach often develops on an old ulcer base. In the East many of the big men contend that cancer of the stomach begins as such and is in no way related to an ulcer. Your own viewpoint will probably be influenced by the Clinic nearest you, so in this *x*-ray theorizing each side seems to have a good theory foundation, and you are at liberty to accept the one that sounds most logical to you.

First theory: This theory maintains that the cancer cells have a special radiosusceptibility, meaning that the cancer cells react to the *x*-ray much quicker than the cells in normal tissue about the cancer. Thus the alteration in the cancer cells and finally their death.

Regard compares the action of *x*-rays on cancer cells to the action of the *x*-rays on the testicle. If sufficient *x*-rays is applied to the mother cells in the seminal epithelium of the testicle during the time that the mother cells are dividing, there is a death of these cells, and the owner of the testicles becomes sterile. Now, a cancer contains mother cells, some in the act of dividing and some quiescent. If *x*-rays can be applied over a fairly long period of time catching all the mother cells in the act of dividing, the cancer would be destroyed.

Second theory: This theory holds that the *x*-ray produces a stimulation of the defensive forces of the body which induces the change in the tumor. In support of this theory Murphy, of the Rockefeller Institute, has done some interesting animal experiments.

In the first experiment the left flank of an

animal was exposed to an erythema dose of *x*-ray, a small bit of cancer was inoculated intracutaneously. For a control a bit of the same cancer was inoculated into the right flank, which had no *x*-ray exposure. In the latter area the cancer flourished, while in the left exposed area the cancer cells died. A second experiment was done which was identical with the first, except that the cancer cells were exposed to an erythema dose of *x*-ray before inoculation, and the results obtained were the same as in the first experiment, namely, the right unexposed flank grew the cancer, whereas the cancer cells died in the left exposed area.

From these experiments one would be led to conclude that the marked local cellular reaction of the skin resulting from the *x*-ray exposure was the cause of death in the left flank.

In regard to theories. If we believe in the first theory, namely, that *x*-rays actually do good by destroying the cancer cells and in order to get a complete destruction the exposures must be made over periods long enough (meaning days or weeks) to destroy every mother cell in the act of dividing, then we may suppose in the second experiment of Murphy that his exposure of the cancer tissue before inoculation was not carried out long enough to catch every mother cell in the act of dividing, and consequently the quiescent cells became active after the inoculation.

The first theory is the one most widely accepted. Undoubtedly, both actions result and the relative value of each will be a determining factor in the method of applying *x*-rays.

At the present time giving divided doses over a period of time seems to be more in favor. It has the advantage of getting at the mother cells in the act of division, and it seems to stimulate the defensive forces in the tissues, adjacent to the tumor, whereas with one large massive dose the defensive forces are destroyed and more often the mother cells are not all actually killed; they become active, and an invasion into the surrounding part is easy.

Cancer is one of the outstanding diseases which we as physicians have to deal with, consequently we should encourage and promote any agent or instrument which has proven of value. Surgery has probably reached its limit, so far as technic goes. The surgeon removes the tumor, makes a wide dissection of the glands, and has no doubt given a longer period of ease between operation and the reoccurrence. Surgeons in general are taking much interest in the progress of radium and *x*-ray. This is notable in their writings and their increasing attendance at radiological meet-

ings. Much is to be expected from radiation in the years to come. Still we must not lose track of the thoughts well expressed by Dr. Bloodgood; "In teaching and helping the public to understand that the cure of Cancer probably depends upon the treatment and recognition of the conditions that lead to Cancer."

Recently I had the pleasure of attending the annual meeting of the Radiological Society. I listened to a number of good papers and discussions. The clinical conference on cancer of the breast conducted by Dr. Burton J. Lee, of the Memorial Hospital, New York City, was interesting. Dr. Wahl, of Kansas City, took up the pathology expressly relating to the *x*-ray action on tumors. Pre-operative raying of the breast was done to seal up the lymphatics. This would prevent loose cancer cells in the tissues after operation from getting in the glands. He was unable to demonstrate in microscopic section any change in the lymphatics. He came to the conclusion that the good obtained from the pre-operative raying was the stunning of the cancer cells. He presented a number of slides showing destruction of cancer cells.

Dr. Clopton, of St. Louis, a surgeon, spoke of the difficulties in the diagnosis of cancer of the breast, a few of the points he brought out are as follows:

1. Fifty-nine per cent of tumors of the breast are malignant; 41 per cent, benign. The breast seems to have an immunity to sarcoma.
2. Most cancers of the breast begin as such, though malignant degeneration may occur.
3. The most common cause of bleeding from the nipple is due to a papillary growth in the ducts, though from 1 to 9 per cent of the malignancies do show bleeding.
4. Adenomata taking origin in the ducts may cause contracted nipple, and so contracted nipple does not always mean cancer.
5. Cystic mastitis commonly shows malignant degeneration, and a microscopical section is not always to be depended upon, for some other part of the mass might show malignant degeneration.

Dr. Jabez N. Jackson, of Kansas City, spoke of the surgical result of cancer of the breast. Results depend on whether it is a fast-growing or slow-growing cancer. Resistance of the patient has some influence with the rapidity of growth. He considers a case inoperable if metastasis has occurred beyond the primary group of glands. The fact that the patient is alive three years after operation or treatment is not evidence that a cure has been obtained. We had better make the time limit five years or more. On a

three years basis the Massachusetts General Hospital shows 25 per cent cures; Johns Hopkins, 42 per cent. Dr. Lee volunteered results at the Memorial Hospital on a basis of five years; 15 per cent are alive after 5 years, these had no demonstrable axillary involvement at the time of operation.

Dr. John McCullough, of Pittsburgh, talked of the *x*-ray results. If there was no apparent metastasis or if metastasis showed in the primary glands only, surgery was given the preference; if beyond the primary glands, radiation was indicated. Very good results were obtained in the low-voltage machines in the past. The tumor decreased in size and seemed to be a mass of connective tissue. The same condition existed in the glands. The patient seemed to be much improved, and the blood picture would be normal; but, sooner or later, in most of the cases there would be a reoccurrence of the symptoms. With the high-voltage machine it was hoped that they would get a complete cure, so these rays were used boldly. About three weeks after the radiation the patient would develop a sudden cough, malaise, with or without increase of temperature and dyspnea. A number of these patients died. If they did not die, cough and dyspnea existed for a long time. When the symptoms developed the first thoughts were, has this patient developed a metastasis to the pleura and lung; and is it so overwhelming to the patient that it has caused death, or are we dealing with a pleuritis and pneumonitis as a result of the heavy *x*-ray treatment? Radiographs of the chest showed a hazy condition throughout the lung.

Post-mortem examination revealed the true condition,—a pleuritis and pneumonitis, as a result of the heavy treatment. Treatment now consists of a fairly heavy dose over the tumor itself and a much lighter dose over the glandular areas.

SUMMARY

Neither surgery nor radiation gives very brilliant results. Surgery has probably reached its limit; radiation is the agent to look forward to.

I shall not inflict more cancer upon you, but shall close with a few words regarding the clinical conference on thyrotoxicosis conducted by Dr. E. L. Jenkinson, of Chicago. Dr. John L. Tierney, an internist of St. Louis, read the first paper, "The Medical Aspect of Thyrotoxicosis." He made a flat statement that we do not know what the cause of thyrotoxicosis is, so necessarily the treatment is empirical. Possible causes might be—

1. Excessive secretion of normal thyroid substance.

2. Secretion of abnormal thyroid substance.

3. Imbalance of the autonomic nervous system. He had nothing to offer in the line of treatment from a pure medical standpoint.

Dr. Jenkinson, of Chicago, was very enthusiastic about *x*-ray cures, figuring he had gotten 80 per cent cures of the 426 cases that he had treated. Dr. Allison, of Minneapolis, and Dr. Christie, of Washington, also gave very favorable reports of their *x*-ray cures. I was more interested in hearing the report of Dr. Richardson from the Massachusetts General Hospital, for the Massachusetts General Hospital people are the pioneers in the *x*-ray treatment of the thyroid

gland. He said up to about one year ago *x*-ray and surgical results at the Massachusetts General Hospital were about equal; but since the surgical staff had adopted the pre-operative course of iodine medication from eight to fourteen days before operation and at the time of operation the removal of the entire gland they were getting 70 per cent cures, which is a better percentage than the *x*-ray department is getting. He said *x*-ray may take care of the immediate safety, but it does not take care of the ultimate safety; and just before he left for this meeting Dr. Holmes of the *X*-ray Department gave his consent to the statement that surgery at the Massachusetts General Hospital offered more to the patient than *x*-ray.

COMPRESSION FRACTURE OF FIRST LUMBAR VERTEBRA—A SIXTH LUMBAR VERTEBRA—A CASE REPORT*

BY JOHN H. RISHMILLER, M.D., F.A.C.S.

MINNEAPOLIS, MINNESOTA

Nov. 21, 1923: S. B., aged 33; Norwegian; married; switchman; injured July 16, 1923, in Wisconsin, entered St. Mary's Hospital to be prepared for *x*-ray examination.

November 22: Radiographic examination; two anteroposterior views of pelvis, entire lumbar region, and lower dorsal region; and two lateral views of entire lumbar and lower dorsal revealed a compression fracture or keel-shaped fracture, with displacement backward, encroaching on the neural canal of first lumbar vertebra; also revealed shadow opposite second right transverse process—renal calculus; and also revealed a narrow sixth lumbar vertebra. Both twelfth ribs unusually long.

Notes taken November 24: States he was climbing up end of boxcar and then fell across rail; they found him lying with back across rail. The night of the third day he became irrational and was delirious for one week; he was noisy and talked all the time; was given sedatives, but did not sleep; the deliriousness gradually cleared up. He was catheterized from the very beginning for one month; bowels have always been involuntary.

Has no control over urine or bowel matter. Muscles of calves have sagged away from tibiae and in consequence crests of tibiae project prominently. No patellar reflexes; no Babinski; no ankle clonus. Both feet are semi-extended, and both large toes are semiflexed. Upon scratching the soles, the toes respond by flexing. When taking hold of knees and then shaking legs, the feet wobble from side to side. There is slight edema about both ankles. He has complete paraplegia.

States that foot and toes of one foot sometimes

move, over which he has no control. When he notices these movements in one foot the other foot is quiet and vice versa. States that he has, about every two hours, a gripping feeling, somewhat to front, in either right or left loin; and then this pain runs down the thigh and leg. The gripping feeling alternates with right and left side. States that he was immediately and completely paralyzed after the injury.

He is ruddy in appearance, comfortable, and well nourished. Heart and lungs, normal. Blood pressure: systolic, 120; diastolic, 80.

Urinalysis; sp. gr. 1025; very faint trace of albumin.

Pupils are equal and respond actively to light. Teeth: upper,—a bridge front and some filled; lower,—four filled. Tonsils, medium size. Both ears are packed with wax. Hearing practically normal.

Upper abdominal reflexes are more than actively present, while lower are absent. Has no abdominal sensation on right side up to level with anterior superior spinous process, one and one-half inch below umbilicus. Has no abdominal sensation on left side up to three inches below umbilicus. Cremasteric reflexes are gone. Sensation is lost on back below lumbar spinous processes. On digital examination sphincter ani is not relaxed; pin-prick about anus causes reflex contraction.

Has healed, reddish scar, size of a silver dollar, over second lumbar spinous process. The spinous process over first lumbar is prominent. Has two brownish skin areas over sacrum.

Dr. Arthur S. Hamilton, of Minneapolis, saw him in consultation and found as follows:

Examination of the spinal column shows a definite projection of the first lumbar spine and a lesser projection of the second lumbar spine.

All the cranial nerves are negative except hearing, of which there was a slight diminution, clearly explained by the wax in his ears.

*Presented at the Sixteenth annual meeting of Minneapolis, St. Paul, and Sault Ste. Marie Railway Surgical Association, Minneapolis, Minnesota, December 11 and 12, 1923.

Motion and sensation were entirely normal down to a point about midway between the umbilicus and the pubes. Below this point there was practically complete numbness with the line of numbness a little higher on the right than on the left. Occasionally he seemed to get slight sensation in the upper part of the front of the thighs.

The muscles in the legs and thighs were flabby and there was considerable atrophy of all these muscles, including especially the right anterior tibial region. There was an occasional jerking in the muscles of the legs at times.

The Achilles jerks were about normal, but the patellar jerks were entirely lacking. There was no ankle clonus or patellar clonus. The deep reflexes of the arms were entirely normal except that the left triceps was moderately increased. The plantar and cremasteric reflexes were absent. The upper abdominal reflexes were normal, and the lower abdominal were lacking.

There was some resistance in the anal sphincter and a slight contraction on pin-pricking.

The patient's mental condition was normal.

CONCLUSION: No doubt this man has had a fracture of the spine with a compression of the cord. The marked loss of sensibility and marked loss of power of movement show an almost complete section of the cord, but the fact that there is still a little tone in the anal sphincter shows that the section of the cord is not quite complete.

The outlook for the future is bad, though not absolutely hopeless. Since the patient is not aware of any improvement for a considerable period of time except that he thinks he has a little better sensation than previously of fullness in his abdomen, it seems to me that one has very little to hope for in this case by further waiting. It is my judgment, therefore, that an operation should be done to relieve the pressure at the point of fracture. There is very little likelihood that this operation, if carefully done, will do any harm, and it might do the patient a good deal of good. Under the circumstances I think it is to be recommended.

November 28: He was told by me that 90 per cent of neurologists and surgeons would recommend the removal of the first lumbar—laminectomy; that the chances for recovery without operation would be nil; that the chances for recovery with operation might be possible, and improvement might occur to such a degree that he might be able to have control over bowel and bladder, and might to certain degree over legs, but he could never expect to entirely recover from his paralysis.

Four days later patient requested to have the operation performed, as outlined.

November 30: Radiographic examination, lateral view, with ball of lead foil placed over prominent spinous process and another ball of lead foil placed over spinous process below the prominent spine, indicated that the most prominent spinous process was the spinous process of the fractured first lumbar vertebra.

December 6: Blood Wassermann—two plus.

A laminectomy was contra-indicated immediately after his injury on account of his delirium tremens, lasting ten days.

December 9: Patient placed in reversed Trendelenburg position. Lumbar region elevated, with both upper and lower extremities lower. Gas anesthesia. A semilunar incision through skin and fascia down to

muscles was made on the left side, starting below the tenth dorsal spinous process and ending above the



No. 1. Anteroposterior view revealed a broadening of the body and obliteration of the intervertebral spaces of the first lumbar vertebra. Note the sixth lumbar vertebra.

fourth lumbar spinous process. The cutaneous flap was reflected. The intervertebral fascia was severed, either side, with heavy scalpel, from spinous processes of eleventh and twelfth dorsal; first, second, and third lumbar. The muscles were separated with a broad chisel from spinous processes and laminae as far as articular processes. Two pairs of self-retaining retractors were introduced, one at upper and one at lower angle of wound. The interspinous ligaments were severed with scalpel. The second and first lumbar, and the twelfth dorsal spinous process, were removed with bone cutting shears, and the corresponding laminae removed with rongeur forceps, working from below upwards. Hemorrhage from the muscles and ligaments was stopped with gauze compresses, and from the cut-bone surfaces with Horsley's bone wax. No ligation of bleeders was necessary.

While removing the lamina of first lumbar, considerable dark-colored blood escaped. Only red-colored blood was encountered in removing the laminae above and below the fractured first lumbar vertebra. The epidural fat was not unusually adherent to the dura mater. The dura mater appeared silver-gray in color; showed no evidences of inflammation; but appeared

broadened, caused by pressure. Pulsation of dura mater was distinctly observed, commencing at lower border



No. 2. Lateral view revealed a compression fracture (keel-shaped) with some posterior dislocation, impinging upon the neural canal.

of twelfth dorsal, and was absent below lower border of twelfth dorsal. The right lamina of the second lumbar was removed to its articular process. This was necessitated by the backward displacement of the right side of the first lumbar. Two attempts with a hypodermic syringe were made to obtain spinal fluid, but none was obtained, likely due to the elevated position of the lumbar region, gravitating fluid from cauda equina. Five silkworm gut splint sutures were inserted, which included the erector spinæ, intervertebral, and superficial fascia and skin, and left untied until final closure of wound. The sheath and margins of the erector spinæ were sutured with heavy twenty-day continuous catgut blanket suture. The superficial fascia was brought together with ordinary catgut, blanket suture. The skin edges were brought together with ten-day catgut suture. Next the five splint sutures were tied over a flat pad of iodoform gauze. Bulky dry gauze dressing was applied and held in place with four adhesive straps. Time of operation, from incision to closure of wound, 1 hour, 20 minutes.

December 10: Blood pressure: systolic 130; diastolic, 90, at 6:45 p. m.

December 11: Urotropine, gr. $7\frac{1}{2}$, four times a day. Tomorrow, calomel, gr. $\frac{1}{4}$, 1 every hour for six doses.

December 12: Temperature, pulse, respiration, and blood pressure, normal.

December 13: First change of dressing; removed five splint sutures and remnant of skin sutures.

December 22: Complete change of dressing; healed by first intention.

January 6, 1924: Removed wax from both ears.

January 7: Nurse to remove all dressing and to replace none. Wound thoroughly and firmly healed. Patient should be placed in wheel chair about six weeks from date of operation (he was in wheel chair before operation).

Patient was told before and after operation that no evidence of improvement from his paralysis can be expected for from six weeks to two months, may be still later, from date of operation. At the same time he understands that no result as to the recovery from his paralysis was promised.

He should place himself under antisiphilitic treatment.

NEUROLOGIC SURGERY WITH DEMONSTRATIONS: A CLINIC*

By J. FRANK CORBETT, M.D.

MINNEAPOLIS, MINNESOTA

When we turn to the field of brain surgery we approach a comparatively undeveloped realm. We cannot prognosticate, we cannot diagnose or operate in the brain with the certainty that the abdominal surgeon has achieved. It is largely for that reason that I have brought over several of my patients to show you. These patients either had brain tumors or had suffered severe trauma. The traumatic cases I will show you

first. The brain that has been destroyed has been destroyed for all time, and it is not within the power of the surgeon to restore the destroyed brain substance. In addition to the damage done by the trauma to the brain or by the pressure of the bone, there is soon added a series of events that augment these injuries, and it is to the prevention of this further injury that the surgeon must direct his attention. In every case of brain injury, unless there is free access to the outside, there will be danger from swelling. This we

*Presented at Minneapolis Clinic Week, Minneapolis April 30-May 2, 1925.

term *edema*, and this will do much damage unless it be relieved. For the relief of edema the spinal puncture stands forth.

In the use of the spinal puncture we do not begin this for twenty-four hours, for the edema does not develop before that time. We do not continue the spinal punctures longer than the third or fourth day, and if the symptoms of intracranial pressure last longer than that we discontinue the spinal puncture and think of decompression.

Hemorrhage produces damage in three ways: by the direct pressure due to increased intracranial bulk, by mechanically closing blood vessels, and by producing areas of softening in the immediate surroundings. The most brilliant results we have had in traumatic cases have been in the control of hemorrhage from the extradural vessels. Not infrequently a patient may have an injury and present no symptoms for some time afterwards, then symptoms develop, usually paralysis, aphasia, unconsciousness, and finally death, if the symptoms are not relieved. This latent period in which no symptoms may be manifest may be from a few seconds up to several hours.

CASE 1.—This first case is a little girl who was struck by an automobile. When I saw her she was profoundly unconscious, and half of her body was paralyzed. Upon examining the eyes there was extreme papilledema, evidence of intracranial pressure. I knew at once that she must have immediate operation or life would be destroyed. We immediately took her to the operating-room, and it seemed to me that the child was practically dead when we put her on the table. I quickly threw up a flap, without much anesthetic, and found a depressed fracture of the temporal bone, found that the middle meningeal artery was perforated, and a clot as big as my fist was present. I removed the clot, used every means of resuscitation within my power, including artificial respiration, and sent her back to the ward. The next day she had aphasia, but the mother is a very intelligent woman and she has educated this child to talk. She is in the "8 A" grade in school and is able to make all the fine movements of the hands and arms.

This is apparently a perfect recovery from what seemed a hopeless case. The injury was in the left temporal region.

CASE 2.—This lad was struck in the head by a base-ball bat about ten o'clock one morning, and nothing was noted until about two o'clock, four hours after the injury. He gradually became unconscious, and when I saw him he had a double chain of symptoms. He had evidence of increased intracranial pressure, choked disc, complete unconsciousness that had been gradually developing. I opened the skull, and we found a hole in the longitudinal sinus which we closed and packed, and after a stormy convalescence he made a very good recovery.

In addition to the injury to the longitudinal sinus he also had a paralysis of the third nerve. This is a photograph of the patient which I took at that time (presenting photograph). You can see the marked ptosis on the right, a little exophthalmos, with dilatation of the pupil, with the eye turned out. That I do not attribute to the hemorrhage from the longitudinal sinus. It must have been due to some injury to the third nerve at some part of its course. After his stormy convalescence the boy made a practically complete recovery. He has to wear glasses, but otherwise the eye will return to normal.

QUESTION: What sort of flap did you make?

DR. CORBETT: In all these cases I turn out a very large flap. In the first case I simply covered the defect with fascia after removing fragments. In some cases where I am in doubt about my localization I turn down a flap as big as half the head. That can be done with perfect safety if you do one thing. Three patients went into shock immediately after turning up this large flap, but by cutting a little hole in the dura, and letting the air suck back, there is no shock.

CASE 3.—This man was struck by a piece of metal that flew from an air-drum and struck him in the middle line of the frontal region. There was a depressed fracture about half the size of a hen's egg. His injury was in the front part of the brain, and the symptoms were such as you would expect from neoplasm or hemorrhage. He could not remember anything. He would be brought to the office, and I would have to give written directions for him. All we did was to take out a piece of the depressed bone. It was a very easy operation, and no great skill was required. The longitudinal sinus in this case could not have had much to do with this. In some people this sinus is very small, as it was in this case. Almost immediately after removal of the bone from the front of his head the patient's mental condition improved, and now he is improved, but not entirely recovered from his past traumatic syndrome.

CASE 4.—This young man is an example of the accomplishment of the impossible. He had been operated on about six years ago for brain tumor. A decompression and an exploration were done, but no tumor was found. He came to me soon afterwards. The symptoms had become so pronounced that he was totally blind, was vomiting all the time, was paralyzed on one side, and was suffering from aphasia. I operated, and a nice little tumor was delivered, very much the same as a placenta. I thought we had done a very clever piece of work, closed the thing up, and he got along very nicely. Then things went very bad. He had a recurrence of his symptoms and was worse off than before. In desperation I operated again, and this time I not only took out the tumor but slid little sheets of rubber under considerable portions of the brain and enucleated the whole thing.

It has now been five years since the second operation. If there ever was a seemingly hopeless case this boy was that case. There was a paralysis of one side which has improved markedly, although he has considerable residual paralysis. He walks well,

has no aphasia, and can do certain things with his arm. The hand and arm are still very spastic but he has learned to handle himself so well that it does not prevent his earning his living as a salesman, and doing the ordinary duties of life.

I have asked Dr. Dumas to bring over certain patients from the Veterans' Bureau and he will briefly present these cases to you.

CASE 5.—This man had a skull fracture from a hand grenade when he was in service in 1918. He sustained a compound comminuted fracture of the right parietal region with depression, a lacerated dura, and the escape of a small amount of brain substance. He was not unconscious at the time of the injury and was operated on the same night. His only complaint at the present time is of numbness and tingling in the left hand. He cannot detect the size and shape of objects and says, "I can't tell what I feel." He has a little dizziness when bending forward. There is no motor involvement.

Neurologic examination shows no atrophy of the left hand, but there are anesthesia and analgesia over the palmar surface. He cannot carry things in his left hand pockets because he cannot detect what an object is by its feel. There are no mental symptoms, and he is now completing a course in law.

The diagnosis is injury of the right cerebral cortex, with sensory paralysis of the left hand.

CASE 6.—This man is thirty years old and gives a history of falling from a horse at the age of twelve. He experienced an epileptic attack at the age of nineteen, and was operated on at the Mayo Clinic in 1917, when a cyst was removed from the brain. He had no attacks for one year, and then they recurred quite frequently. He was again operated on in January, 1922, for a recurrent cyst, and following this had no seizures for six months, then had a recurrence in July. Since that time he has averaged four attacks a month. He has a mild bilateral optic atrophy, and the deep reflexes are increased on the left side of the body.

The diagnosis in this case is traumatic epilepsy, secondary to recurrent cyst. He is apathetic and depressed, suffers from insomnia, poor memory, and mental deterioration.

CASE 7.—This man is thirty-one years old and was injured in France in October, 1918, when he sustained a skull fracture and brain injury, which was followed by epilepsy and defective vision. Three months following his discharge, on June 19, 1919, he was placed on temporary total rating and has remained so ever since. He complains of weakness

in the right arm and leg, of numbness of the right side of the body, and of constant noise and buzzing in the left side of the head, and he cannot see when he looks to the right. His memory is poor, and he cannot stand exertion.

The neurological examination shows a gunshot wound posterior to the left ear in the region of the mastoid. There is considerable bone loss, the scar being four inches square and one-fourth inch deep. Pulsation can be felt in this depressed area. The vision on the temporal side of the right and the nasal side of the left eye is gone. The central vision is 20/15 in each eye. The deep reflexes are increased on the right side of the body and there is extreme hypersensitiveness to pain and to pressure on the right side. Hyperesthesia also is present. There is a definite reduction in the muscle power in the right arm and leg.

The diagnosis in this case is that of skull fracture from the gunshot wound in the left side of the head; old head injury syndrome; traumatic epilepsy; residual right hemiplegia; and right homonymous hemianopsia. On luminal and eliminative measures he has had no seizures for two years.

CASE 8.—This young man is twenty-four years old. On July 25, 1921, he sustained an intracranial injury and loss of substance of the left temporal bone, when he fell twenty-five feet from a smoke-stack to the deck of a United States Relief Ship. He was unconscious for ten days. A subtemporal decompression was performed, and a piece of bone two and a half inches in diameter was removed. The x-ray shows a chip off the lower margin of the first lumbar vertebra. The man was in a plaster cast from August 24 until September 26, 1921. No portions of the body were paralyzed; he bled from the ears, nose, and mouth at the time of the injury.

Since May 31, 1922, he had complained of headaches, dizziness, speech difficulty, and aural vertigo. On January 17, 1923, a cranioplasty was performed by Dr. Corbett, with improvement of motor speech.

When examined on November 20, 1924, he complained of dizziness, frontal headache, nervousness, restless sleep and numbness in the back.

DR. CORBETT: This man had a large cranial defect. I operated on him and put a piece of bone in the skull, which has grown in very well. This relieved him of everything except the thing we expected to improve. The aphasia is getting better, but he still has dizziness. I do not believe these cranial defects have much to do with the dizziness in these cases. I have had a number of them, and the dizziness persists in spite of cranial repair.

TABES DORSALIS AND DUODENAL ULCER*

BY GEORGE G. EITEL, M.D.
MINNEAPOLIS, MINNESOTA

S. M., male, aged 38. The patient was perfectly well until July 4, 1921, at which date just before eating breakfast he was suddenly seized with cold

sweats and weakness. A few minutes later he began to vomit. At no time did he have pain or nausea. The vomitus was greenish in color. The vomiting continued unaltered in character for eleven days and nights, during which time the patient was unable to retain any food. He was never jaundiced

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or feverish. He had an indefinite tenderness in the epigastrium, slight in degree.

On the basis of an x-ray picture taken eleven days after the onset of the trouble, showing a definite deformity of the cap, a diagnosis of duodenal ulcer was made. The patient was explored, the diagnosis confirmed, and a posterior gastro-enterostomy was performed.

The patient was entirely relieved of symptoms for two months. Then the vomiting recurred, and the patient has vomited practically every day since. The vomiting almost invariably occurs in the morning just before the patient arises. About an hour after the onset of the vomiting the patient begins to feel relieved and gradually improves through the course of the day, during the afternoon feeling fairly comfortable. The vomiting is never accompanied by pain or nausea.

During an especially severe attack in the spring of 1923, the patient was in the Minneapolis General Hospital for about two months. At that time he showed hyperactive patellar reflexes and unequal pupils, with absence of reaction to light. A gastric analysis showed a normal degree of acidity. The blood Wassermann was negative. The spinal fluid Wassermann was positive. The colloidal gold reaction and the Nonne test were both negative.

At the present time the patient's chief complaint is the persistent vomiting, which continues to occur practically every day. In addition he has had lightning pains across the upper abdomen for the past four months.

During the past two years between twenty-five and thirty injections of neosalvarsan have been administered intravenously. He has also had considerable mercury and potassium iodid. The blood Wassermann has remained consistently negative, with the exception of one positive provocative test.

Past history: No childhood diseases. Severe burn over the chest when three years old. Since childhood there have been transient periods of dizziness and blurring of vision. At these periods the lips and finger-tips become cyanotic. Past history by systems entirely negative.

Habits: The patient has been a heavy whiskey drinker since he was fifteen.

Weight: Usual weight, 180-190; present weight, 120, there having been a gradual loss since the onset of his present trouble.

Family history: Of no importance.

Social and occupational history: Waiter.

Marital history: Married twice. The first time was thirteen years ago. He was married for one and one-half years and then divorced. There were no pregnancies. He has been married the second time for eleven years. There have been several induced abortions, but no spontaneous miscarriages and no full-term pregnancies.

Venereal history: He had a chancre in 1910. No treatment. He has had gonorrhoea three times.

Physical examination: Well developed; rather poorly nourished. Eyeballs show a nystagmoid motion. Pupils, unequal, irregular, and do not react to light. Remainder of head, negative. Glands, negative. Heart and lungs, clear. Abdomen: Mid-line operative scar. There is definite tenderness immediately to the right of the umbilicus. There is definite diminution in the size of the area of liver dullness, the upper border being at the 6th

rib and the lower about a finger-breadth above the costal margin.

Neurological examination: Eye-grounds, negative. Cranial nerves, normal except for pupillary changes noted above. Speech, normal.

Reflexes: Upper extremities, normal.

Abdominal reflexes, absent.

Cremasteric reflexes, hyperactive both sides.

Achilles reactions, absent on both sides.

Co-ordination, normal. Romberg, negative. Examination of motor system, entirely negative.

Deep pain sense in calves of legs and Achilles tendons absent. Remainder of sensory examination, negative, there being no bands of anesthesia or hyperesthesia.

Laboratory data: Urine and blood count, normal. Examination of Ewald test meal: Free HCl, 0; combined, 29; no blood.

X-ray of gastro-intestinal tract: Fluoroscopic examination shows marked hypermotility of the stomach. No defects of the wall. There is a functioning gastro-enterostomy opening at the posterior and dependent portion of the stomach. The stomach apparently empties very rapidly. No barium passes through the pylorus. At six hours the head of the meal is in the descending colon, and the tail in the ascending colon.

The stomach is empty.

The blood Wassermann is negative.

Spinal fluid examination: Wassermann, positive. Nonne, positive.

Colloidal gold reaction shows a curve in the "tabetic zone."

This case is an illustration of the difficulties encountered in the presence of two co-existing diseases. In this particular case the major symptom of vomiting may be explained either on the basis of the tabes or of an ulcer. That the latter may still be the cause of this trouble is suggested by the persistent localized abdominal tenderness, which may be due to an ulcer of the duodenum. In view of the man's history of being a heavy whiskey user and the peculiar type of morning vomiting and especially with the small area of liver dullness, as shown by percussion, the possibility of a cirrhosis of the liver must be borne in mind.

When the patient came to my notice yesterday, the question was whether or not to make an exploration. You have heard the history. What seems to be your judgment? Let us have a vote on this case.

DR. HERMAN: The patient never had any real tabetic history unless vomiting is said to be that. His pupils are unequal and contracted. There is no urinary disturbance.

DR. EITEL (to patient): You are more tender here than elsewhere (indicating region over pylorus).

THE PATIENT: Yes.

DR. JOHN J. MCGOVERN (Milwaukee): In

the Milwaukee Hospital for the Insane they are giving sterile horse serum with bichlorid of mercury to every case of brain syphilis, and in 80 per cent of the cases are having remarkable improvement, absolutely marvelous. Paretics, markedly insane, clear up inside of two weeks. This preparation is given intraspinally, put in under pressure; they never draw off any spinal fluid. Whether it is the proteid or the mercury that is doing the work they do not know, but they are now conducting experiments along this line. They are going to drop the mercury and see if they will not get just as good results with the serum alone. When they put it in under pressure they get the results every time, and the patient becomes Wassermann-free.

DR. EITEL: I should much appreciate having your assistance in this important case. This patient is very anxious to get well, and we would like to help him in every way possible, so please do not hesitate to give your opinions.

QUESTION: Has he had much medical treatment in the last year?

DR. HERMAN: Yes, but apparently there is nothing that relieves his symptoms.

QUESTION: What has been the treatment?

DR. HERMAN: Of necessity he has been on a restricted diet because of vomiting, and during the last month his symptoms have been so severe that we have had to give him depressants by rectum, which seemed to control the vomiting for the greater part of the day, but he still vomits practically every morning. He has had between twenty-five and thirty injections of specific treatment. He usually has a rather severe reaction to neosalvarsan.

DR. JOHN STEEL BARNES: (Milwaukee): Dr. Eitel, you asked for a vote on this case. I would like to get the opinion of Dr. Connell.

DR. F. GREGORY CONNELL (Oshkosh): It seems to me the indications are not sufficient to justify operation.

DR. EITEL: I think you are right. We will put off the operation at least for the present and keep the patient in the hospital for observation and further study.

MULTIPLE INDURATED ULCERS OF THE STOMACH WITH REPEATED SEVERE HEMORRHAGES

Male, aged 75, single, salesman. The onset of this patient's symptoms was in 1890, when he began to be troubled with pain in the epigastrium occurring one-half to one hour after meals. The pain was worse after eating meats and fried foods, and there was no food or soda relief. The symptoms gradually increased in severity during the nineteen years

preceding the operation in 1909. During the period of 1905 to 1909 the patient required the use of considerable quantities of morphin for relief. During the years 1908 and 1909 there were fourteen more or less severe hemorrhages. In 1909 following three successive severe hemorrhages the patient was operated on. At operation multiple indurated ulcers were found. The condition of the patient was such that an excision of the ulcers was not warranted, and merely a posterior gastro-enterostomy was performed. Convalescence was uneventful and the patient was discharged from the hospital seventeen days after operation. There has been no recurrence of the symptoms, the patient being able to eat any kind or quantity of food without discomfort.

The most striking feature in this case is the fact that in the presence of markedly indurated ulcers the symptoms were immediately relieved by simple gastro-enterostomy without excision of the ulcers.

PROCEEDINGS OF THE MINNEAPOLIS CLINICAL CLUB

Meeting of May 18, 1925

The regular monthly meeting of the Minneapolis Clinical Club was held at the University Club on Monday evening, May 18, 1925. Dinner was served at 6:00 p. m. and the meeting was called to order by the President, Dr. McCartney.

The minutes of the April meeting were read and approved.

Dr. E. D. Anderson reported the following case of chronic pyelonephritis:

This is a case of a girl six years of age who has been under my care for one year. She came to me complaining of general malaise, malnutrition, and periodic attacks of increased temperature, vomiting, and prostration which lasted usually for about two weeks. She also has had attacks of multiple joint pain lasting from one to two weeks at intervals of three or four months during the last three or four years.

Past history: Full term, normal delivery; birth weight, six pounds. She was perfectly well up to the age of one year, at which time she had an attack of high fever and irritability lasting for ten days. A diagnosis of pyelocystitis was made. Treated with urotropin and large amounts of fluid. The acute symptoms disappeared, but there continued to be large amounts of pus in the urine, and the child did not return to normal health. When two years of age she had an attack of encephalitis, at which time she was sick for two and one-half to three months before she was able to be up and around. It took her another month to be able to walk well. However, she apparently made a complete recovery from this attack and has nothing to indicate its return since. Her tonsils and adenoids were removed at three years of age. Since then she has never been perfectly well and has evidenced the symptoms which were given above.

Physical examination: She is a fairly well-developed and moderately nourished child. The skin is clear but pale. Muscle tone, fair. Mouth, teeth, and throat negative. No tenderness over the sinuses. No adenopathy. Heart and lungs, negative. Abdomen shows no tenderness, rigidity, or tumor masses. External

genitals, negative. Extremities and reflexes negative. Laboratory findings: Urine shows moderate trace of albumin, large numbers of pus cells, many of which are in clumps; blood findings show mild degree of secondary anemia.

Treatment: I gave the child large doses of potassium citrate and large amounts of fluids and advised two rest periods of one hour during the day. The urine soon became alkaline, but at the end of a month absolutely no improvement in the urinary findings was noted. Then I switched over to urotropin, and at the end of three weeks there was still no improvement. I knew that this child had been treated for several years for chronic pyelocystitis with alternate courses of urotropin and potassium citrate. She had also been getting large quantities of fluid. The mother is an exceptionally intelligent and coöperative woman, and I felt that the orders had been well carried out and that there was nothing to be gained by continuing this line of treatment. For that reason I referred the child to Dr. Wynne for cystoscopy so that, if possible, we might know exactly the pathology present, and he might help us in clearing up the condition. I shall not go into his findings as he can tell you much better.

Besides the treatment which he carried out, he advised that an autogenous vaccine be given over a considerable period of time. She was given this about every five days for a period of six weeks. The urine started to clear up soon after Dr. Wynne's irrigations and continued to do so, so that within three weeks after he first began, the urine was absolutely clear with only slight traces of albumin. The general condition improved markedly, and at present she is apparently a perfectly normal child. She has had no more attacks of fever, no rheumatic pains; she is gaining weight, her appetite is good, and she is a changed youngster.

She has gone through attacks of grip, during one of which she had a severe double otitis media. There has been no return of the urinary findings. Eight months after beginning the treatment, the urine is negative except for very slight traces of albumin.

Dr. Wynne's report of urological consultation and treatment in the above case was read by Dr. Webb, as follows:

May 12, 1924, a specimen of catheterized urine was cultured, and a heavy growth of bacillus coli was obtained.

May 15, 1924, a cystoscopic examination was made under ether anesthesia in the Asbury Hospital. The urethra dilated very easily to No. 6 Hegar, and a No. 6 Kelly cystoscope was passed. The bladder wall was essentially normal. There was one-half a centimeter of edema around the right ureteral orifice. The left ureteral orifice was normal except that it was about three times larger than usual. Both ureters were catheterized, and no obstruction was found. Specimens were collected from each kidney and each pelvis was lavaged with 1-1,000 silver nitrate solution.

Catheterized bladder specimen shows numerous white blood corpuscles; some are clumped; no red blood corpuscles; no casts seen. There were numerous colon bacilli in smears. Left kidney urine showed finely granular casts (20 per slide); white blood corpuscles clumped and single; red blood corpuscles, few (traumatic) and bacilli in stained smears. Culture Gram negative, bacilli colon group.

Right kidney urine showed fine and coarse granular casts (10 on a slide), white blood corpuscles, many

clumped and single; red blood corpuscles, few (traumatic) and bacilli in stained smears. Culture mixed infection of Gram negative bacilli, a few Gram positive bacilli, and Gram positive cocci.

May 24, catheterized specimen from bladder shows less pus and fewer organisms than first specimen. Culture was made for vaccine.

June 24, cystoscopic under ether anesthesia. Urethra dilated easily to No. 7 Hegar, and a No. 7 Kelly cystoscope was passed. The right ureter was catheterized with a No. 7 ureteral catheter, and the left with a No. 6 X-ray catheter. Both kidney pelves were lavaged with a 1-1,000 silver nitrate solution. Pyelogram of the left kidney was made and shows a very slight clubbing of calyces and a ureter irregularly dilated. The urines from the kidneys showed no distinct bacteria in smears and no leucocytes from the right kidney, but a few from the left kidney. The bladder urine was cloudy, with considerable pus present.

August 1, 1924, when I last saw the child, there were no leucocytes to be found in a centrifuged specimen from the bladder and a culture remained sterile.

Dr. Kenneth A. Phelps reported a case of papilloma of the larynx as follows:

Jean F., age two and one-half years, was first seen October 28, 1923. Since birth she had been unable to speak louder than a whisper. She had never been cyanotic and had had no respiratory difficulty. Her general health has always been excellent.

A laryngoscopic examination was made, and her larynx was so full of papillomata that the tip of the laryngoscope broke off a small piece of tissue, which was coughed out of the tube. This tissue was examined by Dr. Bell and pronounced papilloma.

Opinions vary as to the best method of removing these growths. The choice of any treatment is influenced by the tendency of the growth to recur, followed eventually by a tendency to disappear.

Papillomata are, probably, not true neoplasms, but are inflammatory in origin and, as such, irritating applications are apt to provoke recurrences. Laryngofissure or thyrotomy are apt to result in stenosis, so endoscopic methods are the ones of choice.

I have used fulguration without success in two cases. I have applied radium intralaryngeally, which has sometimes caused the growth to disappear. In one case I saw a radium burn cause a perforation into the esophagus, which resulted in pneumonia and death. Emanation needles are the ideal form in which to apply radium intralaryngeally. X-ray and diathermy are reported to have been used successfully. The radical removal, surgically, of all papillomata was recommended formerly. Impaired phonation was almost sure to result, and that method is now abandoned.

A superficial removal with blunt, non-cutting forceps, not destroying the underlying normal tissue, repeated frequently, seems to prevent recurrences.

This child was first operated on under general anesthesia, the papillomata removed superficially from both vocal cords and both ventricular bands. That afternoon she began to speak aloud, the first time in her life that she had had a voice. She could sing and talk quite well for nearly three months though the papillomata could still be seen in her larynx; then the old hoarseness recurred. The operation was repeated, but the voice did not return during the next nine months. Radium was applied extralaryngeally five times and intralaryngeally two times. She had seven exposures to the x-ray, but her voice did not return.

During the next five months, the operation, superficial removal, was repeated three times under anesthesia and seven times without anesthesia, when her voice returned and the larynx looked clean for the first time since treatment was started.

She has now been able to talk and sing for about two months and no recurrence of the growths can be seen. I believe she is not apt to have any further recurrence.

DISCUSSION

DR. CAMP: This very interesting report recalls a case we had at the University Dispensary of papilloma of the external auditory canal. That little girl got a complete cure by repeated removal over a period of one and a half years. When we first saw her the whole canal was just filled with papillomata, but the drum was not involved. Diathermy with "cold spark" seems to be one of the best methods of treatment.

DR. TAYLOR: I used to see a great many cases of papilloma at Rochester. My recollection is that a fairly large proportion of them were congenital.

DR. BARRON: When you operate, how do you keep the small pieces from dropping into the bronchi?

DR. PHELPS: You have to have the head way down and the feet elevated a good deal; also it is just as well to have a suction apparatus.

DR. S. R. MAXEINER reported a case of Meckel's diverticulum.

DISCUSSION

DR. TAYLOR: Is there more lymphoid tissue present in Meckel's diverticulum than in adjacent portions of the intestines?

DR. MCCARTNEY: I don't know as there is. I pick up two or three of these during the year, and I do perhaps 100 to 125 autopsies a year. They are usually pretty good-sized, usually averaging about the lumen of the bowel.

DR. LAJOIE: What strength do they give the glucose after these operations?

DR. BARRON: At Rochester they give 10 per cent glucose, about one liter, two or three times a day intravenously. This would make about 200 to 300 grams of glucose. In many places they frequently give insulin with glucose, at times one unit with each two or three grams of glucose administered.

These diverticula are interesting. Dr. Maxeiner states that surgeons do not encounter them very often, while Dr. McCartney states that at autopsy they find them quite frequently. The explanation might be that pathological processes are relatively infrequent in Meckel's diverticulum. Occasionally, however, severe inflammations may set in with ulceration and even perforation, producing symptoms of appendicitis and at times of intestinal obstruction.

The anatomical structure of Meckel's diverticulum is similar to that of the lower part of the ileum. Its location is on the free end, that is, on the side opposite the mesenteric attachment of the bowel, about one meter above the ileocecal valve. These diverticula are about five or six cm. in length, generally cylindrical, but sometimes—especially in children—have a mushroom appearance. In rare cases they are attached to the umbilicus by means of cords of tissue, which are remains of the omphalomesenteric duct. This condition is more dangerous because the cords of tissue may produce obstruction in the loops of the bowel. Sometimes these cords extending from Meckel's diverticulum contain a lumen continuous with the intestinal canal.

Some years ago I reported two cases of this type in the literature. ("Abnormalities Resulting from Remains of the Omphalomesenteric Duct."—*Surgery, Gynecology, and Obstetrics*, April 1920, p. 350.) Cases have been reported in which the ascarides lumbricoides would escape towards the outside through the umbilicus. In one of the cases I reported, a secretion was produced by a strawberry-like growth at the umbilicus. The surgeon removed that papillomatous growth and sent it over for histological study. We were very much surprised on sectioning the tissue to find that this umbilical growth was covered with intestinal epithelium. Careful study showed certain parts presenting pictures characteristic of intestinal epithelium, while other portions showed areas resembling that of the mucosa of the stomach. Several similar instances have been reported in the literature. Some have even reported the collection of gastric juice containing pepsin and hydrochloric acid from the secretion of these umbilical tumors. At first it was thought that these might be true diverticula of the stomach, but at operation it was established that they were connected with Meckel's diverticulum.

The explanation of this condition is that in the formation of the alimentary canal in embryo the entire tube is lined with the same kind of epithelium; and if, in the development of the fetus a little remnant of the omphalomesenteric duct remains as a Meckel's diverticulum, this may show the structure of the gastric mucosa if the maldevelopment occurs before the function of the intestinal tract and the subsidiary glands is established. Many cases of papillomata of the umbilicus are nothing more than the condition above described. This explains why so many of these papillomata do not heal after cauterization, but continue to discharge a secretion.

One must be careful not to make a diagnosis of carcinoma through the presence of glandular structures in this location.

DR. MAXEINER: I talked with four or five men doing surgery and their experience with Meckel's diverticulum had been limited. Some practicing twenty years had found none; others report several.

DR. MCCARTNEY: This one seems to be quite thick. Usually they are rather thin-walled.

DR. ROOD TAYLOR reported the following case: I am taking care of a pair of twins. That is not so very remarkable, but the interesting feature is that the twins' mother had exstrophy of the bladder which was not operated on until she was twenty. She is now thirty, in good health, and gave birth to these twins six months ago.

FLOYD GRAVE, M.D., Secretary.

THE JOURNAL-LANCET

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Minnesota, North Dakota, South Dakota and Montana

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The Hennepin County Medical Society
The Soo Railway Surgical Association
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THE INTER-STATE POSTGRADUATE ASSOCIATION OF NORTH AMERICA

The association formerly known as the Inter-State Postgraduate Assembly of America has again changed its name, and is now to be known as the Inter-State Postgraduate Association of North America. If they keep on changing the name of this organization from year to year who knows where the vocabulary is coming from? However, there are good reasons for the change, but a shorter title would be more easy to handle and remember.

Certainly, we must all appreciate the wonderful meeting that was put over by the St. Paul men; and anyone who has ever been associated in this kind of work will realize at once how arduous the duties of the committee are and how necessary it is from time to time to change the details of the organization. The committee in charge of the General Assembly chose wisely its next president-elect in selecting Dr. Carl Larsen, of St. Paul, for, evidently, Dr. Larsen was at the head and front of things and was always somewhere at the right time and in the right place. His enthusiasm and his activity were unbounded and he will put the same amount of work and energy into the next Inter-State meeting as he did in St. Paul. Great credit is due to the other committee chairmen and their associates, and

they probably met so often that they left nothing undone.

All the five former vice-presidents have been eliminated from the roster of officers and their places taken by a committee of three to be chosen by the president, who will select a vice-president from each state and the District of Columbia and one from each province in Canada. This will certainly improve and strengthen, if it needs to be strengthened, the present organization. Dr. Wm. B. Peck, of Freeport, Ill., and his associate, Dr. J. S. Clark, from the same city, were elected managing directors. Dr. Edwin Henes, Jr., of Milwaukee, was elected secretary and director of exhibits. We are glad to know, too, that Dr. George V. I. Brown, of Milwaukee, was re-elected Speaker of the Assembly. Dr. William J. Mayo and Dr. Charles H. Mayo were re-elected presidents of the clinics. The following men were elected trustees: Drs. J. M. Dodd, Ashland, Wisconsin; Arthur G. Sullivan, Madison, Wisconsin; Charles G. Farnum, Peoria, Illinois; Edward S. Murphy, Dixon, Illinois; John F. Herrick, Ottumwa, Iowa; H. G. Langworthy, Dubuque, Iowa; and John E. O'Keefe, Waterloo, Iowa.

The last evening of the meeting was closed by a banquet in the St. Paul Masonic Temple, with nearly a thousand people in attendance. Many men from abroad were there, and several good speakers gave talks. When it came time for Dr. Charles H. Mayo to respond he said that Governor Theodore Christianson had talked so much about medical things and Lord Dawson so much about farms he felt there was very little for him to say. But, as usual, he got in many of his merry little quips and gave some sound advice.

The meeting as a whole was well attended, probably one of the largest on record. Not infrequently the lower floor of the auditorium was filled with about 2,000 or more medical men, students, and nurses.

There were only one or two criticisms to present. The first was that the program was not up to the standard of last year. Whether that was the fault of the program committee or due to the selection of the speakers is very difficult to determine, but there seemed to be something lacking. Many of the men were new men in the organization, and probably their knowledge and qualifications were known, but their power to get their information over to the audience was very uncertain. The other criticism follows in the next editorial.

THE NEED OF A NEW DEPARTMENT IN MEDICAL EDUCATION

After attending the recent meeting of medical men in St. Paul the writer and many others were struck with the need of a new department being added to the medical schools all over the country, because the need is not only in the West but in all the states where medical instruction is given,—namely, the need of voice culture because of the failure of speakers to enunciate clearly either with or without a microphone, and the failure to open the mouth and emit an audible sound. Speaking generally, there are very few medical men who can address an audience and put their subject in a concise, masterly, and oratorical manner. Is there anything that is more unpleasant than sitting in an audience chamber, large or small, and having some man get up and mumble a speech, of whatever sort, failing to open his mouth, failing to give a clearness of enunciation and to use a proper carrying voice. It is not only painful, but it is disagreeable, to be able to hear only a part of what has been said. This is not in line with the prevention of deafness. It is simply plain, wholesome common sense expressed by the unfortunates who have to listen to a poor speaker.

Even with the aid of a microphone and amplifiers many of the men who attended the St. Paul meeting were unable to put over their good papers. They seemed to have a knack of turning to the curtain rather than to the microphone or to the audience and speaking, as it were, ex cathedra. And although the Speaker of the Assembly frequently adjusted the second microphone for the man who turns his back on the audience, the reader would sidestep it almost invariably. Then, too, most of the men were unable to speak through the microphone. They were either too close or too far away, and in spite of the Speaker's efforts and aid to adjust matters amicably he finally had to sit down in despair many times because the man presenting a paper was at fault.

The writer questioned, on one or two occasions, his own hearing capacity by asking two young men in front of him if they could understand the speaker, and they both said at once that they could not, that they could hear only an occasional word because the voice jammed the microphone and did not get out through the amplifiers.

With all due courtesy, it is a monstrous thing for a man to get up and address an audience and not be able to make his voice carry over an or-

dinary audience; and to have two thousand men sitting there listening and straining to hear in order to get something good out of it was very disappointing. Fortunately, however, a few men possessed good vocal apparatus and were able to make their hearers understand fully what they were trying to say.

The only remedy lies in having a new instructor in the medical department and he should be chief of the "vocal" department of medicine; and if a man is not able to talk and to talk so that his hearers can get the sense of his words he should not be granted a diploma or be permitted to speak before large assemblies. No wonder the audience wandered around the corridors and got up and left the room by scores when a poor speaker was in front of the microphone. The man who talks distinctly and with a carrying voice that can be heard will long be remembered, while the others will be forgotten or at least condemned by their listeners who cannot understand them.

CHANGES IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF MINNESOTA

The Board of Regents at their last meeting appointed Dr. Hilding Berglund as head of the Medical Department to succeed Dr. S. Marx White, who resigned as department chief. Dr. Berglund is a graduate of Stockholm University, and he came to the United States in 1920 to study under Dr. Otto Folin, internationally known biological chemist and member of the Harvard faculty. For some time past Dr. Berglund has been assistant professor in medicine in the Harvard Medical School.

Dr. S. Marx White, who has occupied a chair in the University for so many years and so faithfully and loyally, came to Minneapolis in 1898 as demonstrator in pathology and bacteriology. He graduated in 1897 from the Northwestern University in Chicago. His work at the University was successful, and his promotion was rapid. In 1909 he became associate professor of medicine and was named assistant chief of clinics in medicine in the University Hospital. He has been full chief of the Department of Medicine since January, 1921. He had postgraduate work in internal medicine and pathology in Vienna in 1904.

Dr. White's reason for resigning the chair was that his private practice needed more attention, and he has certainly earned and deserves an opportunity to develop himself in his own way.

Since the resignation of Dr. Arthur Strachauer there has been no chief in the Department of Surgery appointed as yet. Dr. Strachauer is now in charge of the division of the hospital devoted to the care and treatment of cancer. Although there have been several men interviewed who have been out here to talk over the situation, at the present writing nothing has been decided.

BOOK NOTICES

MODERN SURGERY, GENERAL AND OPERATIVE. By J. Chalmers Da Costa, M.D., LL.D., F.A.C.S. Samuel D. Gross Professor of Surgery, Jefferson Medical College, Philadelphia, Ninth Edition, Revised and Reset. Octavo of 1527 pages with 1,200 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1925. Cloth, \$10.00 net.

This is one of the substantial surgeries in one volume. It is full of information and abundant in its data.

This surgery makes a good one-volume surgery for this reason. The work was founded as a quiz book in surgery. This it soon outgrew and emerged as a full-fledged surgery years ago. Continual revision has kept the subject matter up to date and has improved its value to the student and to the general practitioner. It stands as one of the most complete one-volume surgeries now available.

—A. T. MANN, M.D.

MEDICAL AND SURGICAL REPORT OF THE ROOSEVELT HOSPITAL, New York. Second Series, 1925, Based on the Work of the Years 1915-1924 inclusive. Paul B. Hoeber, Inc., Publishers, New York City.

In this volume is given a report of work done from 1915 to 1924, inclusive, in a large well-equipped hospital with a well-organized staff. It is the second report of the Roosevelt Hospital, the first having appeared in 1915. The volume is made up of articles descriptive of work done in the various departments written expressly for the report and of reprints of original articles written by staffmen upon their hospital work that have appeared in medical journals.

The first ten pages are given over to a discussion of fractures of the elbow in which the distal end of the humerus is involved, but neither radius nor ulna. Drs. C. W. Cutler and H. W. Cave describe the mechanism involved and favor flexion with early passive and active motion in treatment. Cases are reported to illustrate.

In the next forty-nine pages Dr. Charles N. Dowd describes methods employed in the hospital in dealing with cancer of the colon, intestinal obstructions, and megacolon.

In cancer of the colon the two-stage operation of the Mikulicz-Bruns type is advocated as offering a low mortality rate. Chronic multiple serositis is discussed under its various names and cases reported to show its part in intestinal obstruction.

In megacolon the two or more stage operation is rather favored by the author as offering the lowest

mortality. Numerous cases are reported in detail to illustrate the principles involved and the operative technic.

Following the above articles is another by the same author analyzing the methods and results of treatment in 150 cases of goiter. In this there are many helpful and practical hints.

Dr. Kirby Dwight discusses the "Lead-Pipe" fractures of the radius. His description is graphic and portrays the circular tenderness and lack of deformity.

In the next article the same author deals with osteomyelitis and describes in detail the methods of treatment.

Dr. Rolfe Floyd reports in a classical way a case of mycotic embolic arteriovenous aneurysm of the femoral vessels.

Following this the same author presents a technical article on non-protein nitrogen and blood pressure in relation to kidney and heart lesions. This is of especial interest to the pathologist and internist, as is the next article on the organization of pneumonic exudates.

The classification of Bright's disease is dealt with by the same writer in an exhaustive manner.

Dr. Rowland G. Freeman gives his method of studying and treating pyelitis. In his summary he states that catheterization is not always necessary.

Dr. W. Morgan Hartshorn gives the result of a study of the bacterial content of urine with especial reference to pyelitis. Dr. Wm. P. Healy reports the recovery of a case of post-operative tetany treated with calcium lactate; also the cure of a case of intractable vulval ulcer by proteus vaccines.

Dr. W. W. Herrick gives a study of the functional tests of the circulation and their significance, and discusses the Graupner, Crampton, and Schneider systems. Following this he gives some personal observations on hypertension and hyperglycemia with conclusions.

Drs. Martin, McKendree, and Howell report a very interesting case of cerebellar abscess with operation and recovery.

Drs. Wm. G. Lyle and Herman Sharlit give a study of influences of extrarenal factors on the renal functional test meal. This article deserves especial mention in that it covers the work of 200 test meals and ends with helpful conclusions.

Dr. Charles H. Peck discusses cancer of the colon as dealt with in his service, giving method of treatment and results. He then presents his views on the present status of surgical treatment of chronic duodenal and gastric ulcer. Details of operative technic are given, and he concludes that the operation of choice in duodenal cases is gastro-enterostomy. He also reports a case of tuberculosis of the spleen with operation and recovery.

Following this is a study of 94 cases of acute suppurative pleurisy in collaboration with Dr. Henry W. Cave.

Drs. Peck and White give a review of 331 cases of tumor of the breast with operative technic and results.

Dr. E. S. Rimer reports a case of tuberculous dactylitis and concludes that surgery is rarely needed in such cases.

Dr. James I. Russell recounts his experience with cancer of the large intestine and, together with Dr. E. F. Kilbaun, gives a contribution on echinococcus disease of the kidney and reports a case.

Dr. Alfred Stillman gives a review of methods and results of treatment in 162 cases of fracture of the femur. The value of traction is stressed and the plaster cast nearly discarded.

Drs. H. C. Taylor and Thomas C. Peightal give the end results in the treatment of 201 cases of carcinoma of the cervix. They conclude that advanced cases are better treated by radium than by surgery and that early cases should be individualized.

Dr. Davenport West gives a series of clinical records with autopsy reports of pulmonary cases.

The report is closed by a discussion of breast tumors by Dr. Wm. Crawford White.

The volume is well edited and easily read, and is a splendid example of what can be done in a well-organized, well-equipped hospital, and it is well worth the time for reading.

—A. E. BOOTH, M.D.

NEWS ITEMS

Dr. L. F. Hawkinson, of Litchfield, has joined the Brainerd Clinic.

Dr. R. T. Willy has moved from Kimball, S. D., to Mitchell, S. D.

Dr. C. P. Stockdale has moved from Ethan, S. D., to Erwin, S. D.

Dr. E. W. Hancock has moved from Carpio, N. D., to Lincoln, Neb.

Dr. O. D. McCartney has moved from Carpio, N. D., to Williston, N. D.

Dr. C. E. Caine, of Morris, has remodeled his residence for use as a hospital.

Dr. J. A. Rankin, of Carrington, N. D., has gone to Los Angeles, Calif., for the winter.

The Bethel Deaconess Hospital of Mountain Lake is building a home for its nurses, to cost \$20,000.

Dr. W. N. Graves, of Minneapolis, was married last month to Miss Evelyn Sheakley, of Hampton, Iowa.

Dr. Norman E. McDermott, of Minneapolis, was married last month to Miss Corrine Hogan, also of Minneapolis.

Dr. M. M. Carmichael, of the United States Indian Field Service, has moved from Cheyenne Agency, S. D., to Shiprock, S. D.

Dr. Leslie B. Marshall (Lieut., U. S. N.), of Minneapolis, was married last month to Miss Lavinia Strange, also of this city.

Dr. H. V. Gardner, a graduate of the University of Iowa, has become associated with Drs. Miller and Blanchard, of Waseca.

Dr. Fred B. McGarvey, who practiced for a number of years in Cavour, S. D., retired in June, and is now living in Huron, S. D.

The exterior work on the Billings (Mont.) Deaconess Hospital building has progressed so rapidly that it will be ready for occupancy by April 1, 1926.

Dr. H. M. Johnson, President of the Minnesota State Medical Association, is attending the County Medical Society meetings of the state as far as he can find the time to do so.

Minnesota is entirely free from smallpox, except four or five mild cases. From Jan. 1, 1924, to Oct. 1, 1925, there were over 4,000 cases and over 500 deaths from the disease.

Dr. A. C. Strachauer, Director of the Memorial Cancer Institute, University of Minnesota, has gone East to visit the cancer hospitals of New York, Buffalo, Boston, and Baltimore.

Dr. J. F. Norris, head staff physician of the St. Peter State Hospital, has been appointed assistant superintendent of the Hospital by the new superintendent, Dr. George F. Freeman.

Drs. G. W. Launspach and H. L. Saylor, of Huron, and Dr. D. O. Wheelock, of Miller, S. D., will have charge of the November meeting (Nov. 5) of the Huron (S. D.) Medical Society.

Dr. E. K. Endrees, of St. Paul, was married last month to Miss Esther Lillian Davis, also of St. Paul. Dr. Endrees is a graduate of the Medical School of the University of Minnesota, class of '24.

Dr. John Dargavel, of Minneapolis, retired, died last month at the age of 67. Dr. Dargavel graduated from Victoria University of Toronto, Canada, in the class of '92, and began practice in Minnesota in the same year.

Dr. A. J. Chesley, Secretary and Executive Officer of the Minnesota State Board of Health, was elected one of the three vice-presidents of the American Public Health Association at its meeting in St. Louis last month.

WCCO begins on November 9, at 8:00 P. M., to broadcast weekly talks on medical subjects by physicians and under the auspices of the State Medical Association. The first talk (on Friday, Nov. 9) will be on infantile paralysis.

Dr. Jennette McLaren, of St. Paul, in recognition of her thirteen years of service as member of the State Nurses Examining Board, was elected an honorary member of the State Nurses Association at their annual meeting last week.

Dr. Cyrus K. Ritchie, of Velva, N. D., died on September 29 at the age of 67. Dr. Ritchie was a graduate of Barnes Medical College, class of '03, and after practicing a short time in Minneapolis, he went to Velva, where he had practiced twenty-two years at the time of his death.

Dr. Horace Newhart, of Minneapolis, presided as president at the annual meeting of the American Academy of Ophthalmology and Otolaryngology held in Chicago last week. Papers were presented at the meeting by Drs. Newhart, Walter E. Camp, Fred J. Pratt, and Kenneth A. Phelps, of Minneapolis.

Dr. Florence C. Baier, of Minneapolis, died last month at the age of 71. Dr. Baier was a graduate of the Minnesota College of Physicians and Surgeons, class of '97, and had practiced in Minneapolis since her graduation. For two years (1898-1900) she was on the staff of the North Dakota Hospital for the Insane.

The Minnesota Trudeau Medical Society was organized in St. Paul last month, when the following officers were elected: President, Dr. H. L. Taylor, St. Paul; vice-president, Dr. Walter J. Marcley, Minneapolis; secretary-treasurer, Dr. E. S. Mariette, Oak Terrace. A state meeting will probably be held in May, 1926.

The St. Louis County Medical Society held its annual meeting in Duluth last month when the following officers were elected for the current year: President, Dr. L. A. Barney; first vice-president, Dr. Rush L. Burns; second vice-president, Dr. D. E. Walker; secretary, Dr. F. J. Lepak; delegate, Dr. W. A. Coventry.

The medical libraries of the United States are protesting against the unreasonably high price now charged for German medical literature, and also against the increased volume of it. If necessary, united action will be taken by medical libraries and medical men in this country against the extortion. *Virchow's Archiv*, which cost \$20 before the War, now costs \$80. Physicians interested in this matter are requested to communicate with Miss Margaret Brinton, Librarian, Mayo Clinic, Rochester, Minn.

Dr. S. Marx White, of Minneapolis, resigned as chief of the Department of Medicine of the University of Minnesota last month, and will be

succeeded by Dr. Hilding Berglund. Dr. White has been connected with the Medical School since 1898. He was a graduate of Northwestern, class of '97, and studied in Vienna before coming to Minnesota. He retires to devote his entire time to private practice. Dr. Berglund, who succeeds Dr. White, took his scientific training in Stockholm and came to America to study under Dr. Otto Folin, the eminent biological chemist of Harvard University. Dr. Berglund, who is now thirty-eight years of age, has been an assistant professor in the Harvard Medical School for some time.

Fifteen physicians passed the examination held by the Montana State Board of Medical Examiners at Helena last month, as follows: J. L. O'Rourke, St. James Hospital, Butte; J. L. Myer, Chicago; J. M. Oleinik, Bridger; D. K. Worden, Butte; M. A. Strickland, Yellowstone Park; T. W. Bennett, Missoula; H. E. Cloud, Chicago; Charles J. Martin, Salt Lake City; J. A. Evert, Glendive; R. S. Kirkland, Livingston; A. J. O'Leary, R. P. Smith and M. E. Gardiner, United States Veterans' Bureau, Helena; J. W. Fennell and F. B. Nather, United States Public Health Hospital, Helena.

The list of men who will conduct clinics at the Fifth Annual Clinic at Mitchell (S. D.) on Nov. 5 and 6 is a guarantee that the meeting will be well worth attending. The list is as follows: Dr. Edward S. Judd, Professor of Surgery, Mayo Foundation, Rochester, Minnesota, "Abdominal Surgery and Diagnosis;" Dr. Fred M. Smith, Professor of Medicine, State University of Iowa, Iowa City, Iowa, "Diseases of the Heart;" Dr. Arthur A. Sweeney, St. Paul, Minn., "Neurology and Psychiatry;" Dr. H. W. Orr, Lincoln, Neb., "Orthopedics;" Dr. Willis S. Lemon, Associate Professor of Medicine, Mayo Foundation, Rochester, Minn., "Diseases of the Chest;" Dr. Henry E. Michelson, Assistant Professor of Dermatology and Syphilology, University of Minnesota, Minneapolis, Minn., "Diseases of the Skin;" Dr. Rood Taylor, Assistant Professor of Pediatrics, University of Minnesota, Minneapolis, Minn., "Diseases of Children;" Dr. Harold I. Lillie, Professor of Otolaryngology and Rhinology, Mayo Foundation, Rochester, Minn., "Diseases of the Eye, Ear, Nose, and Throat."

Instruments, Books, and Cabinet for Sale

By the widow of a physician who had a large practice. Address P. O. Box 655, Bozeman, Montana.

Locum Tenens or Large Country Practice Wanted

By an experienced physician. Address 310, care of this office.

Location in North Dakota Wanted

Where a good practice can be developed from the start. By a capable, experienced, general practitioner, aged 40. Address 304, care of this office.

Experienced Medical Salesman Wanted

To sell electrical apparatus on commission in Minnesota and Wisconsin. State qualifications and experience in first letter. Address 307, care of this office.

Practice in Minnesota Offered

A practice can be had in a town of about 400 or 500 in a large and growing community in Northern Minnesota by purchasing a small amount of office furniture. Address 305, care of this office.

Assistantship Wanted

A graduate of the Chicago College of Medicine and Surgery, class of '16, now practicing in Iowa, desires to become assistant to a Twin City physician and surgeon. Address 315, care of this office.

Physio-Therapy Technician Wants Position

I have four nurses who have just completed a private course in Physio-Therapy and general office work. Can fill office position by October 20. For further information, write Dr. Iver S. Benson, Montevideo, Minnesota.

Office Position Wanted in Minneapolis

By a woman who can do bookkeeping, typewriting, and general office work, and is a capable technician with three years and a half experience in a laboratory. Address 315, care of this office.

Laboratory and X-Ray Technician Position Wanted

By a young woman who was trained in the Swedish Hospital and took a year and a half in nursing work in a fine Minneapolis private hospital. Will go out of the city. Best of references. Address 314, care of this office.

Expert Laboratory Technician Wants Position

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ORTHOPEDECS: A CLINIC*

BY EMIL S. GEIST, M.D.

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MINNEAPOLIS, MINNESOTA

The text-books tell us that 20 per cent of deformities are congenital and that 80 per cent are acquired. We have here eighteen cases to-day and of these only one is congenital in origin. Orthopedic surgeons like to talk prevention of deformity or, more than that, absolute avoidance of deformity, but, of course, the congenital deformities are not preventable. The acquired ones are preventable to a large degree. To-day we will see such cases. It may be said that about 75 per cent of the deformities as we see them are preventable or, to a greater or lesser degree, avoidable.

The first group of deformities which will be presented is that which results from infantile paralysis. Dr. Vandemark has collected the cases and is helping me to present them. As yet we do not know how infantile paralysis is transmitted to an individual. Some believe that the organism has been isolated, but even that is not entirely proven. We do not know by what route it reaches the patient. We know that it is often contagious and that it certainly is infectious. We are all acquainted with cases that have occurred on a farm twenty-five or thirty miles from any beaten road, but the organism got into the child in some way. There is no doubt that it is a germ disease. We have large epidemics of infantile paralysis that get into a community which has

been free up to that time, and the first "carrier" case makes a center from which the disease spreads into adjacent homes. Such epidemics have been noted many times in the last ten to fifteen years. We do not know how the disease is transmitted, but we know that it is a terrible disease. We would be much exercised if in a town the size of this (Sioux Falls) one hundred cases of diphtheria existed at one time, and still we know that with the modern treatment of diphtheria (antitoxin) the mortality is only 5 or 6 per cent and the other 95 per cent get well. Let us consider one hundred cases of infantile paralysis. The immediate mortality is about the same as in diphtheria, but about 60 per cent of those who do not die remain paralyzed to a greater or less degree. You can see how the one hundred cases of diphtheria compare with the same number of cases of infantile paralysis.

What can we do to prevent this? I think from the studies of Flexner and Rosenow, we have reason to believe that the nasal secretions have something to do with the transmission of disease. But that may not be all, and I am in the habit of teaching, in view of the terrific onslaught this disease makes on the patient and the community, that we should consider every case of infantile paralysis as a combination of all the infections and contagious diseases of which we know. Some have an idea that insects have something to do with its transmission, therefore, if a child de-

*Presented at the forty-fourth annual meeting of the South Dakota State Medical Association held at Sioux Falls, S. D., May 21 and 22, 1925.

velops infantile paralysis let us cover the bed with netting. It has been thought that the excreta, the feces, and urine have something to do with its transmission. Let us sterilize our utensils as we do in typhoid fever. Let us isolate these patients absolutely. It is a terrific disease and needs to be stamped out by all means at our command.

Orthopedic surgeons do not see fresh cases of infantile paralysis. They are usually observed by the family doctor. I have seen probably fifteen or twenty fresh cases in the last few years, and I am sorry to say that in none of them were adequate quarantine methods being carried out. Yet that is the time when we can do the most good by keeping the disease from healthy children. To me this is the most important thing in connection with this disease.

In view of all the cases at hand to-day, it is impossible to go into all the details of the disease, but there is one other point I would like to mention before we present the cases. That is the prevention of deformity. You will see many cases in which deformity has not been prevented. Deformities are, to a very large degree, preventable, and it is usually an easy matter to do it. It is a matter of simply ascertaining the type and amount of paralysis present. We must remember our anatomy.

One of the most simple things I know is to educate the parents to move the affected arm or leg or joint within the normal limits. They will ask, what are the normal movements of the joints of the arm or leg? I tell them to try it on themselves. We keep the knee straight and the foot at right angles to the leg. Many times we see patients with the "sitting" deformity because they are allowed to sit all day in a wheel chair, and they develop a flexed hip, a flexed knee, and a drop foot. Let us try to prevent the disease, infantile paralysis. If we cannot do that let us prevent the deformity. When the patient reaches the deformed stage it is a matter of doing repair work. Deformities are preventable. We have one or two patients here who have not seen a doctor but have been in the hands of intelligent parents who have prevented deformity from occurring. It can be done on farms as well as in the cities. Patients with deformities are more or less amenable to repair work. Thanks to the ingeniousness of Lovett, of Boston; Albee, of New York; Hoke, of Atlanta; and many others, this repair work has gone on to a remarkable extent, but, after all, it is only repair work.

CASE 1.—Infantile paralysis. This girl is fifteen years old and she is very unstable in her gait. She walks poorly because she has not a good base to stand on. The foot and hand are constructed very much on the same plan, but the functions of the foot and hand are entirely different. The hand is a prehensile organ and made to do certain things in a clever way. Stability, however, is the thing we must have in the foot, and lack of stability comes from paralysis of the muscles that go from the leg to the foot. This girl is suffering from practically a total paralysis of all the muscles below the knee and lacks control of the joints of the foot. It would be better for her to have a stiff ankle in good position than a wobbly ankle in bad position. This will give her stability, and she will walk a great deal better. At present she falls easily, stumbles over rugs, and, as you see, every step accentuates her deformity.

CASE 2.—Infantile paralysis. This boy is twenty-one years old. He had his attack when he was eight years old and is totally paralyzed from the hips down. He presents the deformities of the "sitting" posture. He gets around by crawling on his hands and knees, and as a result of this presents a tremendous over-development of his upper body. This is an example of a preventable deformity. I think that by means of a tendon lengthening operation, this boy's legs can be straightened, and he can be placed in a position where, with assistance of crutches, he can walk with his feet. How much better it would have been to have used preventive measures from the beginning, for then we could have avoided the now necessary operation.

CASES 3 AND 4.—Infantile paralysis. These boys were paralyzed six to eight years ago. The paralysis in each case affects but one leg. The quadriceps are paralyzed as well as are the dorsiflexors of the foot. No deformity occurred because of the result of wise instruction. The parents of these boys have put the affected knee and ankle joints through their normal range of motion daily, in addition to proper brace control, which prevented contractures. The father of one has constructed a brace for the boy, and while it is crude it helps the boy a great deal.

At this point it may not be amiss to mention that occasionally we can have a case of infantile paralysis giving a history of injury. Such a case occurred in my practice a few days ago. A boy suffering a fracture of radius and ulna of the left arm, which was nicely reduced and held reduced by means of splints. At the end of the third week the father found that the boy could not move elbow or shoulder. It was simply a case of infantile paralysis superimposed upon a previous injury.

CASE 4.—Infantile paralysis. This other boy is a similar case to the one I just showed you. He is getting around by means of a brace which was applied by a very competent orthopedic surgeon. His paralysis is also such that foot-drop would ensue. This brace prevents this. Should the dorsiflexors of

the foot return to activity they will not find themselves fighting a strongly contracted tendo Achillis.

CASE 5.—Infantile paralysis. This little girl has a marked flexion-contracture at the hip, with practically a total paralysis of all muscles below the hip; the knee joint, therefore, is of the flail type as also is the ankle. The safe thing to do here would be to correct the contracture at the hip and knee by means of tenotomies. The hips must be extended and the knee made to come in straight line. As far as the ankle is concerned, this can be stabilized by means of operation. In the last analysis, the patient will have to wear a short brace extending from the groin to the ankle, holding the knee straight. She would undoubtedly walk much better than you see her to-day. To-day it is absolutely necessary for her to wear crutches. The operation and braces absolutely will relieve her from wearing crutches and also simplify the brace considerably. It may be stated that in the treating of infantile paralysis orthopedic surgeons attempt, as much as possible, to do away with braces and crutches by means of judicious devices and stabilizing operations. This is very often feasible.

CASE 6.—Infantile paralysis. This child presents just another example of the havoc which this disease caused. He has a marked scoliosis which is to a certain degree correctable, as he now shows when I lift him up by the head. Up to a few years ago this was a very distressing deformity to take care of, and it still is; nevertheless, since Hibbs, of New York, has shown that considerable improvement follows his fusion operation, we feel in a number of these cases the deformity can be arrested.

CASE 7.—Infantile paralysis. This child had his attack when he was three years old. He is now seven years old. We have presented in this case a less degree of damage than the previous case. The peronei of one foot are the only muscles paralyzed. As a result the antagonists, the tibialis anticus and posticus have been pulling the foot into a definite position so that now we have developed here a distinct condition of club-foot. It will be necessary here to first correct the club-foot. However, this will not be enough. Following this correction it will be necessary to do a muscle transference. The muscle transference necessary in this case is one of the few which has proved its full value. It will be necessary in this case to transfer the tibialis anticus to the base of the first metatarsal.

About fifteen years ago orthopedic surgeons did a great deal of the so-called muscle and tendon operations. It has been found that a number of these operations have not been as successful as was desired. It may be said, however, that those muscle and tendon operations in which simple indications were met, are practically uniformly successful.

CASE 8.—Infantile paralysis. In this case the muscles making up the tendo Achillis are paralyzed (gastrocnemius and soleus). As a result the child walks on her heels, and it is a most annoying deformity to treat.

CASE 9.—Infantile paralysis. Here we have a boy who was paralyzed six or seven years ago and who has never walked since becoming paralyzed. He crawls about on hands and knees simply because the deformity has been allowed to develop in the hips, knees, and ankles. Paralysis is practically total below the waist-line. If flexion deformity at the hips, knees, and ankles had been prevented it would be an easy matter, such as putting on a certain caliper splint. Under these conditions, the boy could be made to walk about with the aid of crutches and braces. As the matter now stands it will be necessary to do three or four operations on this boy in order to bring the markedly contracted flexors to normal, which we find about the hips, knees, and ankles. Following this, after his legs are straight, we can then apply braces on the legs and give him crutches to use, which will, of course, bring marked improvement over the present method of crawling.

I saw ten other cases of infantile paralysis this morning which should have been presented here this afternoon, but time forbids. I am sure that these cases represent but a small fraction of the cripple problem in South Dakota, but they show the havoc which this terrible disease, infantile paralysis, can cause.

The next group of cases to which we will turn are the infectious. Joint tuberculosis is the most important of the infectious diseases with which we are concerned. We must not forget that tuberculosis is a preventable disease, and I believe that there are a less number of cases of bone and joint tuberculosis now than there were ten years ago. I believe that our campaign for prevention is showing results.

We know that there are two routes by way of which tuberculosis gets into a healthy child, either by contact with a patient suffering from tuberculosis or from a cow which is disseminating tubercular bacilli in milk. Tuberculosis is just as preventable as leprosy. We know that leprosy has been practically stamped out of the Northwestern states. If we watch the patient with an active pulmonary lesion and instruct him properly, also if we look for and destroy the tuberculous cow, we shall sooner or later get rid of all bone and joint tuberculosis.

CASE 10.—Knee-joint tuberculosis. This little boy has had tuberculosis of the knee ever since he was two years old. He is now twelve years old and has had five operations on his knee. As a result his leg is somewhat like eight inches shorter than the other. The case reminds me of a series of cases I saw in Paris in 1903. Fifteen or eighteen years before that there had been an epidemic of promiscuous surgery on tuberculous joints in children. The result was that we saw many cases of healed tuberculosis, but the patient was standing with one foot on the floor and the other on a chair. The epiphysis

on the affected side quit growing, and it would have been just as well if the patient had no leg at all on the affected side.

I am presenting this case to call attention to the sacredness of the epiphysis. The epiphyses about the knee are the active bone growing centers for the bones of the leg. If we insult the epiphysis with knife or chisel the immediate results may not be bad, but ultimate growth interference is bound to ensue. This boy is cured of his tuberculosis and is lucky to have a leg. He does as well as he can with his raised shoe, and I think we shall leave him alone. The epiphyses should be sacred ground, and it is rarely necessary to invade the epiphysis with surgical instruments.

CASE 11.—Osteomyelitis of the spine. This little girl gives a history of an acute onset of the disease, chill, high fever, much pain in the back and referred pains in the legs. An accumulation of pus soon developed which was extraperitoneal. X-rays show involvement of the two dorsal vertebræ. I think we are now dealing here, not with tuberculous disease but with chronic osteomyelitis.

This is a rare condition, but I present this case as a hitching-post for an observation which I frequently make. Very often we get a case in which sinuses have been discharging for years and years, and simply because the condition has existed for such a long time, we may be led to conclude that we are dealing with a tuberculous lesion with pus formation.

Many of these supposed cases of chronic tuberculosis are really nothing but chronic osteomyelitis. When we look for the sequestrum and remove it, we often rapidly cure the supposedly tuberculous lesions.

If this child has osteomyelitis of the spine she should have plenty of heliotherapy. This is one of the greatest therapeutic agents, not only for tuberculosis, but for many chronic infections. I should like to dwell longer on heliotherapy, but time forbids, to show some of its benefits not only in tuberculous joints but also in many of the other chronic bone and joint infections.

CASE 12.—Tuberculosis of the hip. This little girl has a so-called wandering acetabulum with a fair amount of motion in the hip joint. This brings up the question; what is the best result in a tuberculous joint? Many of us believe that an absolute bony ankylosis in a good position is the best result to be obtained in a tuberculous joint. If my child had tuberculosis of a joint I would want absolute ankylosis to supervene, but it is difficult to obtain. In these cases there remains just enough motion to cause trouble; just enough to be the cause of reinfection at any moment when the patient's general tone is down or a minor injury is likely to cause a flareup of the tuberculous condition again. The articular cartilage is what prevents ankylosis, as Phemister showed not long ago. It is dead and separated, and it is absorbed with difficulty. Some of the eastern men are operating on these cases, even in children, in order to remove the articular cartilage and thus obtain the desired bony ankylosis.

CASE 13.—Injury. This boy got mixed up in a piece of machinery. I have talked of infantile

paralysis and of infection in the joints as the causes of deformity. Now we have a case in which injury is the cause of deformity. This boy was injured in a binder years ago, and the chief injury was section of the peroneal nerve. He presents paralysis of the peroneal nerve with a consequent club-foot tendency. Neurological surgery may be attempted here. If it fails, which is probable, we then resort to tendon-transplantation and in the end give this boy a very decent foot.

CASE 14.—Fractured os calcis. This young man, nine months ago, fell about forty feet and landed on his feet in a standing position. That is the classical way to fracture the os calcis; that history is always suggestive, but for some reason or other these fractures are often missed. We should always take an x-ray picture and look for such a fracture when a man falls from a height and lands on his feet. Some time ago I saw a case from your city, but in that case the man was standing on the street; the sewer blew up and the street flew up against his feet thereby fracturing the heel-bones.

Fracture of the heel is a severe injury and causes much disability. I looked up the records a while ago and found that up to now I have not seen any cases after the third year following injury. I do not know why this is. I do not know whether they get symptom-free by that time or whether they get tired of seeing doctors and do not come around. In old painful cases Cotton, of Boston, has devised an operation of cleaning out all the bony material around the external malleolus. This is an easy and sensible operation. This patient has returned to work and I told him to wait another nine months. If he still has pain in the affected foot at that time, we will consider doing something or we may wait a little longer. Conservatism is good in these cases.

CASE 15.—Dislocation of the cervical spine. This child was in an automobile wreck. He apparently has a displacement of the atlas on the axis. He does not complain of much pain, but he holds his head crooked. A patient consulted me once in a similar condition who had been injured three weeks before. He wished me to reduce his neck dislocation, but I did not encourage him enough, and he did not return. I met the same man two or three months later on the street and his neck was cured. I asked him what had happened, and he said that he had fallen from a chair while hanging a picture on the wall; that he "felt something snap" and has been all right since then. It is needless to state here that in cases such as this, manipulation under an anesthetic may result in sudden exitus.

Here it is a question of giving an anesthetic and manipulating. It is a dangerous problem, and no one is anxious to attempt it. Fractures of the cervical spine are sometimes unrecognized. One may have considerable destruction and crushing of the vertebræ with very few or sometimes no symptoms.

CASE 16.—Congenital dislocation of the hip. This child was born with poor hip sockets, and as a result the heads of the femora have slipped upward and backward. She walks with characteristic duck-like gait, like all of these children. It is of course impossible to go into full detail regarding congeni-

tal dislocation at this time. I simply want to impress upon you to-day that the earlier these cases are operated on the better results will be. In double congenital dislocations of hip, the upper-age limit is about four years; in dislocation of one hip only, upper-age limit is seven years. There is nothing more tragic than to see a girl of ten or twelve years with unilateral or bilateral dislocation of the hip; for in this case practically nothing can be done at this time.

The little patient at hand to-day is three and one-half years old. It is high time to do something or this child will have gone past the time where anything can be done for her, and if she is not operated on very shortly she will be a cripple for life.

CASE 17.—Bow-legs. Here we have a case of fairly well marked bow-legs. This is perhaps the only deformity which children will sometimes outgrow. This child presents the other signs of rickets. The treatment here is primarily that of rickets; braces can be applied. If the child presents a condition of bow-legs after four or five years old, it is simply a matter to straighten legs by means of osteotomy and casts.

CASE 18.—Here is another case of simple bow-legs. The patient is two years old. The condition of bow-legs, as you note, is not bad. There is scarcely any signs of rickets. In this case we can safely tell the mother that the child's legs will probably straighten out by themselves.

SURGERY IN ABDOMINAL TUBERCULOSIS*

BY RICHARD R. CRANMER, M.D.

MINNEAPOLIS, MINNESOTA

Tuberculosis may involve any of the structures of the abdomen, but only when it attacks certain ones can surgery be of value. Naming these in order of most frequent involvement they are the peritoneum, Fallopian tubes, appendix, cecum, ileum, colon, stomach, and spleen.

The peritoneum is the structure most frequently involved, because it is often the primary site of tuberculosis, as well as frequently being secondarily involved when the primary focus is in one of the abdominal organs.

TUBERCULOUS PERITONITIS

This varies as to type and severity, both of which influence the surgical treatment. Obviously, surgery is contra-indicated if there is a very active tuberculous process elsewhere in the body or if the patient is so impoverished physically as to render an operation dangerous. It may be stated (1) that operation is contra-indicated in generalized or widespread tuberculosis, in children under twelve years of age, and in patients with signs of extremely active pulmonary tuberculosis; (2) that it is unnecessary in the plastic type unless there is evidence of intestinal obstruction; (3) that it is necessary in abscess formation and in intestinal obstruction. From the surgical standpoint the following classification of the principle types of tuberculous peritonitis is important.

1. The serous type in which small gray granulations cover the peritoneum in which a straw-colored fluid is found either encysted or not.

2. The plastic type in which caseation is ab-

sent and fluid scanty, and the omentum and the mesentery are densely infiltrated. Sacculations are numerous, due to bands of fibrous tissue which run in all directions binding loops of bowel and other viscera to each other and to the abdominal wall.

3. The caseating or purulent type, which is similar to the plastic type except that pus is usually found. Caseation, however, may be present in the dry stage.

The most favorable cases are those belonging to the serous type where there are free fluid and few adhesions. The plastic type is also favorable, but the caseating and purulent type is distinctly unfavorable. Here an operation may do great harm, as adhesions are numerous and the bowel wall much thinned. The result of manipulation is, frequently, the production of one or more fecal fistulae, with perhaps the setting up of acute suppuration; however, some cases of this type have been benefited by surgery.

TUBERCULOUS ENTERITIS AND ENTEROCOLITIS

In 85 per cent of the cases of intestinal tuberculosis, the disease is found in the terminal ileum, the cecum, and the appendix. Tuberculosis of the bowel is ordinarily divided into the hyperplastic and ulcerative types. A third type may be added to these and called the fibrous or sclerotic type, meaning merely the advanced stage of the ulcerative type in which scarring has taken place. Up to a few years ago the field of surgery in tuberculosis of the bowel was limited almost entirely to the relief of intestinal obstruction caused by cicatricial contraction resulting from a tuberculous ulcer or by extreme hy-

*Presented before joint meeting of Lymanhurst and Parkview Staffs, Minneapolis, December 30, 1924.

perplasia of the bowel wall, this usually involving the cecum or colon or sigmoid.

The attitude of the surgeon has changed in recent years, and it is now considered that surgery has a larger field in the treatment of intestinal tuberculosis than merely relieving obstruction or excising a perforating tuberculous ulcer. In addition to being able to prolong the lives of these patients suffering from obstruction of the bowel, surgery is now looked upon as being able, in a good percentage of cases, to relieve the distressing abdominal symptoms even when there is no obstruction. It is this point that Edward Archibald, of Montreal, has stressed in his work in that city over a period of several years.

The following are a few points concerning the pathology of tuberculosis of the bowel: (1) In the majority of the cases the cecum walls are diffusely thickened and easy to palpate, whether the small bowel or the rest of the colon are involved or not; (2) the rest of the colon is rarely so diffusely thickened and rarely palpable, but bears isolated ulcers that are more or less numerous; (3) the ascending colon, the second part of the transverse colon, and the sigmoid are most apt to be ulcerated; (4) the rectum is rarely involved; (5) at operation it is usually possible to recognize the limits of the disease in the bowel; an ulcer or a tubercle in the bowel wall betrays its presence by a patch of fibrinoplastic exudate on the serosa and a local thickening in the wall; (6) the appendix is frequently involved alone and is usually hypertrophic. Margaret Warwick reports that about 1 per cent of all appendices removed are tuberculous; (7) occasionally large masses of tuberculous lymph nodes are found in the mesentery without any apparent intestinal involvement.

The results of operation for tuberculosis of the intestinal tract depend (1) upon the amount of lung involvement and (2) upon the extent of the local lesion in the intestines.

In a series of about 50 cases Dr. Archibald reports his results as follows: In seven cases of tuberculosis of the appendix the immediate results were relief from all symptoms in all cases; one case died four years later from pulmonary tuberculosis; the others were alive and well from four to eight years after. In eight cases in which the disease was in the appendix and cecum and in which he did resection of the cecum and a few inches of the terminal ileum, he obtained relief from diarrhea, pain and nausea in all cases. Those cases having pulmonary involvement died in from two to four years later. In two cases

in which the cecum and ascending and transverse colon were involved and in which he did a short-circuiting operation, uniting the ileum and sigmoid, relief of intestinal symptoms was obtained in both. One case gained considerably in weight for fifteen months, when he suddenly developed pulmonary hemorrhages and died. In two cases, both without pulmonary disease, in which the sigmoid and rectum were involved and in which a left-sided colostomy was done, relief was obtained from symptoms at once and apparent cures resulted later.

In three cases in which the small bowel was extensively involved he did an ileosigmoidostomy in one and a short-circuiting operation, uniting the ileum four and one-half feet from the cecum, to the transverse colon, in another. The third he closed without doing anything. These were not cases of critical obstruction of the small bowel.

In fifteen cases a palliative appendectomy was done, leaving behind extensive disease. In about half of these, symptom relief resulted for several months, the others were unimproved.

In primary tuberculosis of the spleen, splenectomy has given 56 per cent of recoveries, while death, according to Winternitz, invariably follows without it.

In tuberculous ulcers of the stomach excision is the procedure of choice if medical treatment proves a failure.

TECHNIC OF OPERATION

It is advisable in all these cases to be prepared for exploration of the small bowel even where one can feel something in the cecum. Accordingly, incision is usually made in the middle of the right rectus so that it can be enlarged up or down as necessity dictates. The small bowel is always thoroughly explored, beginning from the ileocecal valve, peeling it out, and immediately returning it in order to avoid loss of heat. It is impossible to accept the apparent freedom of the lower foot or two of the ileum from disease as proof that there is no disease in the small bowel. As to the infection of the mesenteric glands it is remarkable how often that they are only slightly enlarged, occasionally no enlargement being present and it is rare to find them caseous at operation. Those which come conveniently within the area of resection are removed, but Dr. Archibald states that he has no hesitancy in leaving some in the root in the mesentery when dissection would be difficult or occupy too much time. They are usually hyperplastic, and when the focus of disease is removed, may be expected to subside.

In dealing with tuberculous peritonitis the fluid should be removed by an ejector. Where the fluid is loculated by adhesions the separate loculi may be made to communicate by gently breaking through such of the adhesions as may be necessary. No extensive disturbance of the adhesions beyond this is advisable. The exposure to sunlight and air is the essential thing, and some time should be used in allowing the air and sunshine to come in contact with as much as possible of the peritoneal surface.

There is usually no indication for drainage in tuberculous peritonitis except when the condition is of the purulent type, in which event small, soft tube drains or cigarette drains may be used. If the condition is of the plastic type great care must be used in separating adhesions, for the wall of the intestine is frequently thinned and softened by the disease, and any roughness in handling may result in formation of fecal fistulæ.

The advantage of laparotomy in the serous type of tuberculous peritonitis over simple tapping is that a local focus which may be present and which may give rise to re-infection can be removed. Te'Moin says that when peritonitis is the first manifestation of tuberculosis a permanent cure can be obtained in 80 per cent of the cases, but such results cannot naturally be expected when it develops as a complication of pulmonary tuberculosis. Even then, however, laparotomy may cure the peritonitis and, consequently, be a valuable adjunct to the medical treatment. Some favorable reports have been made concerning the combined use of laparotomy and the Mercury Quartz Vapor Lamp, which has proven of so valuable service in the treating of tuberculous surgery elsewhere, but the reports are too meager, as yet, to be conclusive.

The operations most frequently done for tuberculous enteritis and enterocolitis are (1) excision of the affected part if not too extensive; (2) short-circuiting the bowel, as, for example, anastomosing the ileum with the sigmoid; (3) colostomy or, in some cases, ileostomy; (4) resection

of a part of the bowel, as is done for the relief of an obstruction caused by an old ulcer.

Wound healing in tuberculous patients is found on the whole to be very good, although not quite so good as in normal individuals. The question of shock is a very important one when dealing with this class of patients. This is especially true where the operation is a major one, as in excision of the sigmoid and ascending colon, for example. For that reason local anesthesia is the one of choice. These cases are frequently approaching acidosis, and the slightest shock, such as may be brought about by ether or chloroform anesthesia, might be the deciding factor against a favorable outcome. Not only is local anesthesia far less shock-producing, but the patient more quickly can be put upon a supporting diet, which is a thing to be especially desired in these cases. If some general anesthetic is necessary to support the local the analgesic stage of nitrous oxide should be used, as Crile advises.

In conclusion, while in the majority of cases of intestinal tuberculosis the lungs are already seriously diseased, and while in such cases early hopes of bringing about an arrest of the pulmonary condition by surgical removal of the diseased bowel have not on the whole been realized, it may still be emphasized that complete relief of bowel misery in these cases may very often be accomplished by a well-planned and executed operation. Patients are keen for it and are grateful after it. Patients with very little pulmonary trouble and with an eradicable bowel disease may frequently be cured by operation.

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SINUS INFECTION IN CHILDREN*

By L. W. MEYERS, M.D.

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Not long ago at a Cass County Medical Society meeting, Dr. Evans, of the Fargo Child Health

Demonstration, made the statement that the reason we do not find more sinus infection in children is because we do not look closely enough for it. This remark, coming from the source

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which it did, together with the cases that have been turned over to us by the different pediatricians and general practitioners and the cases which have come to our office, has caused me to choose "Sinus Infection in Children" as the subject of this paper.

There are eight nasal accessory sinuses in the head, and, if we consider the mastoid antrums as sinuses, we have ten; but the mastoid antrums are generally described together with diseases of the ear and, therefore, will not be discussed in this paper; nor will the embryology be mentioned other than to say that some sinuses are formed at birth and others are not.

The anatomy and development of the different sinuses extra-uterum are of very great importance, as we need not look for sinus infection where no sinus exists. And a child may have an infection of one sinus at an early age, and, if treatment is neglected until another sinus develops, by continuity of tissue, the infection may spread.

The frontal sinus is a paired sinus and is not present in the newly born, but makes its appearance in the orbital plate between the end of the first and second years; and it is about the size of a pea up until about the sixth or seventh year. About the seventh year it begins to extend upward between the anterior and posterior tables of the frontal bone. Many times one extends much faster than the other, or one fails to develop entirely. Sometimes we have an absence of both. It drains into the middle fossa of the nose through the infundibulum.

The ethmoidal labyrinth is also paired and is present at birth, being hollowed out in the fetus about the fourth embryonal month. It is composed of cells arranged similar to a honeycomb, and varying from nine to fourteen in number. These are divided clinically into two groups,—the anterior, which open into the middle meatus, and the posterior, which open above the middle turbinate, generally into the superior meatus. The cells lie between the nasal cavity and the orbit and are continuous with the frontal sinus anteriorly, and the sphenoidal sinus posteriorly, and between the floor of the cranial cavity and the middle turbinate. Sometimes the cells extend into the middle turbinate, and, when present, drain into the middle meatus. The sphenoidal sinus is but a faint depression in the body of the bone at birth, but begins to develop about the fourth month and reaches full growth about the sixteenth year. It is generally a distinct cavity at about eighteen months of age. It is a paired sinus and, like the frontal, one may be a great

deal larger than the other. The anterior wall is in relation with the nasal cavity and posterior ethmoidal cells.

The maxillary sinus is entirely situated within the superior maxillary bone and is about the size of a bean at birth. At that time it is situated internally to, instead of below, the orbit. As the alveolar process extends downward the cancellous tissue is absorbed, and the cavity is enlarged. Full size is attained about the sixteenth year. The maxillary ostium is the natural opening to this sinus, and opens in the lateral nasal wall in the middle fossa, nearer the roof than the floor of the cavity; therefore the cavity cannot drain unless the epithelium carries the secretion upwards. At normal size in the adult it is about as large as an English walnut but pyramidal in shape.

The physiology of the different sinuses is not known. Whether they are there to moisten the inspired air, imparting resonance to the voice; to help to keep the nasal chambers moist; to lighten the skull; or whether they are a relic of evolution, is still in dispute.

Sinus infection in children generally depends on some of the infectious diseases, such as scarlet fever, measles, diphtheria, bronchial pneumonia, and influenza. However, many times there is an anatomical or mechanical cause, such as a child with a narrow nasal cavity, with a high arched palate, or with a pharynx filled with adenoids. Breathing through the nose naturally causes a suction and a blowing through the different sinuses, and any obstruction to breathing will naturally lessen the drainage and ventilation, which inhibit the growth of bacteria. The most common obstruction to good breathing is adenoids.

The antrum is more often diseased than its fellow sinuses. This, in all probability, is due to the fact that the ostium is situated well up from the floor, compelling the secretion to be carried upward by ciliated epithelial lining. Also, an abscessed tooth may cause an empyema. The percentage of tooth infection in causing maxillary sinusitis in children is greatly disputed, but in all probability the number of cases infected in this manner is very small. The infection, however, may be carried from a tooth abscess upward through continuity of tissue, periostitis, or the circulatory system.

Another very important etiological factor is an ethmoiditis causing swelling in the middle turbinate to such a degree that the maxillary ostium is completely blocked, backing up the secretion within the cavity. Also the antrum can easily

fill up with pus, the result of an overflow from the other sinus, and in this way become infected.

The ethmoidal cells, situated as they are, covered on their free side by the middle turbinate, can be easily blocked by any condition which may cause the nasal membranes to become swollen. However, acute empyema of the ethmoidal cells is rare, unless accompanied by at least an inflammatory condition of the frontal or sphenoidal sinus. However, in very young children such may be the case. Oftentimes, in scarlet fever and other infectious diseases, the infection attacks the periosteum of the orbital wall, with a tendency to break through into the orbit. If the infection breaks through from the anterior ethmoidal cells, the swelling is around the inner and upper angle of the eye. If the abscess is from the posterior ethmoidal cells the swelling is behind pushing the eyeball outward and forward.

The sphenoidal sinus, owing to its position, is very difficult to study. The ostium, like that of the maxillary, is situated well up on the anterior wall and is oftentimes so narrow that it may become closed with very little swelling of the mucous membrane. Situated as it is, with the ostium pointing upward, when the patient is lying on his back, there can be hardly any doubt that this sinus is infected oftener than suspected.

The etiology of frontal sinusitis is a great deal the same as that of the other sinuses, inasmuch as a nasal deformity may block the drainage. Much also depends upon the size of the duct leading to it, as a large duct will allow drainage, even though it is badly swollen, while the same degree of swelling will completely close a small duct. Again, if the anterior ethmoids are involved they may back up the discharge. A deviated septum may oftentimes play a very important part with inflammation of this sinus.

The pathology of sinusitis in children is the same as in adults, and we also have acute and chronic conditions. Early in the acute the submucous tissue is filled with serum, while the surface is dry. Leucocytes fill the submucous tissue; the capillaries are dilated, hence a very red color is imparted to the membrane. This condition persists for a day or two, after which the leucocytes escape through the epithelial covering of the mucosa, where they mix with bacteria, epithelial cells and mucus. Sometimes we have hemorrhage accompanying these changes. At first the discharge is watery, but later becomes thick and ropy. In some instances this is all cleared up by absorption. In other cases the inflammation passes into the purulent type, the

leucocytes are thrown out in enormous numbers, and, unless the condition is relieved immediately, the case passes on into the chronic type. In this type the mucous membrane presents a granular surface, thickened, and in older cases may become hyperplastic, while here and there it may be completely destroyed in spots by ulceration, leaving the bone smooth and bare; or it may also destroy the periosteum, and a carious condition of the bone results. If this condition results the mucous membrane loses its epithelium and glands, and is replaced by connective tissue. Polypi have been found in all of the sinuses, but I do not recall having seen them in a child under twelve years of age.

The symptoms are as varied as there are numbers of sinuses and degrees of sinusitis. As stated before, we need not expect to find sinusitis in children where no sinus exists, but as there is no set birthday on which some of the sinuses make their exact appearance, it is often a question, until an *x*-ray picture is made, which of the sinuses are infected.

Children have very little resistance to the so-called colds, and as a result, the nasal secretions are increased, the mucosa of the throat and nose is inflamed and swollen causing the ostium of the different sinuses which are already formed to become smaller or completely blocking one or more, so that we have retained secretions which may become infected, leading to an empyema. Any one of the sinuses that are formed in the child may be infected, but, as a rule, two or more or a whole side are usually diseased at the same time. Sometimes we have a pansinusitis.

The child, following a coryza, will have an increased nasal discharge, redness in the throat, or tonsillitis, accompanied by a cough, with or without expectoration. If it is the maxillary sinus, one side of the face may become slightly congested with more or less edema, and nasal obstruction may be complete from the swollen condition of the mucosa and the enlargement of the turbinates. The infra-orbital region may swell until fluctuation appears, or this may not happen if the contents of the antrum break through into the nose.

Small children will not complain of headache, but it is not uncommon for a child eight years of age to complain of this symptom. When asked where the headache is, if it is a maxillary or frontal sinus, the child will point out the frontal region. An inflamed maxillary also causes pain in the maxillary and occipital regions. However, it may be badly infected and still no swell-

ing of the face will be seen or tenderness experienced on pressure. If the ethmoids are involved the secretion is copious, of a watery consistency, and straw colored, leaving very little stain on the handkerchief. Later it may become purulent, even streaked with blood, but after the disappearance of the cold which ushered it in, it may disappear completely. Tenderness is experienced when pressure is made on the upper and inner side of the orbit.

The symptoms of sphenoidal sinusitis differ from those of a severe coryza by the pain radiating to the temporal region or the ears, and the attending physician often looks into an ear expecting to find acute suppurative otitis media, and is surprised to find normal ear-drums. The little patient may also complain of painful eyeballs. Pain and headache are the most common symptoms of frontal sinusitis in children who are old enough to complain of headache, and, as the frontals are not formed until late in child life, this is often the predominating symptom. The seat of the pain is situated over the sinus and reaches to that part of the forehead supplied by the supraorbital branch of the trigeminus.

In all cases of sinusitis with suppuration, the discharge drains more or less into the pharynx, larynx, and bronchial tubes, causing an inflammatory condition of these parts; hence we may find a very troublesome cough or hoarseness, together with bronchitis or bronchial asthma. The temperature in all acute sinusitis ranges from normal to 104° or 105° ; and the leucocytes show a marked increase.

The chronic form of sinusitis is by far the most common in children. It may follow an acute attack, or it may be ushered in by a series of colds in the head. The symptoms are rather mild compared with the acute form. The discharge in the nose and coming down in the pharynx is the most common symptom. Frequent attacks of sneezing are common. There is a change in disposition, the appetite is poor, and the skin has a sallow color. The temperature may be normal or slightly increased. The lymph glands show a marked involvement. The leucocytes may not show much of an increase.

Diagnosis of acute sinusitis is relatively easy if the attending physician is on the alert for it; but to point out just which sinus is infected is often a difficult matter. Quite often the child is unruly, and it is with extreme difficulty that a careful inspection of the nose can be made. In children under five years of age we often have to depend on the clinical symptoms and x-ray

plates. After this age a more thorough intranasal examination can be made. The nasal membranes can be sprayed with a dilute solution of cocaine and adrenalin, causing them to shrink so that we can see from which ostium the secretion is coming. After the shrinking has taken place good inspection can be made through the nose, and by use of a throat mirror the posterior nares come into view. Transillumination, placing a small electric light bulb in the mouth while the patient is in a dark room, usually illuminates through the maxillary sinuses clearly if they are normal, and cloudy or very black if they are inflamed or an empyema exists. But there are so many things which interfere with the illumination that we cannot always rely on it.

Illumination is also used in diagnosing sinusitis in the frontals, but here the sinuses vary so much in shape that it is oftentimes useless. The x-ray is perhaps the most useful means of diagnosis which we have at the present time, although we do not always interpret it properly.

In chronic forms we can use inspection anterior and posterior transillumination x-ray plates, and if the child is old enough to permit it, one of the best means of diagnosing maxillary infection is by puncture with a needle and irrigation. A needle about the size used for lumbar puncture under cocaine or gas anesthesia is plunged into the maxillary sinus under the lower turbinate, and a few ounces of salt or lysol solution is injected, forcing its way out through the ostium. The head is bent forward and the solution caught in a basin, poured into a glass and held to the light. If chronic infection exists, pus or mucopus in various quantities, together with shreds of mucous membrane, will be seen floating in the solution. If gas anesthesia is used, it is given only long enough to thrust the needle through, after which the patient is allowed to awaken while the fluid is injected.

I think one of the commonest mistakes made in the diagnosis of sinus disease in children is to diagnose diseased tonsils and adenoids because of an increased mucopus accumulation in the throat, together with enlarged lymph glands in the neck. Diseased tonsils, unless it be a discharge from a quinsy, do not give off a noticeable discharge which accumulates in the throat; neither are they the only thing that causes an adenitis. Every now and then a child is brought to the specialist who has been operated on for diseased tonsils and adenoids, and the parents have been told in many instances that the swelling in the glands would disappear, but months

may have passed and the patient still has enlarged glands. A careful examination will almost always reveal sinus infection.

Inasmuch as sinusitis often goes by without recognition, so also do a great many complications escape our notice but are given credit for being the primary disease. When we come to consider that veins from all the sinuses empty into or anastomose with the ophthalmic vein, longitudinal or cavernous sinuses, or veins of the dura, the wonder is that we do not have more cerebral complications than we do. Many authorities also regard the lymph channels as a direct cause for infection leading from the sinuses to the meninges. The most common complications within the orbit are anterior or posterior orbital abscesses, thrombosis of the central vein, severe conjunctivitis, dacryocystitis or pressure on the optic nerve; with the ear, otitis media or mastoiditis.

The treatment is conservative or surgical. In the acute condition the child should be put to bed, given a calomel and soda purge, the temperature controlled by hydrotherapy, and aspirin or opium given for the pain. Intranasally, the nose should be sprayed with adrenalin, 1 to 20,000, and, after shrinking has taken place, sprayed with Dobell's solution mixed with two or three parts of warm water. If this does not allay the symptoms within a reasonable time, surgical intervention should be undertaken. The question naturally arises: What is a reasonable length of time? But we should never let an ethmoiditis extend into the orbit forming an abscess; neither should we allow an antrum to burst through and form an abscess on the cheek. In all acute cases, if the tonsils and adenoids have not previously been removed, this should be done at an early date. Oftentimes all symptoms of the disease will disappear if this is the cause.

In case some form of operation becomes necessary, the question often arises, which operation shall we do? Generally speaking, unless the case is unusually severe, good results will be obtained by less radical measures than are necessary in the adult. If an ethmoiditis exists, the middle turbinate can be removed in whole, or at least the anterior end cut off and the ethmoidal cells broken down with a curet. This operation will oftentimes clear up a frontal by removing the obstruction to its drainage. If it

does not, repeated probing or enlarging the opening with rasp may relieve the condition.

In order to drain a sphenoidal sinus, the middle turbinate should be removed and the ostium enlarged with a curet or a biting forceps.

The maxillary sinus may be treated either by making a window under the lower turbinate or by puncture with a needle and irrigation. If the child is small it is almost necessary to make a permanent opening through which irrigation may be made. If large enough not to be unruly, cocaine may be applied under the lower turbinate and a small needle thrust into the antrum, to which is attached a syringe. In either case the antrum is washed with one-half of one per cent solution of lysol while the head is bent well forward. When the cavity is well cleansed, the syringe is filled with air, forcing out all of the fluid. Then about three or four cubic centimeters of five per cent solution of mercurochrome is put into the syringe and forced into the cavity. The syringe is again filled with air and driven into the antrum, forcing out the excess of the red solution.

The only disadvantage we have experienced with mercurochrome is the red stain which it produces on the skin, but this can be altogether overcome by first applying a thick coat of vaseline over the nose and face where it is likely to come in contact.

We have used many medications in the antrum, but so far this is the most satisfactory of all.

DISCUSSION

DR. ROLFE TAINTER (Fargo): I think we are all apt to neglect slight colds in children, but the colds that run on for weeks at a time, with a discharging nose, should be taken care of, and the parents should not be told that if the child is left alone it will get well. Many of these cases develop into sinus infection.

I am conservative in the treatment of the sinus. The function of the sinus is evidently to prepare, filter, and warm the air before it is taken into the lungs. If we produce the condition Nature wants we shall nearly always get a clearing up of the sinus infection. I would advise this method: I would shrink the lining of the nose by means of adrenalin and cocaine and then apply heat. A specialist does not have to be present to do this. We can give the mother some adrenalin chlorid and have her drop three or four drops into the child's nose two or three times a day, take an ordinary electric light globe and run it over the face for a few minutes, and continue this for a few days. It will be surprising to find how many of the infections that have run on for several weeks will clear up within a few days under this treatment.

GAS BACILLUS INFECTION*

BY JOHN LINCOLN TAYLOR, M.D.

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I have not any thought of bringing anything new to men who have encountered gas gangrene in their practice, but a desire to present the subject to those who have not had the fortune, or misfortune, to be called upon to handle these wound infections which require prompt and correct treatment in order to save limb or even life. In this paper I shall use the terms "gas infection" and "gas gangrene" as synonymous, though it is possible to have gas infection without gangrene. Up to the time of the World War little was written on this subject, many standard works on surgery making no mention of it. However, soon after the war began numerous articles appeared in medical and surgical journals and even in the newspapers of the country. Nevertheless, I think many of us looked upon it as an infection peculiar to the war, and our lack of definite knowledge of the infection and the best methods of treatment did not worry us. It can be said of gas infection, as of many other surgical conditions, that what we know about it was learned during the war. I am convinced that, other things being equal, gas infection of wounds is just as common in peace times as in war, in proportion to the wounds received. We should know, therefore, what the earliest symptoms are and just what to do in these cases.

Gas bacillus infection is most likely to follow injuries in which there has been considerable traumatism to the muscles and where the circulation has been interfered with or where dirt, cinders, and clothing have been ground into the wounds. However, cases of seemingly slight injury have been known to become infected with gas bacillus. It was found, too, during the war that the men fighting on richly fertilized soil were much more frequently infected than those where conditions were the opposite. Thus the proportion of infections in Flanders was much greater than in Italy, and in Russia it was comparatively rare.

The bacteria causing the condition are three in number, all of them anaërobic bacilli: (1) bacillus welchii or bacillus aërogenes capsulatus; (2) vibrio septicus, probably identical with the bacillus of malignant edema; and (3) bacillus edematiens. To these may be added a fourth,

bacillus sporogenes, which, although neither causal nor gas-producing, is responsible for much of the horrible odor so characteristic of the disease. Weinberg and Seguin studied 91 cases, all but two of which occurred in war wounds. They found no cases which were caused by the aërobic type alone. In 24 cases the anaërobic were accompanied by the aërobic. In 37 cases there was but a single anaërobic, and in 54 cases there was more than one. According to their frequency the bacillus aërogenes capsulatus was found in 77 per cent of the cases. The B. edematiens in 34 per cent; the B. sporogenes in 27 per cent; B. fallax in 16.5 per cent; the bacillus of malignant edema in 13 per cent; and many others in smaller percentage.

For the clinical classification of the different forms of gas gangrene, that of Weinberg and Seguin seems to me the most logical. They classify them into the following groups:

1. The classical type.
2. The toxic type.
3. Mixed types.

All these three may be complicated with the putrid varieties. These different types, or, what is perhaps a better way of putting it, these different pictures of gas gangrene, are probably determined by whatever particular organism plays the predominating part in any particular case. It is safer to look upon gas gangrene as a clinical entity, of multiple etiology, in which the most striking symptoms are not always the same.

The extremely rapid course of gas infection has been emphasized by all observers. Death has been known to follow within sixteen hours. Severe pain in the wound, fever, extremely rapid pulse, and great restlessness are early and important symptoms, usually appearing on the second or third day after the wound is received. In one of my cases the temperature went to 104° within six hours after the man was injured.

Color changes in the skin have been carefully studied and minutely described by Cuthbert Wallace. He first notes slight pallor owing to the blood being driven out; then a dirty creamy tint which he says is a sure sign of gas gangrene; next, irregular purple areas which enlarge and coalesce; then blebs; and finally yellow and green. I have no doubt that these changes follow in the sequence described, but in my cases they have come on so rapidly it was impossible

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to note them. If the infected muscles can be observed it will be noticed that they are first brick-red, then greenish, and finally black. There is always more or less swelling. Crepitus has long been identified with gas gangrene, but is not an early symptom. Wallace and Kenneth Taylor contend that the muscles become tympanitic long before they crepitate. The use of the *x*-ray would probably show gas under the fascia before either crepitus or tympanites was present. Interesting cases are reported, where by the use of *x*-ray for the purpose of locating foreign bodies or bone fragments gas has been found before any other symptoms, either local or general, were present. Some of these cases went on to a fatal termination.

The odor from gas gangrene has been variously described and likened to almost every other odor. I can say only that it is the most offensive and penetrating effluvium I have ever met with, and will penetrate every recess of a hospital floor.

The problem of treatment brings to our minds several questions. When a case comes to us with more or less crushing injuries, are there any signs or symptoms which might make us suspect or fear the development of gas infection in one case more than in another, and are there any prophylactic measures that we can make use of other than good surgery? Unfortunately, we have no proved weapon on which we can rely, like the antitoxin for tetanus. Various antitoxins have been made and used with some apparent success, but the fact that no particular vaccine is recommended by the profession and that the market is not supplied is at least part proof of their ineffectiveness. Recently a surgeon in Chicago found it impossible to procure vaccines, though I understand that one well-known laboratory has now promised to make the antitoxins and supply the market.

So it seems we have to rely principally upon good, clean surgery. If the history shows that the patient has lain on the ground, and there is dirt and clothing ground into the wound, this should all be carefully removed, all blood clots cleaned out, and all severely contused muscles and fascia cut away. With this history it is safer to leave the wound entirely open for a few days. If the wounds are closed and within twenty-four or thirty-six hours there is a rise of temperature above 101°, the patient complains of undue pain and is very restless with a rapid pulse, the dressing should be removed and the injured parts carefully inspected. If there is any suspicion at all the stitches should be removed, and the con-

tractility of the muscles tested. If symptoms of gas infection are present large longitudinal incisions through the skin and fascia should be made, and, if thought necessary, circular incision also to provide gas drainage. Payr makes a distinction between epifascial and subfascial or intramuscular gas gangrene, and says the first is relatively benign. It is probable in the epifascial type that this procedure would prove successful.

Gas gangrene is apt to be confined to one muscle or group of muscles, and the infection travels longitudinally. It was found therefore by the surgeons of the World War after considerable experience with these cases that by practicing débridement the number of amputations could be greatly lessened, and the mortality rate was greatly reduced. Dr. F. A. Besley, who had wide experience in France, states that it became their practice to cut away all affected muscles up to a point where there was definite redness, definite bleeding, and definite contractions. But in some cases, in spite of these more conservative measures the infection spreads rapidly, the patient becomes overwhelmed with toxins, and it is necessary to perform amputation or disarticulation well above the injury. No suturing of muscle, fascia, or skin should be done and the Carrel-Dakin solution made use of freely by approved methods.

CASE 1.—A young man was driving a truck around a gravel pit. The bank gave way, and the truck slid down the bank and turned over. The driver's leg was caught under the truck. It was some time before he was extricated, but he was removed to a hospital as soon as possible. He had a compound fracture of the tibia and fibula at the middle, with very extensive injuries to the soft parts, and there was a great deal of hemorrhage. Dirt and clothing were ground into the wounds. These were cleaned out as thoroughly as possible, and warm boric acid solution compresses were applied. Within six hours his temperature was 104° and pulse about 130. The next day all the classical signs of gas gangrene were present, and his condition was so grave that an amputation was at first thought unadvisable, though after consultation with a Chicago surgeon it was performed, but he died a few hours afterwards.

CASE 2.—Male, aged 19. When attempting to board a moving freight train for the purpose of stealing a ride, he slipped, and his foot was run over. He was put on a train and carried fifteen miles and then in an ambulance ten miles to the hospital. When he reached the hospital his temperature was 101°, pulse 116. The foot was amputated at once at the tarsometatarsal joint and covered with what appeared perfectly healthy flaps. The patient was very restless that night and complained of severe pain. The next morning his temperature was 102°, pulse 140. On examination there was found swelling of the stump, discoloration, and other evidences of gas infection. The stitches were removed and Dakin's solution used. The patient grew

rapidly worse, and on the third day after the injury a second amputation was performed at the junction of the middle and lower thirds of the leg. This seemed well above the line of infection, and we covered the stump with flaps. By the next day the gangrene had jumped as far up as the knee or a little above. His condition was so serious we felt it was useless to amputate again. We kept up Dakin's solution and used stimulants freely. On the ninth day after the injury his general condition seemed somewhat improved, and we decided to make one more attempt to save his life, and we amputated at the junction of upper and middle thirds of the femur. The operation was done as rapidly as possible and the wound left entirely open and kept irrigated with Dakin's solution. The patient went on to recovery, and on the twenty-first day we resected the bone a little higher up and covered with muscle and skin, giving him a good stump.

CASE 3.—A truck carrying a large number of men to their work was struck by a train in the morning of June 5, 1922. Several were instantly killed, and as coroner of the county I investigated the accident. In that way I became interested in the case. This man was taken to the Highland Park Hospital, and it was found he had a compound fracture of the lower end of the tibia and fibula. He was suffering from shock and was given camphorated oil and normal salt solution. The next morning at 9:00 A. M. his temperature was 103°, pulse 150. The foot was warm, but there was slight ecchymosis extending two inches above the wound. There was a black-grayish discharge with very foul odor. There was no emphysema. Gas gangrene was suspected. At 11 A. M. positive gas gangrene was present, and emphysema four inches above the wound. The leg was opened wide to good tissue up to four inches above the knee. The patient's condition was too grave to warrant amputation. During the night the temperature went to 106°, pulse 160, and he died about midnight, thirty-nine hours after being injured.

In conclusion I wish to emphasize the possibility of saving many limbs in these cases by practicing thorough débridement, as shown by the results obtained during the latter part of the World War, and, when amputation is done, the advisability of doing the "guillotine" operation.

DISCUSSION

DR. CLARENCE C. DEL MARCELLE (Necnah, Wis.): We recognized two forms of gas gangrene in the army. The real acute type developed twenty to twenty-four hours after the injury, and the mortality rate in those cases was about 100 per cent. Then we had other cases that developed the symptoms usually two, three, or four days following the injury, in which the mortality rate was much less, depending upon the time they were operated on. In those cases operated on within twelve hours after the injury, the mortality rate was something like 4 per cent; in those operated on twenty-four hours after the injury the mortality rate was somewhere about 30 per cent. We were more concerned with preventing the condition than in treating it.

I happened to be with a front line organization, and we were taught to do a complete débridement in all cases, and we got away with it in pretty good shape with the exception of our July work near Soissons, when

the wounded men were delayed in getting back to our dressing station. At that time the roads were being used for transporting troops, supplies, etc., and we did find a great deal of gas gangrene developing in the cases that did not get back to the dressing station soon enough, especially when the wound was of one of the lower limbs, the reason probably being contamination. We found that men who had been wounded with fragments of shell developed gas gangrene more frequently than did those shot with rifle or machine-gun bullets. We thought the reason for this was that the shell exploded, hit the ground, and then hit the man, whereas the rifle or machine-gun bullet would hit the man direct. In July we had to do amputation in the majority of these cases. After amputating we did not sew up the stump, but packed it with peroxide of hydrogen and sent the cases back to the hospitals in the rear. I never found out just what became of them or what the percentage of recoveries was. We kept them for twenty-four to forty-eight hours and then sent them back, and 45 per cent of cases showed improvement while the patients were with us, so we thought they probably got along all right.

In the cases of gas bacillus infection which terminated fatally, it was our belief that sapremia was the cause of death, because it was found that the majority of cases had septicemia in addition to the gas bacillus infection. The temperature was much higher than one would expect to find.

In regard to the use of serum in cases of gas gangrene: We knew nothing of it; I never saw it used. It is a prophylactic similar to tetanus antitoxin.

The Belgian soldiers developed a great deal of gas gangrene, and upon investigation it was found to be due to some infection in their clothing. The men that were shot, no matter in what part of the body, with clean wounds, developed gas gangrene. The laboratories finally traced the trouble to some defect in the material from which the uniforms were made.

DR. ROSCOE C. WEBB (Minneapolis, Minn.): The value of a complete débridement, such as was carried out on wounded men in the late war, cannot be too strongly stressed. Although my experience in railway surgery is very limited as compared to that of many of those present, it now covers some six hundred and fifty cases. In those cases presenting lacerated wounds ground with dirt, etc., a careful débridement operation combined with the Carrel-Dakin treatment gives a rapid recovery and greatly reduces possible complications.

During the war the experienced nurses were of the greatest aid in diagnosing gas gangrene. When gas gangrene begins it often spreads rapidly, and in a very few hours a patient apparently well is in serious danger. The nurses in passing from bed to bed noted the change in the patient's condition, looked at the dressing, and notified the surgeon. Invariably their diagnoses were correct. The sudden increase in the pulse rate is a very valuable sign, more so than the temperature.

The statement has been made that a patient was in too serious a condition to be operated on. This is of course possible, but if the gangrenous tissue is not removed the patient will die in a short time, and if it is removable at any time it should be removed when affected by gas gangrene. I recall the case of an American soldier placed upon my operating-table one night during the Argonne-Meuse battle. His buttock on one side was almost entirely gangrenous, and the

gangrene extended upward and across the midline to the loin on the opposite side. The patient was semi-comatose, and the case appeared hopeless. Dr. Howard Lilienthal, of New York, was doing chest surgery at an adjoining table, and I called him and asked his advice. He said, "I would operate on him and finish the operation if he died on the table." He did not die on the table. He was an Italian coal miner in civil life from somewhere near Pittsburg, and when, to my surprise, I found him next morning looking bright and greatly improved, I asked him where he lived in America. His eyes gleamed, and he smiled and said "Two dollars from Pittsburg."

In gas gangrene of an extremity the prognosis depends largely upon the blood supply remaining after the gangrenous tissue has been removed. This was illustrated by a soldier who had been wounded by a machine-gun bullet in the arm with destruction of the brachial artery resulting in gas gangrene. After doing a so-called "pyramidal débridement" the arm was in good condition, and the anastomotic circulation was sufficient for about thirty-six hours, when gas gangrene developed near the elbow, and it was necessary to amputate. The slender blood supply afforded by the anastomotic arteries was insufficient to resist the least invasion by the gas bacillus.

In a similar manner when men were shot with a machine-gun or with high explosive in the legs and the

missile passed between the bones it often carried away both the anterior and the posterior tibial arteries, and gas infection followed. The anastomotic circulation afforded mainly through the peroneal artery was not sufficient to prevent a recurrence of the gas gangrene after débridement, and amputation became necessary. With either the anterior or posterior tibial arteries intact the leg could often be saved by débridement.

In regard to the use of Dakin's solution: Some very interesting experiments have been carried on at the Rockefeller Institute in which pigeons had the toxins of gas bacillus injected into their breasts, and the next day when we examined the dead pigeons the breasts were found to contain a fluid which resembled in appearance the brownish gravy of a pork roast. If the toxin was mixed with Dakin's solution and then injected into the pigeon's breast the pigeon recovered. For that reason those of us who saw the results of these experiments were of course very anxious to see that our patients were well supplied with Dakin's solution. This solution does not penetrate very deeply, and gas gangrene works in the dark under anaërobic conditions.

I should hesitate to inject peroxide of hydrogen for fear it might push the infection farther. I recall one case that occurred before the war in which oxygen was injected, and the patient died from the effects of the gangrene.

DIAGNOSIS AND TREATMENT OF HYPERTENSION*

BY HENRY L. ULRICH, B.Sc., M.D.

MINNEAPOLIS, MINNESOTA

In going about visiting clinics the most valuable thing we get is the method used, the way certain diseases are approached, and the means used to combat these entities. To-day I want to talk to you about our point of view,—diagnosis and the treatment of hypertension.

In 1920 the mortality statistics ranked heart disease beyond tuberculosis and cancer as a cause of death. The commonest factor in heart disease in adult and mature years is hypertension.

There are many theories regarding the cause of hypertension. We do not know what brings about the spasm of the arterioles in the precapillary areas. The haste, the psychology, and the diet of occidental peoples are suggested. We are getting reports from the Orient (China) that hypertension is an exceptional condition. Constitutional inferiorities of the vascular, nervous and endocrine systems have been suggested. That there is a familial tendency there is no doubt. Our histories are constantly suggesting the hereditary factor. A certain group in women crops out at the menopause. Something occurs in

women at the cessation of menstruation which causes a spasm in the precapillary areas of the arterial tree. Much of the confusion concerning chronic nephritis and essential hypertension lies in the fact that we find a state of high blood pressure in nephritis. The teachings of Volhard and Fahr have done much to confuse the issue. Not so many years ago we were diagnosing most of our chronic hypertensions with insufficiency of the kidneys as cases of renal disease. In this part of the country we are sharply distinguishing these two conditions; and we owe much of this clearness in differentiating the two entities to the intensive studies of Dr. E. T. Bell, Professor of Pathology, University of Minnesota.

Clinically chronic nephritis can be distinguished from hypertension by various ways. Primarily nephritis is a rare disease. Hypertension is exceedingly common. The incidence of nephritis is in the earlier decades and hypertension in the later decades. Nephritis entails a history of infection, fever, leucocytosis, recovery with a fall in blood pressure, or, if there is chronicity, with a tendency to a rise of blood pressure. Hypertension is insidious and is discovered by accident

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or at the time of cardiac insufficiency, which may take years. The process in the kidney in hypertension is purely degenerative, not inflammatory, as in nephritis, and by laboratory methods is recognized by the absence of retention of metabolites, whereas in nephritis there is retention of waste products. The eye-grounds are different. In hypertension there is a tendency to tortuosity with sclerosis and hemorrhage; in nephritis there is a tendency to exdate and retinitis. The causes of death are different. In hypertension in 60 per cent to 80 per cent it is due to heart failure; the other 40 per cent to 20 per cent are divided up into incidences of vascular accidents, involving hemorrhages in the brain and encephalomalacia; and a small group, 6 per cent to 10 per cent, to a terminal nephritis (the malignant hypertension of Volhard and Fahr). In nephritis the death is due to uremia or terminal infection. It is exceptional to have a death caused by heart failure in nephritis. The patient does not live long enough for this to occur.

Let me define what we mean by nephritis in this part of the country. Nephritis is an acute infection of the glomeruli of the kidney. It is a diffuse process, and, as you know, since the glomerulus is the key to the circulation of the kidney, any modification of the circulation in this part of the kidney affects the tubular areas. So that we recognize only one kind of nephritis, that is the glomerular type. We, therefore, do away with the various forms of parenchymatous and interstitial nephritis and only recognize the glomerular type. This form must be distinguished from other infections of the kidney, such as pyelonephritis, focal infections of the kidney, and the nephroses or the toxic states of kidneys. In none of these do we find a rise of blood pressure.

I have been fortunate to have a series of cases on hand which I will show to you to illustrate the effects of the syndrome of high blood pressure on the various organs of the body, at the same time illustrating to you the differentiation of the two syndromes, that is, of nephritis and of hypertension. After showing the cases I will throw on the screen some illustrations which point out strikingly the mode of death, the age incidence, and the anatomical changes in the kidney in the two diseases. These illustrations have been elaborated by Dr. Bell from 4,000 autopsies done by the pathological department at the University of Minnesota.*

*The slides shown are not given on account of lack of space.

The first patient I wish to show you is Mr. L., aged 65. This man had six or seven admissions to the General Hospital, coming each time with dyspnea and some ascites, clearly a case of heart failure. His heart is enlarged, at times a systolic murmur is heard at the apex, sometimes this murmur does not obtain. At the present time he is free from ascites, or edema of the extremities. His blood pressure has varied from 160 to 120 systolic, the urine showed two plus albumin and occasional casts. His kidney function tests are normal, and his blood chemistries have always been practically normal. In looking at a six-foot plate of his heart we notice the enlargement in all directions. But it is not the shape of a heart due to valvular disease, but one due to hypertension,—in the third stage of the hypertension heart. If you recall the dynamics of hypertension the extra work of the heart falls on the left ventricle; this gradually hypertrophies, and we get a typical shadow on a six-foot plate, which gives the heart a characteristic outline, namely, the "boot-shaped heart." Now, as the heart fails the left ventricle dilates, producing insufficiency of the mitral valves. Now we have introduced as a new factor in the hydraulics of the heart back pressure on the right side, which entails extra work on the right ventricle. When this side fails we have dyspnea, edema, ascites, etc., just as we do in defects of the mitral valve. Hence a heart in a chronic state of this kind enlarges not only to the left but to the right also. After we had decided by the shape of the heart that he was in the late cardiac stage of hypertension, we went back over his records and found that he had been at the University Hospital in 1917. He entered the University Hospital with anasarca and edema, with a blood pressure of, systolic, 200; diastolic, 140; phthalein and blood chemistries, normal. The case at that time was diagnosed chronic interstitial nephritis and mitral disease. He improved. In 1920 he entered again with the same symptoms including high blood pressure, general edema, enlarged heart and liver. The kidney function test was again normal. The diagnosis at this time also was *chronic interstitial nephritis* and cardiac decompensation. You see this man now with a normal blood pressure, enlarged heart, and in a state of cardiac exhaustion, which entails living in bed or in a chair, as the minute he moves about he develops edema, dyspnea, and all the grave signs of cardiac insufficiency.

This man has outlived his blood pressure so to speak. He illustrates very nicely and completely what I have been talking about. The events and records of the years prove conclusively that he never was a case of nephritis, that he has purely and truly suffered these many years from hypertension. Why has he no pressure now? There are two explanations for this. The first, which is the more logical is that this man's heart cannot carry his pressure any longer. Many hypertensives' pressures go down when the heart is too fatigued to carry it. The other explanation is that his vessels have had superimposed on his sclerosis the senile changes which do not permit spastic activity. From elastic tubes they have become stiff and brittle.

CASE 2.—Mr. A., aged 45. Family history. Mother living and well; father died of heart, liver, and kidney trouble. One sister living, has a high blood pressure. His mother has high blood pressure.

Present illness: Has had shortness of breath for five or six years. A year ago he was admitted to the hospital for nose bleed. He had then a blood pressure of 210, with the symptoms of shortness of breath and vertigo. There is a past history of syphilis.

Physical examination showed the following conditions: heart enlarged in both areas; blood pressure, 200-145; blowing murmur at the apex; diastolic murmur in Cole's area and bases. Bruit de Tabourka is present. Liver is visible and palpable 4 cm. below the costal border and is fairly hard. Spleen is not made out. Laboratory tests gave a normal chemistry, negative urine except for a trace of albumin and a negative blood picture.

This man's plate is but an earlier form of the previous case. He has suffered now for five or six years with edema of the extremities and shortness of breath. He is a much younger man than the previous patient and gives a familial history of hypertension. He has been overweight for years and illustrates very well the type which is so common in this syndrome, the alert, active, too active for their own good. He is an American business man. You will note his chemistries are normal. There is the added problem of aortic change due to syphilis.

This man has had no changes in his arteries except the aorta, and yet he is not far behind the previous patient in so far as his cardiac efficiency is concerned.

This brings us to a point. How do we adjudicate this efficiency as measured in a prognosis? In other words, what sort of an evaluation can we make when a patient comes to us regarding his cardiac career? We have turned to the electrocardiograph for help on this point. If we find that these patients have a normal type of tracing our prognosis is far more rosy than the one whose tracing shows such abnormalities as the inverted T in the first and second leads or a delayed induction in the Q.R.S. complex. Either abnormality we assume spells some change in myocardium of a degenerative kind. So that by this means we can give a man a favorable or unfavorable view of his future. In this case you will note there is an inversion of the T wave in all three leads, and he has a minor variation in his Q.R.S. complex. So that the outlook is not very favorable as far as longevity is concerned.

The first man's electrocardiograph is of a different type. There is no inversion of his T wave, although his lead one shows a diphasic T. But there is a low voltage of his heart which can be interpreted as a form of myocardial insufficiency or fatigability.

CASE 3.—Mr. S., aged 37. Complaint: dyspnea, cough, and spitting of blood.

Family history: Father had hypertension and a stroke at the age of 64. He is still living at the age of 68. Grandfather died at the age of 54, also a hypertensive and with the complication of diabetes. Mother is living and well. There are four brothers living and well, and two sisters also living and well. Past history shows that his health has always been good with the exception of typhoid fever in 1912. He first noticed his shortness of breath in 1914, when he found he could not walk up hills while on a hunting trip. He rested a few

weeks, and the dyspnea disappeared. At this time there was some nocturia.

The present illness began with shortness of breath in May, 1923, in Idaho. He became progressively worse. Had great difficulty nights, could not sleep for nervousness and shortness of breath. He was in bed three weeks. Some nights he had to sit up all night in a chair. The laboratory gives normal chemistries; urine, negative except for a trace of albumin and occasional hyaline casts and also fine granular casts. The blood picture showed leucocytosis, 15,000 on November 19; 10,700 on November 25; 25,500 on December 4; and 17,300 on December 11. His temperature has gone to 103° and 104°. The physical examination on this man gave some edema of extremities and parietes. The heart is enlarged in all directions. The cycgrounds show tortuosity.

This man is the youngest in our series. He shows beautifully the familial strain. Unfortunately his electrocardiograph has been lost. Besides his hypertension and cardiac insufficiency he has an infection. Associated with this, there are infarcts in his lung. You can see these in his chest plate filling the right lower lobe. The skiagram also suggests fluid in the side of the chest. We were unable to verify this by needling.

The prognosis in this case is exceedingly grave. Infection in hypertension usually affects the myocardium, causing great inefficiency. He may get a superimposed nephritis, which is usually fatal. It may be the infarcts are infected, in which case they may break down into abscess cavity. Time only will tell the story.

CASE 4.—Mr. C., aged 43. Complaint, fatigability, occipital headaches, dizziness, and sexual weakness.

The past history is negative except for measles at the age of 21, when he was very sick. This was followed by a mastoid abscess with the middle-ear drainage. Present illness: There has been gradual appearance of symptoms for one year, with the headaches first, then the dizziness, then fatigue. Physical examination was entirely negative except that the heart percusses to the left, and his blood pressure was 220-140. Laboratory findings were negative as to blood chemistry; blood picture, negative; the urine showed many casts, both hyaline and fine granular.

This man again illustrates the type of the over active hypertensive. Besides working in a law office during the day he has played in a band nightly and on Sunday. The case had been diagnosed nephritis previous to his arrival in this hospital. His blood chemistry is normal, however. Possibly this diagnosis was made on his urinary findings of hyaline and fine granular casts and the presence of albumin. He is a pure hypertensive.

His prognosis according to the electrocardiograph is not very good. He too, shows inversion of his T wave in all leads, and his Q.R.S. complex in the third lead is distinctly splintered. His eye grounds show the early tortuosity of hypertension. Although quite young this man no doubt will have a cardiac breakdown unless he lives within the limit of his cardiac reserve. This reserve is very narrow.

CASE 5.—Mrs. S., aged 60. Complaint: high blood pressure and pain over the precordium.

Family history: Father died of apoplexy; mother living and well at the age of 84; one brother died of tuberculosis; one brother died of typhoid fever one sister died of heart disease; one brother has a high blood pressure at the age of 54.

Past history: She was always a healthy girl. She had puerperal sepsis at 22. At 48 she was operated on, both ovaries and appendix being removed. Following this operation she developed heart disease. Her blood pressure was 150. She was in bed two months at this time. Again at the age of 50 she was in bed seven months. The blood pressure at this time was 190. Her condition at this time was diagnosed endocarditis and pericarditis. A tonsillectomy was performed at the age of 54, and all her teeth removed except three. She has had high blood pressure since the age of 50. At 41 she noticed heart symptoms after the birth of her second child. She has never had edema. Her best weight has been 200 pounds and the least 140 pounds. The laboratory findings were a trace of albumin in the urine, with occasional hyaline casts. The blood picture was negative, and the blood chemistry negative.

This woman is to my mind in a better state of preservation than the last three cases, although fifteen to twenty years older and although she has had hypertension ten to twelve years. She gives an interesting history. First her hypertension supervened at the introduction of her menopause, and again she had some condition diagnosed pericarditis and endocarditis at the age of 50. It seems some mistake must have been made at the time, for she shows no evidence of valvular defects nor of any pericardial adhesions. It is more likely that she was suffering at that time from myxedema and hypertension. At that time she was greatly relieved by thyroid extract. She is taking this now. Her electrocardiograph indicates no change in her T wave, although there is slight variation in her R Wave.

CASE 6.—Miss Van S., aged 23. Family history, negative. Past history, negative. Following an acute attack of otitis media and mastoiditis in March, 1922, the patient developed an acute nephritis and hypertension accompanied with fever. In April there was the first generalized edema. The blood chemistries showed increased retention bodies, and there were the usual urinary findings of casts, albumin, red blood cells and leucocytes. She gradually cleared up, was sent out of the hospital for a rest. Four months later, in September, she returned having gained thirty-one pounds. Her blood pressure varied between 130-145. The urine and blood chemistries are now normal, and she is completely restored and as solid as a rock.

This nurse has been under observation bimonthly since her nephritis. There is no increase of the

blood pressure at the present, although she does at times show albuminuria. This may be explained by error in diet or that the margin of her renal reserve is small. She is the only bona fide case of nephritis I can show you, and you will note by all appearances and by her records as well as by her daily tasks, she is fully restored.

The treatment of nephritis is essentially different from hypertension. In nephritis we need rest and a low protein diet; in hypertension while rest is essential it is only measured by the efficiency of the heart. There is no particular diet in hypertension, except one which will bring about the greatest efficiency of the patient. This is by no means a low protein diet. The tendency to starve these patients is a prevalent custom. Starvation reduces cardiac efficiency of course and with its reduction often a fall of pressure is noted. The patient's pressure is improved but his condition is in reality worse. His cardiac reserve has been reduced. Of course overweight people need reduction in weight and a suitable diet toward this end is advisable. An undernourished man should be fattened by appropriate measures. The salt-free diet of Allen is certainly to be condemned as inadequate. Salt retention has nothing to do with hypertension.

How to combat the vascular accidents of hypertension is not known. Accurate and prolonged observation of a case will tell one pretty closely which way the decisive factor toward death is working. It has been said before 60 per cent to 80 per cent of the hypertensives will go by way of heart failure. For this reason we should follow the rule of treatment mentioned in the previous paragraph. The superimposed factor of senile changes in vessels already sclerosed by hyperfunction are too subtle to combat. There is only one outstanding factor which may put off but not prevent vascular accident. It is the constant reiteration of the advice to avoid all excitement, all sudden or prolonged exertions, all situations which demand quick mental or physical changes. It is needless to say that such a rule implies a re-education of the patient's habits,—a bit of therapy which is almost superhuman.

AUTHOR'S NOTE.—Three patients have died since this clinic was given; the three men are dead, and the two women are living.

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THE DOCTOR'S PHILOSOPHY OF DEATH

In dealing with this topic it perhaps would be well to quote from an authority (Nathan) on the philosophy of life: "It is in simply merely this, to forget the miseries of the past, remember only its charm; to live the present to the limit of its utmost possibilities, and to view the future as one who has traveled romantically in a colorful far country views the skyline of his nearing homeland, with a sense of great content and slightly sad resignation."

The doctor's philosophy, of course, must extend, not only from the beginning of life, but to death itself. And he probably agrees with Mark Twain who, when he heard of the death of a friend who had had more or less trouble in the world, said that his friend must be at peace. Doctors become more or less indifferent to life and death, naturally, as they see so much of them, and yet their indifference is simply a cloak which is worn for the protection and sometimes the comfort of others, an assurance, perhaps, which enables them to carry the patient through and to show their sympathy to the family by their kindly deeds and their efforts to save life, not necessarily to prolong life in those who are chronically invalided. Doubtless there are many times when the doctor feels that death would be

a very welcome thing to many of his patients and to members of a patient's family; but he is not permitted, nor does he choose, to express his opinion of euthanasia.

The writer believes the average physician looks upon his own life from much the same angle as he does upon the lives of others; that is, if he has been of material aid to the sick, has created a certain amount of happiness in the world, and has conscientiously endeavored to practice his profession in a manly way, he feels that when his time comes he may not find death unwelcome. We all know of doctors who are afflicted with chronic diseases, sometimes with diseases which are soon fatal, and they expect, in the course of time, in the near or far future, to lay down their lives according to circumstances.

The average man will express himself as being ready and prepared, and regards death as did one of the Frohmans who was on the Titanic, and who, when he saw the inevitable sinking of the ship, spoke to some frightened and nervous man and said, "Why worry about this? Death is a great adventure." So it is. We all know men who are afflicted with diseases which sooner or later will cause death, and we, as a profession, are not very much surprised when we hear of a colleague who has been called away. We remember him for a certain length of time. Some men are remembered for a month, some for years; the latter, however, are few in comparison with the former. That was old Samuel Johnson's idea when, in one of his paragraphs, he suggests to a friend to see that his bills are paid, that his club dues are settled, to make all his necessary arrangements and also to consider that he will be remembered for about a month. However, Samuel Johnson still lives in the hearts of all reading people. The man who meets death face to face calmly, without emotional disturbance, who seeks to leave a comforting impression behind him, is the man who stays in our memory longest.

Notwithstanding our seeming indifference to the approach of death, we must be of a speculative mind, speculative as to how long our diseases will last, of the effect they will have upon us personally and individually, what the result of a certain turn in affairs might be. And we realize, too, that when death approaches it is usually in a kindly, simple, and comfortable manner. Our consciousness is more or less dulled, we are not worried by anxiety and fears as to the future except for those whom we leave behind, and it is probable that we even omit the latter part of it and, as others do, think mostly

of ourselves. So death, then, is not such a horrible thing as one might imagine, and those who have witnessed death in its various forms will tell you that sometimes it is accompanied by great thankfulness, a great relief for the man who has died, that he is safe from trouble and the worries and perplexities of the world and takes the ship "Outward Bound" philosophically.

MEDICOLEGAL REVISION SOUGHT

At a recent meeting of the Professional Men's Club, the subject of litigation and the employment of reputable witnesses was up for discussion. It presumably included all sorts of expert witnesses, from a sanitary engineer to a construction engineer, and including railway accounting engineers, street car experts, and, last but not least, medical men who are assumed to be experts. At the meeting above referred to, a resolution was adopted and a committee appointed to draw up plans and recommendations to lay before the next legislature a plan to clear up the expert testimony situation. It is safe to say that it is probably based on the assumption that most experts are employed for one side or the other, a very logical and strictly truthful assertion; for no man can go on the witness stand under the present conditions and be an unbiased expert witness. His unconscious mind is telling him that he is employed by one side, and he, unconsciously again, feels that he must do his duty to the side that calls him and pays his fees, all of which has been common practice for innumerable years. In some states, however, there has been a change as regards the expert and this refers particularly to the medical expert. In New York, for instance, it is possible for the judge to appoint expert witnesses to either sit with him or advise him as to the nature of the case, its diagnosis and prognosis. They, of course, do not attempt in any way to dictate what the findings may be or how much the damages are to be assessed, but they may and probably do express their opinions as to the percentage of usefulness that the patient has lost or the percentage that he retains. This is all very well, but there are not many courts that exclude either side from employing as many witnesses as they choose, except in the busier courts of a large city where there are countless damage suits constantly being brought to the attention of the court. There it is necessary to expedite matters as much as possible, and the presiding judge, as a rule, does not permit either side to ask more than the questions that are absolutely necessary to establish or refute the claim of the plaintiff or defendant. But

in the courts of the West such a procedure would not be permitted; as a matter of fact, some of our cases in which witnesses are employed drag on for many days when they might readily be settled by a simpler system.

The assertion was made at the Professional Men's Club by an attorney, H. D. Park, that expert witnesses are of two classes, those who give evidence from conclusions made after investigation and those who, given a hypothetical set of facts, formulate a reply as to what should happen under given circumstances. Very naturally the hypothetical side of the case is not of much value, and is introduced simply in an effort to cover the testimony presented or to give the witness enough latitude so that he can answer it any way he pleases, even though it includes all the testimony. Yet a man who gives such an opinion is like the one who prescribes for a patient in another city; he is given some of the facts and some of the symptoms, but knows nothing of the individual, has made no personal examination, yet he attempts to prescribe a remedy. Mr. Park also suggested that expert testimony was "simply bought," and that each side may produce such conflicting evidence that "often judges and juries are forced to throw it out altogether." This is becoming a pretty well established custom at the present time. If there are four men on one side of the case and four men on the other, the jury is very apt to turn their attention wholly to the plaintiff or defendant, as it may happen, and decide from their own point of view.

This new committee want to change the law, and the members who are evidently discussing the situation suggest "the conduct of our courts allows the attorneys more latitude in questioning the witness than it allows the witness in answering. Legislation should be in force that would permit the court to ask the expert for advice rather than have experts testify on either side." As has been said before, the possibility of eliminating bias is almost negligible. Two physicians were present at the meeting and discussed it. One man said, "no physician is qualified to be an expert on more than one or two subjects, yet some physicians do act as expert witnesses in a good many different lines of work." It was suggested by the medical men that this sort of thing should be regulated. To the writer it seems a very difficult proposition, for there are many men who are good, old-fashioned country practitioners and who are obliged to be "experts" in almost everything, and their observations and their deductions are not to be lightly set aside simply because they are general practitioners. Not in-

frequently they know much more than the so-called specialist.

One of the doctors said, very truthfully, "We often feel when on the stand that we are not allowed to tell the whole truth because the attorneys on one side or the other object to certain testimony." That seems to be the crux of the matter. The medical man who testifies and who does not understand the legal tangles in which he may be involved, feels that the lawyer asks altogether too many questions, and the other lawyer objects; and the man who has been on the witness stand a good deal is satisfied that he cannot fully express his opinion without being interrupted or even ridiculed, yet he may be perfectly honest, reliable, and straightforward in his testimony.

This matter will be referred to from time to time and doubtless will come to the attention of the committee on legislation of the Minnesota and other State Medical Associations.

DR. KNUT HOEGH

Thirty-seven years ago there came from the University of Christiania, Norway, a graduate of the year 1869, Dr. Knut Hoegh. He was born at Trondhjem, Norway. The year of his graduation he came to America, and in 1870 he began practicing in LaCrosse, Wisconsin, where he remained for eighteen years. He came to Minneapolis in 1888 and had been in practice here for nearly thirty-seven years except for the last two and a half years when he was ill at his residence, 131 W. 36th Street.

When Dr. Hoegh arrived in Minneapolis he immediately created the impression that he was a man among men and a surgeon among surgeons, and that impression was sustained throughout his career here. He became identified with St. Barnabas Hospital and most of his surgical work was done there, and for some time he was chief of the staff. He was also a Fellow of the American College of Surgeons. He had a very large practice not only among his own countrymen but among all nationalities, and for many years.

He did a great deal of work for the Norwegians of this country, and in recognition of his distinguished service, he was decorated in 1906 with the Order of St. Olaf by King Haakon, of Norway. During that time he was President of the Norwegian Society of Minneapolis. He leaves a wife and three daughters, Mrs. E. C. Kibbee, of Minneapolis, Mrs. Charles J. Bell, of Bronxville, N. Y., and Mrs. F. M. Ayres of Indianapolis.

Dr. Hoegh, it may be safely said, was a prominent character in the Northwest. He was exceedingly gracious and co-operated heartily with his fellow medical men and was respected by everyone who knew him whether they liked him or not. He was a very forceful man, keen in surgical diagnosis, an operator of repute, and a man of very high principles. He was a devoted member of the Hennepin County Medical Society and the State Medical Association during the active period of his life. He was rather blunt in his speech, but never gave offense intentionally. He was very positive in his knowledge and opinions, and consequently retained the admiration of his colleagues.

BOOK NOTICES

THE SURGICAL CLINICS OF NORTH AMERICA (Issued serially, one number every other month). Volume V, Number I (New York Number—February, 1925). 294 pages with 142 illustrations. Per clinic year (February, 1925, to December, 1925). Paper, \$12.00; cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1925.

This volume contains many of the clinics presented at the 1924 meeting of the American Congress of Surgeons, those not appearing in this number being published in April. Among them is a clinic by Pool, of the New York Hospital on Exophthalmic Goiter, including papers by his assistants on diagnosis of thyrotoxicosis, the heart with thyroid disease, and ante-operative therapy. They are using Lugol's solution pre-operatively and have reduced very markedly the number of ligations necessary. Digitalis is used for decompensation in the thyrotoxic cases, but no comment is made of its use in toxic adenomas. A number of case reports are given also.

Dr. A. A. Berg, in discussing "Surgical Cure of Gastric and Duodenal Ulcer," strongly favors partial or subtotal resection of the stomach and duodenum, as opposed to gastro-enterostomy, sleeve-resection, excision of the ulcer, etc.; and he describes his operation.

Dr. Coley presents a number of sarcomata of the long bones treated by combinations of his mixed toxins of erysipelas and bacillus prodigiosus, radium and x-ray and surgery. Some of his results are very remarkable.

Dr. J. J. Moorhead's clinic included five traumatic cases,—fractures and lacerations. In his fractured femurs he advocates traction by means of a nail transfixing the lower fragment, keeping it in only until the desired traction is obtained, then removing it and substituting plaster-of-Paris until union is solid, and finally substituting for that a walking callipers.

Dr. Francis Carter Wood presents a number of cases of malignant disease treated with x-ray and concludes that although he has had disappointments the palliative value of x-ray is so great that he is enthusiastic in its use. Besides these there are clinics on diseases of the thorax, genito-urinary system, blood and blood-forming organs, etc.

—H. B. SWEETSER, JR., M.D.

THE NORMAL DIET. A Simple Statement of the Fundamental Principles of Diet for the Mutual Use of Physicians and Patients. By W. D. Sansum, M.S., M.D., Director of the Potter Metabolic Clinic, Department of Metabolism, Santa Barbara Cottage Hospital, Santa Barbara, California. Illustrated. St. Louis: C. V. Mosby, 1925.

While intended primarily for the information of the patient concerning normal dietary requirements, the physician will be very well repaid by acquaintance with this brief treatise.

On account of his understanding of nutrition, the author has been able to discuss clearly and simply the requirements of the body in calories, protein, bulk, acidosis, minerals, water, and vitamins. The discussion includes underlying principles and practical applications.

—C. A. MCKINLAY, M.D.

PHYSICAL DIAGNOSIS. By W. D. Rose, M.D. Cloth; pages 755, with illustrations. Price \$8.50. Fourth edition. St. Louis: C. V. Mosby Company, 1924.

The fourth edition of this well-known physical diagnosis has been changed only in minor ways. The arrangement has remained the same, that is, a more than usually complete chapter on clinical anatomy at the beginning of each section followed by discussions of the physical signs separately with the underlying pathology, and finally the signs grouped together under each disease.

There is a chapter on diagnosis of abnormalities of the heart beat with a much simplified, but very understandable, discussion of electrocardiography.

The sections on the head, neck, and extremities are fuller and more generously illustrated than is the rule in such a book.

In this edition new illustrations have been added and old ones discarded. The book is prepared for the student and was evidently written with a view to leaving out complicating factors and conflicting opinions as far as possible.

—H. B. SWEETSER, JR., M.D.

THE TREATMENT OF KIDNEY DISEASES AND HIGH BLOOD PRESSURE. By Frederick M. Allen, M.D., Part I. Practical Manual for Physicians and Patients. The Physiatrie Institute, Publishers, Morristown, New Jersey, 1925.

The writer has presented the subject of renal vascular disease for the practicing physician. Part II; intended for the use of the patient as a manual of guidance of home treatment, might well be placed in a separate volume.

The author stresses the renal-vascular diseases as constituting the leading present-day medical problem as respects both prevalence and apparent increase of morbidity and mortality. The disturbances involved are essentially nitrogen retention, edema, and hypertension. The important remedies are considered to be protein and salt restriction. An aggregate of millions of years can be added to human life by the correct application of these rational measures.

Chapters are given to laboratory procedures, including urinalysis and blood analysis, also to principles of diet with recipes, menus, and food tables, which add to its value as a reference compendium.

—C. A. MCKINLAY, M.D.

MISCELLANY

IN MEMORIAM—FLORENCE C. NICHOLS BAIER 1854-1925

Florence C. Nichols Baier was born at Columbia, Ohio, September 21, 1854, the daughter of George Lewis and Elizabeth Adams Nichols.

She entered Oberlin College in 1871 and received there the degrees of B.A. and M.A. She taught in the country schools of Ohio and later in the Academy of Oberlin College during her college years, and after graduation she taught in Calumet, Michigan, Rochester, Minnesota, and Buffalo, N. Y., where she became Dean of the New York State Normal School.

In 1885 she married Rev. Leo. Baier, President of Hannibal College, of Missouri. Following his death two years later she became a teacher of Latin in Minneapolis Central High School, and during this time pursued the study of medicine, graduating from the Hamline College of Physicians and Surgeons in 1897.

She practiced in Owatonna, Minnesota, 1898-1900, and for two years was resident physician of the State Hospital for the Insane at Jamestown, N. D. Since 1902 she had carried on a general practice in Minneapolis until about a year ago when failing health forced her to give up her work. She died October 3, 1925, at the age of 71, after a month's illness in bed at the home of her daughter in Batavia, Ill.

She is survived by a sister, Mrs. Elizabeth Bentley, of Minneapolis, and a daughter, Mrs. C. E. Ward, a well-known author, of Batavia, Ill.

Dr. Baier was a member of the Vine Congregational Church. She was a member of the Hennepin County Medical Society, the Minnesota State and American Medical Associations, as well as a number of college, alumni and teachers' organizations. She was permanent secretary of the Oberlin College Class of 1875. She had from her earliest youth been an ambitious student and an enthusiastic educator, carrying her studies into her adult years. After her years of actual teaching were over she gave generously of her time, talents and energy to numerous educational organizations and institutions and identified herself particularly with all movements for the political and professional advancement of women.

J. C. MICHAEL,

J. H. SIMONS,

OLGA S. HANSON, Chairman,
Historical and Necrologic Committee,
Hennepin County Medical Society.

NEWS ITEMS

Dr. F. E. Kliman, of Winnipeg, Manitoba has moved to Duluth.

Drs. Raiter and Stuart, of Cloquet, have dissolved partnership.

Dr. A. G. Allen has moved from Deadwood, S. D., to Hot Springs, S. D.

Dr. J. A. Rankin, of Carrington, N. D., has gone to Los Angeles, Calif.

The Caine Hospital building at Morris has been remodeled, and the hospital reopened.

Dr. Elmer J. Williams, of Moose Lake, was married last week to Miss Iola G. Hart, of Salt Lake City.

Dr. Roy R. Knight, of Minneapolis, has returned from a two months postgraduate course in the East.

Over 800 pupils in the Sleepy Eye Schools were inoculated to check the spread of diphtheria in that city.

The pupils in the Parochial Schools of St. Paul will hereafter be examined as are all pupils in the Public Schools.

A five-story addition is to be made to St. Mary's Hospital building of Duluth at a cost of \$500,000. Work will begin early in the Spring.

The new addition to the Lutheran Deaconess Hospital of Minneapolis was dedicated last week with elaborate ceremonies. The addition cost \$150,000.

Dr. C. D. McCartney, who recently moved from Carpio, N. D., to Williston, N. D., has formed a partnership with Dr. E. J. Hagan, of the latter place.

Dr. J. C. Cummings, who recently became associated with Dr. D. J. McMahon, at Breckenridge, has decided to go elsewhere to do hospital work exclusively.

Dr. D. W. Craig, of Sioux Falls, S. D., has fitted up an eight-room residence to be used as offices, and his work will be done under the name of the Craig Clinic.

The citizens of Ada have determined that they will have a hospital, and an organization has been formed to establish one, which will be called the Norman County Memorial Hospital.

Dr. David C. Schmelzel, of Buffalo, N. Y., has been appointed Superintendent of the Miller Hospital, of St. Paul, to succeed Dr. K. H. Van Norman, who recently resigned the position.

Dr. B. I. Derauf has been appointed Surgical Associate in the Northern Pacific Hospital of St. Paul, to succeed Dr. Evert, who has gone to the Northern Pacific Hospital at Glendive, Mont.

Fifteen hundred health posters supplied by the Hennepin County Tuberculosis Association were displayed in the stores and factories of Minneapolis last month. Great is the work of the Christmas Seal!

Dr. J. L. McElroy, formerly Superintendent of the Ancker Hospital, of St. Paul, and late director of St. Mark's Hospital of New York City, has been appointed head of the Hospital of the State University of Iowa.

The Yankton (S. D.) District Medical Society is in session as we go to press. A public address in the evening is to be made by Dr. A. A. Sweeney, of St. Paul; and, if the meeting is well attended, like addresses will be given at future meetings.

Dr. William De Kleine, of Saginaw, Mich., has been appointed director of the Child Welfare work in Fargo, N. D., to succeed Dr. W. J. French, resigned. Dr. De Kleine is a graduate of Northwestern, class of '06, and is forty-eight years of age.

The Ensworth Medical College (St. Joseph, Mo.) graduates are requested to send their names to Dr. Charles Wood Fassett, 115 East 31st Street, Kansas City, Mo., who is Secretary of the Alumni of that college, who propose to organize an Alumni association.

The Park Region District Medical Society of Minnesota met in Fergus Falls the last week in October when the following officers were elected: President, Dr. P. G. Cowing, Evansville; vice-president, Dr. A. J. Lewis, Henning; treasurer, Dr. Theodore Satersmoen, Pelican Rapids.

Dr. John V. Johnson, who formerly practiced in Duluth and Eveleth, died last month in Los Angeles, Calif., at the age of 62. Dr. Johnson graduated from the Starling Medical College of Columbus, Ohio, in the class of '96, and had practiced in Minnesota nearly thirty years at the time of his death.

An enrollment of 387 students, nearly twice as many as attended last year, has brought the School for Nurses at the University of Minnesota to the highest attendance total in its history. The new class is also the first to use the new lecture auditorium in the recently opened additions to the University hospitals.

The twenty-fourth annual meeting of the Minnesota Sanitary Commission was held in St. Paul last week and was well attended. Officers for next year were elected as follows: President, Dr. B. S. Simon, St. Paul; vice-president, Dr. B. F. Van Vaulkenberg, Long Prairie; secretary-treasurer, Dr. A. J. Chesley, of the Minnesota State Board of Health.

A newspaper dispatch, no doubt reliable, says Dr. von Pirquet, of Vienna, attempted suicide

the other day by jumping out of a window in the Vienna Hospital, where he works. Our readers will recall that Dr. von Pirquet came to the University of Minnesota two years ago to become head of the Department of Pediatrics and resigned before his work began.

The Hennepin County Tuberculosis Association begins today the publication of a semi-monthly bulletin for distribution to the members of the Hennepin County Medical Society. Its purpose is to keep the members of the Society thoroughly posted on the scientific aspects of the tuberculosis problem. It will follow, in some measure, the plan of the St. Louis (Mo.) News Service.

Dr. Felix L. St. Jean, of Anaconda, Mont., died last week at the age of 49. He was a graduate of Laval, class of '89, and began practice in Anaconda the same year. He soon identified himself with the civic interests of the Camp, as it was then, and soon became a leading citizen, as well as the leading physician and surgeon of that section. He was a pioneer physician whose field of usefulness was very large.

Dr. Knut Hoegh, of Minneapolis, died the last of October at the age of 81. Dr. Hoegh was a graduate of the Medical School of Christiania, Norway, and came to Wisconsin in 1870 and to Minneapolis in 1888. He was at once recognized at a man of high medical attainments and was called much in consultation. He was Chief Surgeon of St. Barnabas Hospital, and was honored with a decoration by the King of Norway.

The annual report of the Mayo Foundation, made by the Secretary, Dr. L. B. Wilson, shows that the Foundation already ranks high among the medical research and educational institutions of the world. There are now in attendance 202 graduate students, of whom 91 are majoring in surgery, 25 in surgical specialties, 58 in internal medicine, 16 in medical specialties, and 12 in laboratory fields. The faculty is composed of 20 professors, 15 associate professors, 17 assistant professors and 27 instructors. The expenses of the year were over \$393,000.

Locum Tenens or Large Country Practice Wanted

By an experienced physician. Address 310, care of this office.

Instruments, Books, and Cabinet for Sale

By the widow of a physician who had a large practice. Address P. O. Box 655, Bozeman, Montana.

Mercury Vapor Lamp Wanted

Wanted to buy a used air-cooled mercury vapor lamp. State make, serial number, hours used, and price. Address 318, care of this office.

Experienced Medical Salesman Wanted

To sell electrical apparatus on commission in Minnesota and Wisconsin. State qualifications and experience in first letter. Address 307, care of this office.

Assistantship Wanted

A graduate of the Chicago College of Medicine and Surgery, class of '16, now practicing in Iowa, desires to become assistant to a Twin City physician and surgeon. Address 315, care of this office.

Expert Laboratory Technician Wants Position

Has had three years' experience in a hospital of 65 beds and a large clinic and one year in general city laboratory work. Address 316, care of this office.

Practice for Sale

In a city in North Dakota, mainly surgery and office practice. Collections average \$12,000. Established for years. Complete equipment. Good hospitals. Will introduce. No real estate. Real opportunity. Address 292, care of this office.

A Fine North Dakota Practice for Sale

In a village in the best section of the state. Practice has paid over \$10,000 cash a year for the past ten years. A good all-round practitioner can collect from six to ten thousand dollars the first year, or even more. The business for the past three months has been over \$1,200 dollars a month. Collections are good, and losses very small. Satisfactory terms will be made to the right man. Address 314, care of this office.

Practice and Office Equipment for Sale

The practice and equipment of a physician recently deceased is offered for sale in a good city near the Twin Cities. Good opportunity for a physician who can speak German. Will give terms if desired. Address 312, care of this office.

Office Position Wanted in Minneapolis

By a young woman who has had three years in college, two years in nursing, can do routine laboratory work, typing, etc. Have had office experience. Will accept very moderate wages. Address 313, care of this office.

Physician and Surgeon Wanted

A North Dakota town of 700 population wants a good doctor, young or middle-aged man preferred. Good farming community—mostly Scandinavian. Competition, 24 miles in two directions, 20 in third and 16 in fourth. Surgeon would have access to hospital 16 miles with opportunity to assist there at times. Good future for man who can do the work. Address 317, care of this office.

Physician Wanted

A young Norwegian physician and surgeon who has had good surgical training, for a Scandinavian community where there is a good hospital. Opportunity excellent for the right man. Unmarried man preferred. Address 308, care of this office.

THE JOURNAL LANCET

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DIAGNOSIS AND TREATMENT OF GALL-BLADDER DISEASE*

BY N. O. RAMSTAD, M.D.
BISMARCK, NORTH DAKOTA

Disease of the biliary tract is quite common. It is not my intention to bring before you the entire subject of gall-bladder diagnosis and treatment, but, rather, to emphasize a few points here and there.

Careful examinations and history-taking will find the premonitory symptoms in a considerable number of our patients. The most important step in making the diagnosis is the obtaining of a careful history. In many typical cases the diagnosis can be surmised from a few questions and answers before the patient has loosened his clothing. There is nearly always a long history of stomach trouble, indigestion, gas, discomfort after eating ordinary foods, and short periods of intermittent distress, which is usually blamed onto some insignificant dietetic irregularity. Long auto rides over rough roads or riding on farm machinery is frequently followed by an aggravation of the symptoms.

However, it is not until an attack of acute pain in the epigastrium, referred to the shoulder or interscapular region and accompanied by nausea and vomiting, difficulty of deep breathing, and at times fear of death, that gall-bladder disease is ordinarily diagnosed.

There is usually an interval of days or weeks, possibly months, in which the patient is free from trouble except the tendency to what he calls stomach trouble and the chain of symptoms just enumerated.

In order to analyze the source of these symptoms the nerve supply to the lower thorax and the upper abdomen must be borne in mind. The gastro-intestinal tract has a double nerve supply,—the vagus and the sympathetic. The under surface of the diaphragm and the parietal peritoneum of the upper abdomen are supplied by the intercostals, and the upper surface of the diaphragm is supplied by the phrenic nerves. Consideration of these anatomical facts explains how disease of the gall-bladder may cause symptoms to be referred to the stomach and pain to the shoulder.

There are many atypical cases of cholecystitis in which the patient is a semichronic invalid, complaining of a delicate stomach and inability to digest certain foods.

A physical examination of these individuals may only detect tenderness in the epigastrium, or over the gall-bladder in case there has been a recent attack.

The test originated by Van der Bergh to determine the percentage of bilirubin in the blood promises to be of value in the diagnosis of cholecystitis in its earlier periods, and also in differentiating it from other conditions which may resemble it symptomatically. Bilirubin exists in normal blood in the proportion of 0.3 to 0.5 parts in 200,000. Visible jaundice and bile in the urine do not occur until 4 parts per 200,000 are present. It has been determined that over 90 per cent of cases of acute cholecystitis and 73 per cent of patients between attacks show an

*Presented at the thirty-eighth annual meeting of the North Dakota State Medical Association held at Fargo, N. D., May 18 and 19, 1925.

increase of bilirubin in the blood. This is called "latent jaundice."

Jaundice is usually present periodically in common-duct obstruction, but it is also frequently found in diseases limited to the gall-bladder and in diseases of the spleen and pancreas, in infectious jaundice and cancer of the biliary tract.

The Lyon aspiration test by means of the duodenal tube has been of but little diagnostic value in our hands and has been discontinued.

The value of the x-ray in the diagnosis of gall-bladder disease is steadily increasing as the technique improves and new methods are developed. Stones may be found if they are rich in calcium salts, and adhesions of the gall-bladder to the neighboring organs are frequently demonstrated, and the gall-bladder itself may now be visualized following the intravenous injection of certain salts of tetra-brom-phenol-thalein as advocated by Graham. This latter test is yet in its infancy but it promises to be of great value.

Gall-bladder disease may be secondary to a focal infection in any part of the body or it may be the direct result of infection in nearby organs, such as the appendix or pancreas. In a number of instances, we have seen gall-bladder colics disappear after the removal of infected devitalized teeth.

In the preparation of the patient for surgery, marked progress has been made in consequence of the application of blood chemistry. The estimation of the blood urea and nitrogen, the bilirubin percentage, and the test of Rowntree and Rosenthal for hepatic function give us the advantage of accurate laboratory findings. The patient with an abnormally high urea or nitrogen percentage, a high creatinin, or a deficient liver function, is a poor case for surgery.

Case illustrating value of blood chemistry:

The patient was a woman 38 years old who gave a history of four attacks of gall-bladder trouble during the past four years. Present illness began 6 days ago with pain in the epigastrium and all the symptoms of a severe cholecystitis. Examination disclosed a very obese patient who had marked tenderness in the upper abdomen and a slight jaundice. The urine showed the presence of bile and albumin and a few hyalin casts. The blood urea was 177 mg. per 100 c.c.; the urea nitrogen 88 mg. per 100 c.c.; the coagulation time was 10 minutes as compared with the normal of 5 minutes, using the shot method. Next day the blood urea had risen to 274 mg. per 100 c.c.; urea nitrogen to 127 mg. per 100 c.c., the clotting time 13 minutes. The

patient became gradually more toxic and died with all the evidences of uremia. The post-mortem examination showed multiple abscesses in the liver, originating from a cholecystitis.

The mortality rate in jaundiced patients has been lowered by treating those with prolonged blood clotting time, according to the method suggested by Walter, namely, the intravenous injection of 10 per cent calcium chloride solution for a few days and the use of blood transfusions before the operation.

Case report to illustrate the value of calcium chloride intravenous injections in jaundice where there is delayed blood clotting time:

Woman, age 52, gave a history of gall-bladder attacks for 7 years. The last attack began 18 days before she came to the hospital. The examination disclosed all signs of an acute cholecystitis with marked jaundice. The skin and urine were deeply bile-stained. The blood coagulation time, test tube method, was 75 minutes. After the injection of calcium chloride solution intravenously for 3 days, the coagulation time fell to 15 minutes. The operation was then performed and disclosed stones in the gall-bladder and common duct. There was no post-operative bleeding or other complication during convalescence.

TREATMENT

Cholecystectomy has almost replaced drainage of the gall-bladder. Modern pathologists have demonstrated that the infection is located in the wall of the gall-bladder instead of in the bile, which explains why cholecystectomy has been more successful in curing the patient than drainage. Every surgeon who has drained gall-bladders a few years past, has had recurrences which have required cholecystectomy.

Much is written about proper exposure in gall-bladder surgery. For many years we have used practically nothing but the transverse incision in the upper abdomen for all of these cases. This incision gives good exposure, is closed easily, there is less after-pain, and post-operative hernia is a rarity. If a great amount of drainage is required and a weakness develops in the abdominal wall, it is easily repaired.

We have used local anesthesia combined with ether in many of our cases. This lessens the amount of inhalation anesthetic required and the danger of pneumonia and other complications.

In regard to the time for the operation, most of the acute cases with empyema and gangrene of the gall-bladder have been operated on soon after they have entered the hospital.

Less drainage is used than formerly. We have not followed Richter's example of closing the abdomen without drainage, but usually leave a rubber tissue or two along the gall-bladder bed as a safety valve. Gauze drain is seldom used.

Prolonged drainage is the rule in common duct cases. Damage may be done if pressure in the common duct is relieved too suddenly, and gradual decompression may be needed as in the kidney.

The results of gall-bladder surgery have been satisfactory. There are a few cases which have recurrences of symptoms. This may be due to incomplete operation, failure to relieve obstruction in the common or hepatic ducts, post-operative adhesions or subsequent strictures, hepatitis, or pancreatitis.

We have re-operated on a number of such patients. Occasionally we have found a stone in the common duct, but most often nothing definite except post-operative adhesions which have been relieved and omentum implanted. In some cases relief has been obtained only by anastomosis of the common duct with the duodenum.

It may be of interest to review a few statistics regarding the 476 gall-bladder cases operated on during the past five years.

| | |
|--|---------|
| Stones in the gall-bladder or cystic duct..... | 65% |
| Stones in common duct..... | 6% |
| Acute and chronic cholecystitis, | |
| including empyema..... | 28% |
| Cancer | 1-4/10% |
| Sex: Male..... | 17% |
| Female..... | 83% |
| Ages: 10-20 years..... | 1% |
| 20-30 " | 11% |
| 30-40 " | 32% |
| 40-50 " | 25% |
| 50-60 " | 18% |
| 60-70 " | 12% |
| 70-80 " | 6/10% |
| Cholecystotomy | 5% |
| Cholecystectomy | 95% |
| Common Duct Drain..... | 18% |
| Secondary Operation..... | 3% |
| More than one operation was often performed on the same patient. | |
| Incisions: Transverse..... | 93% |
| Longitudinal..... | 7% |
| Deaths | 4% |

DISCUSSION

DR. J. W. BOWEN, Dickinson, N. D.: I wish to emphasize a few points which Dr. Ramstad brought out. It is true that in many instances these cases can

be diagnosed quickly, but in other instances, in cases with indigestion, there is often nothing found in the stomach. It is usually liver indigestion. If one makes a very careful examination he will find that these patients have pain back of the shoulder at times, and some in the stomach, but they have more definite pain beneath the ribs over the gall-bladder. A careful history will reveal this. The pain may not be marked and may not be frequent, but over a long history period one will find that he can usually elicit that symptom. If you do not meet this it is rather difficult to diagnose gall-bladder trouble.

In the cases referred to as bad operative risks, with jaundice, slow coagulation time, and so forth, the patients come in very sick. The question is whether to do an immediate operation or a graded operation. I think this is where the surgeon needs judgment. I think these cases would be in the 4 per cent in which Dr. Ramstad drained the gall-bladder. In that class of cases we cannot operate. If we get the coagulation time down and the patient overcomes the initial attack, we have to use judgment about performing a cholecystotomy or a cholecystectomy. I would advise drainage in the beginning and a cholecystectomy at a later date. I think that is one place where the graded operation is a good thing.

In regard to the local anesthetic in the bad cases, I think it is an excellent thing. One can do much more extensive operating with less shock to the patient. These patients do not take general anesthesia well.

DR. RALPH E. WEIBLE, Fargo, N. D.: I feel complimented in being invited to discuss the excellent paper of Dr. Ramstad.

We usually think of gall-bladder disease as beginning in the "fair, fat and forty" group, but frequently we diagnose it in the twenties, or even before. While cholecystitis reaches its height in middle age, its inception is much earlier.

Gall-bladder pain is usually present in the gall-bladder region, however a diseased gall-bladder may be a painless one, yet be the cause of distress in nearly any part of the body in the form of neuralgia or rheumatism. This form I call the "masked type" of cholecystitis.

The value of x-ray examination will doubtless be increased with the use of substances rendering the gall-bladder opaque. Where there are no stones, distortion or thickening, the x-ray is still of value in ruling out other abdominal lesions.

No mention is made by Dr. Ramstad of the intra-abdominal diagnosis, which to my mind is a very important part of the diagnosis of cholecystitis. When once we recognize that a normal appearing gall-bladder may be a diseased one, causing great trouble to the patient, the value of a correct intra-abdominal diagnosis is at once appreciated.

When facing such a problem, the surgeon should rely on the changes in the lymph-glands, pancreas and liver. Liver changes have not been properly evaluated, as I have emphasized before in my papers on this subject. In the early stages of chronic cholecystitis, inflammation spreads from the gall-bladder to the liver through the lymphatics. These inflamed lymphatics often become permanently thickened and show on the liver surface as white branching lines or even like scars. This lymphangitis carries inflammation to the liver capsule and here produces a thickening as shown by grayish areas. The important fact is this: if both or

either of these liver changes are present and they are grouped on the liver—either upper or lower surface—near the gall-bladder, cholecystitis is present no matter how normal the gall-bladder may appear.

I was interested in Dr. Ramstad's belief that the teeth are concerned in the etiology. For a long time I have suspected the infections of the mouth and throat of being a factor in the production of cholecystitis.

The cause of death following operation is a subject hard to approach. We have a mortality that may be small but cannot be eliminated. Putting aside those due to sepsis, one occasionally sees a patient who remains stupid, lifeless until the end. Various explanations have been given as to the cause, but I am not certain that we have the correct one. Then there is the patient who persistently vomits, which is probably an ileus.

I wish to corroborate Dr. Ramstad's view on the value of local anesthesia, even though a general anesthetic is also given. Balfour has stated that 50 per cent of the fatalities following gall-bladder operations are due to the comparatively larger amounts of ether necessary in upper abdominal work. Using local anesthesia to relax the abdominal walls, moderate amounts of general anesthesia can be used which markedly lessens both the morbidity and the mortality.

In closing let me again accent the facts that cholecystitis should be looked for in the young as well as in the middle-aged; that rheumatism and neuralgia may

be caused by cholecystitis that is giving little pain in the gall-bladder region; that white lines on the liver and gray areas in Glisson's capsule are diagnostic of cholecystitis; and that less ether and more local anesthesia will reduce the mortality following gall-bladder operations.

DR. N. O. RAMSTAD, Bismarck, N. D., (closing): Dr. Bowen brought out an important point when he said it was difficult to know what to do with some of the acute cases, whether to treat them medically for a time or to operate at once. We have had this same experience in our part of the State. Sometimes we decide to wait a day or two and are much gratified to find that within a couple of days the attack is over, and that the patient can be operated on with much less danger and greater ease and comfort. Another type of patient will be much worse the following morning and then we criticize ourselves for not doing something within an hour or two after the patient came in. We find it very difficult to judge some of these cases.

I was glad that Dr. Weible spoke of the time of infection. One author has said that cholecystitis is a disease which begins in early life and is not recognized and treated until later life. That seems to be the conclusion to which we are coming.

I said nothing about the medical treatment of gall-bladder disease because of lack of time, but believe there is a large field for that.

DISEASES OF THE ORBIT*

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I shall present a series of cases collected by Dr. F. C. Nilsson, of this city.

CASE 1. CHRONIC IRITIS.—This woman is aged fifty-four. She has had attacks of iritis in both eyes, more frequently in the left, for the last two years. She had an intranasal drainage two and one-half years ago; the left antrum was opened in June, 1922, and a radical frontal operation on the left side was performed two years ago. A small nodule had been present in the anterior chamber of the left eye; this disappeared under tuberculin treatment.

The general examination is negative. She has a slight nasal discharge which increases after tuberculin treatment. She gives a positive reaction to tuberculin.

The vision of the right eye at present is good. Examination shows the cornea to be clear and the anterior chamber of normal depth. The pupil is partially dilated, and there are three small adhesions, so-called synechias, that bind the pupil in three different positions.

In looking at the left eye with the proper light and magnification we find it sensitive to light, so the lids are kept partially closed for protection. There is no marked photophobia and no evidence of acute inflammation of the eye at present. The left iris is well

bound down. There are little margins that are slightly pigmented. It can be seen that the pupil tends to dilate but is held down. There is a small area at the border of the iris which is not thickened but is thin and cystic.

The etiology of the iritis, which this evidently is, is not clear. The fact that the patient reacts to tuberculin does not mean that it is tuberculous. The lesions here are not typical of tuberculosis, although the lesions in tuberculosis occur in the outer circle in iritis. The syphilitic lesions, as you know, occur on the pupillary border or along the inner circle of the iris. Tubercles of the iris are seldom solitary. They usually occur scattered about the iris, four to six or more in number. They are very seldom at the limbus but occur about half way between the limbus and the pupillary margin. When seen with an ordinary magnifying glass they can be observed as small, apparently well-injected nodules whether the pupil is dilated or not.

Besides this, during the active stage of the uveitis there are small lardaceous spots on the cornea, which are characteristic of uveitis. The number of spots to a given area of the cornea depends on the position of the eye rather than on any other factor. This patient has no spots on the posterior surface of the cornea, which is good evidence that there is not present a general uveitis. Neither is the iritis active. The fact that she responds to tuberculin is no more evidence that it is a tuberculous lesion than that it is of focal-

*Presented at the forty-fourth annual meeting of the South Dakota State Medical Association held at Sioux Falls, S. D., May 21 and 22, 1925.

infection origin. The amount she is taking would give her the same general reaction. We would get the same reaction from the injection of milk, diphtheritic serum, or any other form of foreign protein.

The thing to do for the right eye has already been done. It is quiet. It is possible if the patient still has attacks of iritis that she would get relief from an iridectomy. As long as the eye remains quiet, I would advise doing nothing.

CASE 2. CHRONIC IRITIS.—This young woman began to have trouble in the right eye in 1912. There was pain on movement of the eyes, then redness, photophobia, aching in the eyes, and impaired vision. The symptoms gradually increased for two weeks, then under treatment for six weeks disappeared, but the vision was left somewhat impaired. In 1918 she had a similar but less severe attack in the left eye which apparently did not impair the vision. In 1920 she had the most severe attack, which left the vision markedly impaired. She had a second slight attack in the left eye in 1921, and during that time vision in the right eye was reduced so that she could only distinguish light from dark. The third attack came in 1922 in the left eye, with but slight impairment of its vision.

This is a characteristic history of recurrent iritis, which we look on as associated with focal infection or chronic infection elsewhere in the body. This woman has a history of arthritis dating back to 1903, when she was in bed for nine weeks. She had a second attack in 1908. The examination of the eyes shows nothing particularly significant.

Plastic iritis is due to syphilis, tuberculosis, or focal infection, in the majority of cases, and to intranasal or perinasal sinus disease and a host of other things, including even injury. In some clinics syphilis is said to be the greatest etiologic factor in iritis. In other places tuberculosis is a close second. In our work in the Northwest, I think we find most of the iritis due to focal infection. Infection about the teeth is probably the most common, infection of the tonsils, second, and foci scattered elsewhere, third.

In looking for the cause of iritis and taking care of an attack of iritis it is important that the ophthalmologist and the internist work hand in hand. I think this is true not only of iritis but that it is getting to be true more and more of all diseases of the eye. The ophthalmologist cannot work alone. Since the development of the dental roentgenogram and the careful investigations by dentists regarding devitalized teeth, we have been able to prove that the cause of much of the iritis is associated with devitalized teeth. After all affected teeth and the tonsils have been removed, some patients still have attacks of iritis. In women chronic cervicitis, and in men chronic prostatitis, with or without symptoms, have been found to be as potent in the production of iritis as infection of either the teeth or tonsils. If I had time I should like to go into detail in this

regard, for I believe the best method of illustration is by case presentation. All of us meet with uncovered infection in the pelvic organs that has not been suspected or revealed by cursory examination. Careful bacteriologic studies of the secretion of the cervix and the prostate should be carried out in all cases of chronic iritis in the search for foci of infection.

It is not always possible to distinguish between the lesions due to focal infection, tuberculosis, and syphilis. Focal infection can be present in persons with tuberculosis and syphilis, and yet the syphilis or tuberculosis plays only secondary rôle in the chronicity of the iritis.

CASE 3. BLINDNESS DUE TO OPHTHALMIA NEONATORUM.—About 42 per cent of the blindness in our asylums for the blind in the United States is due to lesions in the cornea in early infancy. I do not believe there is any justification for any obstetrician to omit instilling silver nitrate solution into the eyes of the new-born baby, whether in the private home or in the hospital. I have four children of my own and their eyes were carefully bathed with silver nitrate solution instilled immediately after birth. If I can submit to this I am sure everybody else can. There is usually nothing to do after the cornea has ruptured and a large corneal staphyloma been produced. Somebody should take the responsibility for this sort of thing, and it seems to fall on the obstetrician.

CASE 4. TRACHOMA.—We have here a patient suffering from trachoma, complicated by a recent injury. He says that for several years his eyes have been weak. His lids have been thickened, and the lashes scratched the cornea. He has had considerable lacrimation and some photophobia. May 9, 1925, while washing windows he got some Bon Ami powder in both eyes; an acute inflammation immediately set up, with pain and discharge.

His posture is characteristic of trachoma, with the head bent forward, the eyes closed, the position of waiting, without intense suffering. The lids are thick, the margins are turned in, many of the lashes are missing, while others are misplaced, turned in, and scratching the cornea. He also has a chronic blepharitis, which has closed the glands of the lid margins, so that as the lid is turned out, thin, silver-like masses can be seen through the thin conjunctiva. These are atrophic meibomian glands, which have become thickened and filled with secretion. On everting the lids we find concretions in the glands. Scattered over the cornea are small facets, the craters of healed ulcers, and over the upper portion of the cornea is a thin, vascular film, the so-called pannus.

There is in the Midwest a considerable amount of trachoma, not only among the Indians, but among our farmers of Germanic origin, and the people from western Europe. I am told by physicians who practice in other parts of the country that the trachoma we see up here is different from that seen on the Atlantic and Pacific coasts and in Egypt. Certain it is that our people react

differently to trachoma than do the inhabitants of European countries.

Next to gonorrhœal ophthalmia trachoma is the greatest cause of blindness in this country. Many persons will not submit to treatment for economic reasons, and consequently suffer from blindness in their old age. Trachoma is amenable to operative treatment and should be treated by an ophthalmologist whenever possible, but the general practitioner must frequently treat trachoma. If there are any corneal complications the pupil should be kept well dilated, preferably with atropin. Next, the lids should be everted and painted with a solution of silver nitrate, about 10 grains to the ounce, every day for the first three or four weeks, then at gradually lengthening intervals, so that at the end of a year a treatment once in two weeks is sufficient. Very seldom is it necessary to operate during the active stages of the disease. I have not operated for active trachoma in six years, and think I never shall. A small cotton swab may be wrapped, paint-brush fashion, around an applicator, thoroughly saturated and carried gently, not roughly, over the everted surface of the lid and then neutralized by salt solution or boric acid solution. At night an ointment, such as White's ointment, should be applied to the lid margins. The ointment is bichlorid of mercury 1:3,000, and sodium chlorid, two grains to the ounce of petrolatum. It is non-irritating and soothing, keeps the lid margins moistened, prevents the formation of crusts, and is a very good antiseptic.

This treatment alone will prevent the severe complications of trachoma, and if carried out faithfully and long enough (meaning three years), practically every patient with trachoma will get well.*

These patients will be comfortable within two weeks from the time daily treatment is started. Anything, from a mild hyperemia to a caustic irritation of the cornea, can be obtained by a solution of this strength. It is not necessary to weaken it or make it stronger. The astringency depends on the time that is allowed to elapse between the application of the solution and its neutralization. If just a slight effect is desired, it should be neutralized immediately so that a white film forms. On the patient's next appearance in the office, if the film has disappeared, apply more silver; if it has not, wait another day, when it will have disappeared.

*In reply to a question relative to the danger of argyrosis: There is danger, but argyrosis never made anyone blind. The silver nitrate can be used for three years without producing any notable argyrosis, but, if argyrosis does occur, it does no harm.

The treatment of corneal ulcers is just the same, but the eye should not be padded, for the pressure of the pad causes a damming up of the secretion in the cul-de-sac and produces considerable irritation.

CASE 5. INTERSTITIAL KERATITIS.—This child is twelve years old and has an inflammation of the left eye, which started about three weeks ago. Her general health has been good, except for a lesion of the tibia. Examination shows the attitude of one who is sensitive to light. The eyes are kept closed, and the head is bent forward, the hands lying in the lap; she is waiting patiently for her pain to disappear. The vision was good until this attack. The vision in the right eye is unimpaired. In the left eye there is a conjunctivitis, the margins of the limbus are not clear, the cornea is hazy, and on careful examination with the loupe it is found to be vascularized with fine, branched vessels. There are no ulcers in the eye, and the pain is not severe.

The treatment should be general. Local treatment should consist of atropin sufficient to keep the pupil dilated properly, and there should be protection from the light by the use of dark glasses. Usually this type of inflammation occurs only in cases of congenital syphilis, but it may result also from acquired syphilis. It is to be differentiated from tuberculosis and the lesions which follow the acute exanthemata, particularly measles, occasionally scarlet fever, and poison ivy.

The affection usually starts in one eye and, so far as I know, in children always attacks the other eye in spite of all the treatment that can be given. I have no doubt this child will have the disease in the other eye within from four to six months. We have never been able to stop it. The disease may be made to run a short course by intensive treatment, and it does not often recur if treatment is well carried out, although I have seen it recur four times between the ages of ten and twenty-five.

CASE 6. SYPHILITIC IRITIS.—This young woman had her first attack of iritis at the age of four years, and has had subsequent attacks at intervals of years. She has recovered from the acute symptoms of the last attack of the disease and is able to open her eyes freely. She has no marked intolerance to light but there is an appearance in her eyes as if she was attempting to shield them, or trying to close the lids somewhat in attempting to get better vision. The corneas are hazy, infiltrated, and slightly vascular. Any light striking the cornea is confusing, and her vision is somewhat reduced.

Besides the corneal inflammation there are on the pupillary margin of the iris small hypertrophic nodules that are somewhat characteristic of the disease. In the first case we had this morning we had the characteristic nodules of that disease in the periphery of the iris. In these cases the characteristic nodules are in the inner circle of the iris, and occasionally on the

border of the iris. Any severe case of iritis and cyclitis may show lardaceous deposits on the surface of the cornea, on the anterior surface of the lens, and attached to the pupillary border. Occasionally, if the pupils move freely, these lardaceous spots can be seen to move over the surface. This is an indication that the etiologic factor is still active, and that the patient is in need of treatment. When the disease is entirely checked these areas of exudate all disappear.

CASE 7. HERPES ZOSTER OPHTHALMICUS.—This man has lesions on his forehead and side of the head which you recognize immediately as herpes zoster. The lesions are scattered over the right half of the forehead and right eyelid. The lids are still thickened, the conjunctiva is deeply congested, and over the cornea are small nebulae which are scars of the healed vesicles.

The vesicles in the cornea occur just as they do in the skin, are usually discrete but occasionally confluent. The surface epithelium is elevated and the eye is extremely painful. Associated with this is an iritis and occasionally a panophthalmia. If the eye becomes infected secondarily after the breaking of the vesicle it is almost impossible to treat it properly because of the intense pain and the reaction which occurs following any attempt at treatment. Probably the best thing to do is to keep the eye covered with a cold cloth saturated with a solution of Epsom salts, raising this occasionally to irrigate between the lids with a solution of boric acid. Here, too, the pupil should in most cases be dilated, particularly if there is pain or photophobia on opening the eye. The marked congestion makes it impossible to open the eye widely for thorough irrigation, but the increased secretion must be taken care of, or it will become dried on the margin of the lid and the scabs scratch the cornea and cause further irritation.

I do not believe there is any specific treatment for herpes ophthalmicus, but cold compresses or applications can be used and the development of iritis prevented by dilatation of the pupil.

CASE 8. TRAUMATIC CATARACT.—This boy is thirteen years old, and was struck in the right eye by an eraser November 1, 1923. At that time there was considerable pain, the eye became much congested, and there was interference with vision. He now can see movements on the temporal side. The eyeball is normal in size, shape and position, the rotations of the eye are normal, the cornea is clear, the anterior chamber is very shallow, the iris is not materially changed in color, and the pupil is only partially dilated and does not react to light. The lens is cataractous, and by oblique illumination no light is cast into it, giving what we call mature cataract. The light perception is perfect.

The patient has gone for almost two years without pain or inflammation but without use of the eye. The vision of the other eye is good. The only reason he cannot see is because he has a cataract in the right eye. If this cataract were removed and a cataract glass fitted to the eye, in all probability he would have normal vision with this eye alone. To attempt to use such an eye fitted with a cataract glass with the uninjured fellow eye would lead to double vision. He still would do all of his work with his normal eye. Postponing the operation will not materially damage the right eye, nor will it lessen the chance of good vision after opera-

tion. If anything happens to the left eye the right eye can be operated on for cataract, fitted with a glass, and restored to useful vision. That can be done just as well twenty years from now as at present. There is nothing to lose by waiting and nothing to gain by operation; he would be more uncomfortable and more confused by double vision.

CASE 9. PERFORATING INJURY OF THE EYEBALL THROUGH THE CILIARY REGION.—March 1, 1925, the left eye of this child was injured by a knife. There is at this time a horizontal linear scar extending from the center of the cornea toward the nose through the limbus. There is some puckering of the scar of the limbus; there is a red, vascularized scar running over the cornea. A few days ago when this eye was about healed it was injured, and the anterior chamber is filled with blood, but before this last injury the vision of the eye was not good.

Lesions which involve the limbus, or the circular zone which we speak of as the danger zone about the cornea, are very likely to lead to sympathetic ophthalmia. If the lesion is entirely in the cornea, even though the iris and the lens are injured, the danger of sympathetic ophthalmia is small. If, however, it extends even the slightest distance beyond the limbus the chances are that sympathetic ophthalmia will occur. The sympathetic ophthalmia may occur as long as twenty years after injury. The longer after injury this sympathetic ophthalmia fails to develop, the less is the danger of its developing at all. This eye has been injured through the cornea, iris, and lens, and the best thing we can hope for is the function of protective vision; that is, the patient may be able to sense approaching objects. Useful as that may be, and desirable as it may be to keep it, if it jeopardizes the vision of the other eye through sympathetic ophthalmia, the risk is too great. The only way to prevent sympathetic ophthalmia is to remove the injured eye before irritation begins in the uninjured eye. We can afford to run more risk in the case of an adult than in a child because sympathetic ophthalmia is more likely to develop in a child than in an adult. I do not think this eye promises enough vision to make it worth the risk of trying to save it in view of the possible development of sympathetic ophthalmia.

CASE 10. TRAUMATIC CATARACT; CORNEAL DYSTROPHY.—This man was injured in the right eye nineteen years ago, and he has a traumatic cataract. In the right eye there is good light perception, the form and character are nearly normal except that he has a sunken or deformed lens producing cataract. In the left eye there is a bulging of the cornea and a thinning at its lower margin. There is a crescent-shaped area at one point which is definitely demarcated, *translucent*, if not transparent, not vascularized, and which has never stained with fluorescein. Immediately above that area the cornea bulges distinctly forward and is very much thinned, but perfectly clear, giving him a very deep anterior chamber in the region of the greatest bulging. This probably has nothing to do with the injury in the other eye, but it has reduced his vision to such an extent that it has practically incapacitated him for work. In the presence of a weakening of the cornea in the lower segment the normal intra-ocular pressure is sufficient to make the cornea bulge forward, and to stretch this lower segment. He has, therefore, a very high grade of astigmatism.

To relieve that pressure I would suggest iridectomy, so as to get from 10 to 20 mm. of mercury if possible, and also that this area (indicating) be cauterized so

that the astigmatism can be reduced. Besides this the cataract in the other eye could be needled, a cataract glass fitted, and good vision restored.

THE MAXILLARY SINUS AS A FOCUS OF INFECTION IN CHILDHOOD, WITH PRESENTATION OF X-RAYS AND PATIENTS:

A CLINIC*

BY E. J. HUENEKENS, M.D.

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Up to a few years ago we did not think that children developed paranasal sinus disease, and we owe our present knowledge, primarily, to the work of Dean and Byfield, who first called attention to this disease in children. Since my attention was first called to this they have published a monograph on paranasal sinus disease in childhood, and I have found this monograph a great aid in diagnosing these cases in children. We have overlooked many because we did not have this possibility in mind. I think the pediatricians are more alive to this to-day than the nose and throat men. I still have great difficulty in cases I have worked up and sent to the nose and throat men, for they are often doubtful as to whether the treatment I advise should be carried out. The idea that sinus disease is confined to adults is so prevalent that it is hard to overcome the prejudice.

I have had seventy-four cases with x-ray examination, and of these twenty-four were positive, but were not treated for various reasons. The examination was negative in twelve cases, and in two cases there were positive x-rays but no pus was found on washing. They were treated and found positive for pus in thirty-six cases. The indications for suspecting sinus disease in children are rather vague and varied. We do not have the same indications that we have in adults. Here is a report on thirty-six of the cases in which we found pus on treatment and the indications that led us to take the x-ray:

| | |
|--|----|
| Frequent colds, after tonsils and adenoids removed | 8 |
| Chronic and recurrent nasal discharge..... | 12 |
| Frequent otitis | 8 |
| Recurrent bronchitis | 4 |
| Marked underweight | 1 |
| Cervical adenitis | 1 |
| Retropharyngeal abscess | 1 |

| | |
|---------------------------------------|----|
| Headache | 1 |
| Positive x-rays but not treated..... | 24 |
| Negative x-rays | 12 |
| Positive x-ray, but no pus found..... | 2 |

On x-ray examination in these cases we found indications of sinus disease, and on treatment we found pus in one or more of the sinuses. Besides these we have had a number of cases which I have not listed here which we have had at the Minneapolis General Hospital. There we have a type of case not seen so frequently in private practice.

Marriott, of St. Louis, finds that in chronic nephritis and nephrosis there is in practically every case a sinus infection. McCullough, who is working with Marriott, advises the same treatment in every case of acquired heart disease. He believes we should not be content with taking out tonsils and adenoids, but should search for further infection in the sinuses. That applies equally well for chorea and rheumatism. In all these cases of nephrosis, nephritis, rheumatism, heart disease, and so on, the x-ray examination should be made as a routine. Most of the cases of Dean and Byfield in the University of Iowa came from the Pediatric Department. They called attention to the fact that every case of arthritis in children that does not do well after removal of the tonsils, should have sinus examination. If a focus apparently persists in the sinus, virulent organisms should be sought for and more drastic treatment instituted. In every case of arthritis they advise looking for sinus infection.

I think there is only one way to diagnose this condition and that is by the x-ray. Transillumination of the sinuses in children is not satisfactory. It should be done along with the x-ray, but we should not depend upon it. I still have trouble with many of the nose and throat men to whom I refer cases, for they just put a light in the mouth and say the sinuses are all right. Principally because they think children cannot

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have sinus disease they are not thorough in the examination, and, even if they are thorough, they cannot exclude sinus disease without the *x*-ray plate.

The *x*-ray plate is made with the face downward, with the nose and chin touching the plate. In children we find this sufficient. The one sinus we have found of greatest importance in children is the maxillary sinus, or the antrum. If the others are infected it is usually secondary to the antrum, and it is not necessary to take other *x*-ray positions to show the ethmoids, sphenoids and frontals for they are seldom involved.

The prognosis is very good in this condition in children. We have many objections from parents about doing these things, due to their own experience of having perhaps daily washings over weeks at a time, with recurrence of the trouble. There were twenty-four cases in which we diagnosed a positive sinus in which treatment was refused on account of this objection on the part of the parents.

As a matter of fact, the position of the antrum in children is very favorable to drainage. The fact that the permanent teeth are not erupted keeps the antrum high and drainage is easy. In adults, as the permanent teeth come down the antrum sinks with them, and the drainage has to be up over a high wall, but in children the position lends itself well to drainage. In this series of cases only one had to be opened a second time and washed out, and that was in the early stages of the treatment, before we understood it very well. Only one treatment is necessary.

The actual treatment, which in this series was carried on very largely by Dr. Curtin and Dr. Phelps, consists in anesthetizing the child with gas or ether, puncturing the sinus just beneath the turbinate with the trocar. A bulb is then attached and normal salt solution introduced, which comes out of the normal opening of that sinus and comes out of the nose. If the sinus is positive we find in that washing a piece of thick, creamy pus about the size of a pea. If we take cultures, as we have in many cases, we find many organisms. If we get the pus in this washing the opening is enlarged, in order to keep it open there for some time afterward so that further drainage may take place.

In the one case that had to be opened a second time this enlarged opening was not made. Just the trocar was introduced, and that small opening sealed up. After we learned that we had to enlarge the opening slightly we had no further trouble.

There are four or five patients here whose history I wish to go into in some detail because they are cases of special interest.

CASE 1.—Master N. has been under treatment for subacute tuberculosis for some time. He had frequent colds, night sweats and a daily rise in temperature. The Pirquet test was negative but the case was considered a massive tuberculosis in spite of that. *X*-ray examination revealed a large shadow in the right antrum. We treated the antrum and found a large piece of pus, which was removed. The case was not one of tuberculosis at all, but a chronic sinus infection, which disappeared entirely on treatment.

CASE 2.—Little George, a nineteen months' old infant having a complete cleft palate, was operated on in October, 1924, with consequent infection and sloughing in spite of the most aseptic technic possible in dressing the wound and in feeding. There were no signs of any acute upper respiratory infections so the sinuses were rayed, as a possible source, and showed positive findings. In January, 1925, these were drained and showed some pus. The infant was followed through our dispensary service, and the sinuses cleared up. The child was operated on about two weeks ago, and a very satisfactory closure of the palate has been effected. In this case the sinus affected was the right antrum, which probably acted as the focus of infection for the surgical wound.

Those of you who have had any experience with cleft palate know that in many of these cases we get infection of the wound, often with extremely high temperature, immediately following operation. I offer this as an explanation for at least a few of these cases which the sinus infection starts working.

CASE 3.—A. M., is eight years old. He was brought to the Out-Patient Department with the complaint of intestinal parasites and a resulting pruritus ani. Upon going into the history a little closer the fact was brought out that the boy had been under observation at the Lymanhurst Clinic for a period of over three years, having lived in the ward for six months. The only complaints that could be made out were underweight, quick fatigue, and occasional dyspnea. Physical examination was negative except for the poor state of nutrition, which could not be explained. Sinus plates were taken which showed an infection of the right antrum, which was opened and drained. This case has been followed through the Out-Patient Service, and the boy has made a very satisfactory gain in weight. Aside from the fact that there is persistent drainage from the right nasal cavity, the results have been very gratifying.

Dr. Head of this city has recently written a book, called, I think, "Tuberculosis or Tired Sickness," a characterization that is very true of adults. Many of these cases are concealed tuberculosis, but in children we have to be careful not to call many things tuberculosis which may be involvement of the antrum. We should always keep this in mind.

CASE 4.—R. G. is six years old and was admitted to the Out-Patient Department during the latter part of February, 1925. He was brought in by the school nurse because of very apparent underweight and general ill health. He had been out of school the greater part of the time because of colds, and so forth; but he had no symptoms leading to a diagnosis of sinusitis. X-ray study of the sinuses showed definite involvement of the left antrum. This was opened and drained, and pus was found. The convalescence was uneventful and the follow-up of the case has shown a very satisfactory gain in weight and improvement in the general health.

CASE 5.—D. S. This little girl is eight years old and was admitted to the Out-Patient Department with the following complaints: headaches, underweight, quick fatigue, and general weakness. She had a severe attack of scarlet fever in May, 1924, followed by smallpox in July. There was a prolonged convalescence, and the patient did not gain weight or feel up to par. The headaches came on in the three months prior to admission in January, 1925. They were of the frontal type and came on at irregular intervals. X-ray plates were made of the sinuses and revealed an involvement of the right maxillary and ethmoid sinuses. These were opened and drained, with no macroscopic pus demonstrated. The follow-up, however, shows relief from the headaches and general improvement in the state of her health.

In some of these cases, even where we get no macroscopic pus, there is still a sinus infection, as Dean and Byfield have shown by taking cultures even where there was no pus.

CASE 6.—R. J. is six years old. He was admitted to the hospital on November 6, 1924, with the following complaints: chills, fever, hematuria, and general malaise. The history dated back over a month of generally increasing weakness, with occasional attacks of hyperpyrexia. The original attack dated back to an acute otitis media. A diagnosis of acute glomerular nephritis was made, and also a streptococcic septicemia, the organism being demonstrated in the blood stream in three different

cultures. Convalescence was very satisfactory, negative blood cultures being present on repeated attempts after the second week of hospitalization, and the nephritis gradually cleared up. A marked secondary anemia which was present was treated with a series of four blood transfusions, and the patient's general health improved. There was, however, a persistent afternoon rise of temperature, which usually reached 102° F. The tonsils appeared to be pathologic and were removed, but the rise in temperature persisted.

X-ray plates were taken of the sinuses, and the report was as follows: "The frontal sinuses are undeveloped, the superior right ethmoid enlarged. There is a slight cloudiness of the antrum and the ethmoids on the left."

Having investigated all the other possible causes of the afternoon rise in temperature, without satisfactory results, the sinuses were drained by means of trocar insertion and opening a large window in both antra. There were some flakes of pus in the washings. The temperature remained normal following this during a week's observation in the hospital, and the patient has been under observation from time to time since. There has been no recurrence of the temperature, and he has made a very satisfactory recovery.

CASE 7.—W. O. This boy is eleven years old and when first seen complained of dyspnea, precordial pain, and fever. There was no edema or other signs of decompensation. Upon physical examination a double mitral lesion was revealed, and the patient was hospitalized. He had an afternoon and evening temperature of 102° F. The tonsils had been removed two years before, following an attack of acute rheumatic fever, and there were no tags. Several carious teeth were removed as a possible source of the infection, but the increase in temperature persisted. X-ray plates of the sinuses revealed infection of the left antrum. This was opened and drained, and the patient has since been free from infection and signs of infection.

(Dr. Hueckens then presented a series of lantern slides showing antrum infections.)

EXTERNAL EYE DISEASES: PRESENTATION OF CLINICAL CASES AND LANTERN SLIDE DEMONSTRATION*

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I wish briefly to present a few cases of external eye diseases and then to illustrate these cases by means of lantern slides.

CASE 1.—The first case is one of corneal involvement complicating herpes zoster. In February, 1924, this patient had an attack of herpes zoster ophthalmicus. Herpetic lesions occurred in the areas of distribution of the ophthalmic division of the fifth cranial nerve. There was severe frontal and supra-orbital pain. Swelling of the upper eye-

lid was present as a result of the inflammatory process in the adjacent skin. Following the subsidence of the eruption on the forehead, complicating eye lesions developed. There are numerous eye lesions that may complicate a herpes zoster. There may be involvement of the iris, ciliary body, retina, choroid, optic nerve, or ocular muscles. The most frequent ocular lesion is corneal ulcer and keratitis, and in this case vesicles appeared on the cornea, ruptured, and formed ulcers. There was also a deep keratitis and iridocyclitis. The cornea now shows an extensive opacity. There are adhesions of the iris to the lens capsule, and vision is very much impaired. When this patient entered

*Presented at Minneapolis Clinic Week, Minneapolis April 30-May 2, 1925.

the University Hospital the eye presented much the same appearance as at present; the acute stage of the herpes zoster had subsided; the cornea presented opacities as a result of the corneal ulcers; and the iris was adherent as a result of the iritis. The eyeball has remained irritable, is at times inflamed and painful, and the final result is doubtful with a possibility of loss of the eyeball.

The etiology of herpes zoster ophthalmicus is obscure. The skin and ocular lesions are probably due to inflammation or degenerative changes in the gasserian ganglion.

The prognosis depends upon the severity of the attack and the ocular structures involved. Many of these eyes remain irritable and at times painful long after the acute condition has subsided.

CASE 2.—This patient, aged 28, entered the University Hospital on account of severe and persistent pain in the left supra- and infra-orbital regions and a convergent strabismus of the left eye of two weeks duration. The onset of pain was sudden with increased temperature, chills, nausea, and vomiting. The pain is extremely severe and is confined to the area of distribution of the ophthalmic and superior maxillary divisions of the fifth nerve. There is a convergent strabismus of the left eye due to a paralysis of the left external rectus muscle. There are diplopia present and anesthesia of the cornea. There is involvement of the fifth and sixth cranial nerves. All other cranial nerves are negative. The neurological diagnosis in this case is primary tumor of the gasserian ganglion. This condition is somewhat rare, and when it occurs it produces a characteristic syndrome, such as severe and persistent pain along the course of the fifth cranial nerve; subjective and objective sensory disturbances; frequently motor weakness of the fifth nerve and sixth nerve palsy, with loss of corneal reflex.

The symptoms present in this case resemble somewhat a condition described by Gradenigo and known as Gradenigo's syndrome, in which we have severe and persistent pain in the supra-orbital and parietal regions with paralysis of the external rectus muscle. It is usually of sudden onset and is due to infection of the middle ear. The infection extending from the middle ear causes a periostitis which advances along the petrous portion of the temporal bone and involves the sixth nerve causing a paralysis of the external rectus muscle.

This patient has severe pain along the course of the ophthalmic and superior maxillary divisions of the fifth nerve, somewhat similar to the preceding case, but more severe and more persistent. Involvement of the sixth nerve in the region of the gasserian ganglion has caused the paralysis of the external rectus muscle of the eyeball, and she presents all the characteristic findings of a paralysis of a left external rectus muscle. At the onset of the ocular muscle paralysis there was loss of single binocular vision, and the patient had a diplopia, which is still present. The diplopia is increased by attempting to turn the eyes to the left, that is, in the direction of the paralyzed muscle. The double images also have a characteristic position; the object as seen with the left eye is to the left of the object seen with the right eye and is on the same

plane; there is present a lateral homonymous diplopia. Vertigo and nausea are present at times and are due to the diplopia. This patient is inclined to turn the head to the left when looking forward, or to keep the eyes turned to the right. There is limitation of movement of the left eye outward, and she is unable to turn the eye outward beyond the median line. This limitation of movement of the eyeball is always in the direction of the paralyzed muscle.

The treatment in this case will be directed to the removal of the underlying cause, which is a tumor of the gasserian ganglion.

CASE 3.—This patient has a late sequela of a very common and serious disease of the eyelids. He has gone through all the stages of a chronic trachoma including the cicatricial stage with atrophy of the conjunctivæ, thickening of the tarsal cartilages, entropion, corneal ulcers, and dense opacities of the corneæ. The disease has now reached a very interesting stage, which is not so common, and which is known as xerosis conjunctivæ. In this stage of the trachomatous process there is an atrophy of the conjunctivæ of both eyelids and the eyeballs; the atrophy has invaded the lacrimal glands; and there is a greatly diminished secretion of tears, the fluid being viscid and sticky, and no longer lubricates the eyeball, and the eyeball is dry; there are adhesions of the eyelids to the eyeball; and there is an extensive opacity of the corneæ. Vision equals perception of light.

The prognosis is bad. Treatment at this stage of the disease is of no value. We can do nothing to improve his vision. The discomfort is due largely to the dry condition of the eyeballs, and this can be relieved to a great extent by the use of oily solutions or some bland, non-irritating ointment, such as boric acid ointment. There is no prospect of restoring the function of the eyelids or of removing the opacity of the corneæ. The patient has practically no vision.

CASE 4.—This is another case of chronic conjunctivitis, but of a different type. This patient has a simple chronic conjunctivitis sometimes termed chronic catarrhal conjunctivitis. He gives a history of having been at work in the wheat fields last fall when his eyes became sore and inflamed. He had at that time an acute conjunctivitis, which became chronic. There are at present an hypertrophy of the conjunctivæ of the lower lid and an ectropion. The tears do not drain readily through the punctum and lacrimal canal, and there are epiphora and discharge present. Smears and cultures from the discharge show a mixed infection with staphylococci predominating and a few pneumococci present.

This patient has improved rapidly under treatment, and the hypertrophy of the conjunctivæ is subsiding. It is quite probable that the hypertrophy will entirely subside under local treatment, and with the subsidence of the hypertrophy of the conjunctivæ the ectropion may disappear. If the eversion of the lower lid does not entirely disappear a plastic operation can be done to restore the lower eyelid to its normal position in apposition with the eyeball.

The treatment in this case has been 2 per cent solution of silver nitrate applied to the conjunctivæ and the instillation of drops of 1 per cent solution of mercurochrome.

LANTERN SLIDES ILLUSTRATING CLINICAL CASES

Slide 1: This picture illustrates a case of *herpes zoster ophthalmicus* in the early stage. There is present a vesicular eruption along the course of the supra-orbital division of the fifth nerve, with swelling of the upper eyelid. This swelling of the upper eyelid is due to the inflammatory process in the adjacent skin and is usually of short duration.

Slide 2: The next picture illustrates the same case at a later stage and shows the eye complication present in the patient that we have presented. There are corneal opacities, a deep keratitis, and adhesions of the iris to the lens capsule. At the onset of the eye involvement there were vesicles on the cornea; these vesicles ruptured and ulcers of the cornea followed. A deep keratitis developed, which was further complicated by an iridocyclitis, and the pupillary margin of the iris has become adherent to the lens capsule. These are quite common complications of herpes zoster ophthalmicus and cause serious interference with vision.

Slide 3: This picture illustrates a case of *chronic trachoma*. The trachomatous process has involved the tarsal cartilages and caused a thickening and contraction of the cartilage of the upper lid. The contracted cartilage and the cicatricial conjunctiva have caused a turning inwards of the lid margins, and the lashes have come in contact with the cornea and caused corneal ulcers. These ulcers have been followed by dense opacities of the corneæ which seriously affect the vision. There is present in this case a chronic trachoma which has reached the cicatricial stage, with thickening and distortion of the tarsal cartilages causing an entropion which has produced ulcers and opacities of the cornea.

Treatment in this case is surgical, and the entropion can be relieved so that the eye lashes will no longer come into contact with the corneæ.

Slide 4: This picture shows the final stage of a chronic trachoma. It is a case of xerosis conjunctivæ, representing the final stage of a trachomatous process of many years duration. It presents all of the pathology of the previous case, and in addition there is present an excessive atrophy of the conjunctiva of both the eyelids and the eyeball. With the atrophy of the conjunctivæ, there is involvement of the lacrimal glands with greatly diminished lacrimal secretion. The remaining secretion becomes viscid and sticky, and the eyeball becomes dry. The epithelium of the corneæ has likewise

become affected and has become dry and opaque. There are adhesions present between the eyelids and eyeballs. Contraction of the conjunctiva has caused more or less obliteration of the upper and lower cul-de-sac and has interfered with the movement of the eyeballs. Vision cannot be improved by treatment. The discomfort is due largely to the dry condition of the eyeballs and can be relieved to an extent by the use of oily solutions or a bland, non-irritating ointment.

Slide 5: This is a case of ocular tuberculosis. I first saw this patient in 1912, when she came to me on account of an inflammation of the left eyeball with blurring of vision and pain. There was an inflamed scleral nodule near the corneal margin, an area of scleral injection in the region of the nodule and a spot of white infiltration in the adjacent cornea. The patient was referred to an internist for examination with the request that a particularly careful examination be made with special reference to tuberculosis. No tuberculous focus could be discovered. Her physical condition was excellent, and the medical examination was practically negative. A diagnostic injection of 1 mg. of tuberculin was given, and the patient developed a general and focal reaction. A diagnosis of tuberculous scleritis and keratitis was made; the patient was given therapeutic injections of tuberculin and six to eight months later the active process had subsided. Eight years later she returned with a similar involvement of the right eye. Physical examination of the patient was again negative and she was given a diagnostic injection of 1 mg. of tuberculin. The tuberculin injection was followed by a violent focal reaction; the eyeball became deeply injected; the opacity extended over the entire cornea; the eye became painful, and presented the appearance as shown in the slide. No further injection of tuberculin was made until the acute manifestations had subsided, when therapeutic tuberculin injections were given.

Slide 6: This represents the same case six months later; the cornea is clearing around the periphery although the central portion is still white and densely opaque.

Slide 7: This picture shows the condition of the same eye after an interval of six months. The area of infiltration is much less and the patient is regaining some vision. A recent examination of this patient shows the cornea to be quite clear and she has useful vision in the right eye.

ECHINOCOCCUS*

BY COLIN C. CAMPBELL, M.B.

ASHLEY, NORTH DAKOTA

Such a meeting as this can, with a nicer profit, concern itself with a study of the classic forms of physical disorders rather than with an exhaustive and complicated audit of the unique and and the bizarre. I have, therefore, chosen as a

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subject for review a single case of echinococcus hydatidosus, drawing attention to careless diagnostic methods and leaving to your judgment any evidence of maturer methods.

It would be well to recall the morphology and life history of this tenia. The adult is about one-fifth of an inch long with three segments, the

ova maturing in the distal segment, the proglottis, accounting for about two-thirds of the length. The host, as far as we are concerned, is the dog, although it may occur in wolves and foxes.

"The ripe segments, crowded with ova, are discharged from the bowel of the dog, and ingested by one of the herbivora. The ova are surrounded by a capsule which becomes dissolved by the gastric juice, and the little embryos are set free. They are absorbed into the radicles of the portal vein and are carried first to the liver. The liver, therefore, is the organ most commonly infected. If they pass the liver they will lodge in the lungs. Finally, if they pass the lungs they are carried into the systemic circulation and may settle in any organ of the body.

"The embryo now develops into a cyst and enters upon the larval stage of its career. The cyst wall is formed of two layers, each of which is characteristic. The outer layer or ectocyst is thick and resembles coagulated white of egg; it is made up of a number of parallel layers like the leaves of a book. The inner layer or endocyst is the germinal layer. From it are budded off new heads or scolices of the tenia. Each scolex develops in a little cup-shaped process known as the brood-capsule, there being many scolices in each capsule. One germinal layer may give rise to very many scolices. In addition to forming new heads the endocyst may give rise to numerous daughter cysts, which usually develop within the main cyst, but sometimes outside of it. Within some of the daughter cysts new scolices may arise. Others remain sterile. The irritation of the cyst leads to the development of a well marked fibrous capsule from the organ in which it is situated."—Boyd, *Surgical Pathology*, p. 223.

The cyst fluid is generally clear or slightly opalescent, unless a mixed infection is present, and contains among other things an albumin not precipitable by boiling and a sugar. Should one, through indifference, carelessness, or ignorance, aspirate such a cyst the presence of these substances, even without the hooklets, would be almost pathognomonic.

The symptoms generally vary directly as the pressure upon the organ affected, producing disturbances in circulation, secretion and excretion. If the cyst ruptures through the skin, the prognosis generally is good, and if into the pelvis of the kidneys, the ureters, the bladder, or the vagina, fair; while if it ruptures into the free peritoneal or pleural cavity, the result is generally fatal.

These cysts are generally symptomless and painless, being often discovered accidentally the first time on account of their bulk, their pressure upon important organs, or an accidental rupture inducing inflammation of a serous cavity or by infection either (1) direct by trauma, (2) erosion as into a bronchus, or (3) by indirect trans-

ference of bacteria, as along the biliary passages in which latter case one has the symptoms of an abscess. Therefore, the discovery of the presence of a slow, steady, painless growth of a smooth, round, hard tumor, with an absolute absence of fever, pain, and cachexia, with an elastic fluctuation, the "hydatid thrill," which thrill resembles the feeling given to the palpating hand or percussing finger by overstuffed furniture, and with a peculiar vibratile resonance heard on auscultatory percussion, ought to point pretty clearly to echinococcus. If we can add to these symptoms fluid drawn, with due precaution, from such a tumor, which shows a sugar and succinic acid, the non-precipitable albumin, and the characteristic hooklets, the diagnosis is positive for echinococcus cyst. But the picture is not often as clear as this, and the problem becomes one of differentiation in the lung from other benign tumor, from pleuritis and pyopneumothorax, and in the liver from cysts arising from the pancreas, the kidneys, and ovaries, and from such diseases as cause either an irregular nodulation of the liver outlines, or even those which cause a passive enlargement of the organ, since in these latter cases the one and only tangible evidence of echinococcus may be its pressure on the vena cava, the portal vein, or the common duct.

Passive congestion, as might be caused by pressure of an echinococcus cyst, would not have the other signs of circulatory failure nor the accompanying large spleen and might, quite possibly, yield to postural treatment, while the jaundice from the pressure of a cyst would fail to give the history of repeated other attacks or of gall-stone colic, such as is the almost invariable rule.

A cyst which arises from the anterior edge of the liver would push the inflated colon downward and backward, and the origin would exclude those from the ovary, while a hydronephrosis would have urinary symptoms, colic, and lumbar pain, and would displace the transverse colon forward. A pancreatic cyst would give a history of long-continued digestive disturbance and paroxysmal pain and would shove the colon upward and forward. An enlarged gall-bladder is pear-shaped and freely movable, while an echinococcus cyst is round and shows a connection to the liver substance proper.

Should an hydatid cyst become infected we have to differentiate it from other more serious forms of abscess, and, in the liver, disregarding for this climate all forms of tropical abscess, we exclude those caused by infection through the

hepatic artery, in which case the liver is only a small part of a general systemic infection, and those caused by ulceration along the tract of the portal circulation where one must have a history of other serious abdominal visceral disease and those of biliary origin with the accompanying gall-bladder inflammation.

In the chest the cyst is nearly always in the substance of the lung and reaches great size only when developing from the lower lobe. Those developing near a bronchus make their way to discharge through it, and, the danger of suffocation being passed, frequently these patients make a spontaneous recovery, in which case the scolices and pieces of the cyst-wall are seen in the sputum. Echinococcus, primarily of the pleura, is quite rare. The symptoms are mainly those of pleural effusion, generally on the right side, the pressure giving a flaring shape to the lower chest, with a sharp line between dullness and quite clear breath-sounds. It may force its way through the intercostal spaces, appearing as a tumor over which the skin is freely movable.

Mrs. G. B., a Russian immigrant, was first seen in February, 1912, and gave a history of gradually increasing thoracic distress. Examination showed considerable displacement of the apex beat to the right, a well-marked dullness over the lower left chest, with increased temperature, sweating, and heightened pulse. Thinking it to be an ordinary empyema, it was aspirated and showed a white glairy pus which did not change the diagnosis. A rib was resected, whereupon we were greatly surprised to discover what seemed to be thousands of cysts, varying from minute to very large, ooze their way through the opening. The cavity was emptied, and drainage established. The walls of the cavity seemed to be normal, somewhat thickened pleura with no evidence of calcareous deposit, and there was probably a rupture into the free cavity.

The patient seemed to do well for a couple of weeks, although the cavity became foul. After irrigating a few times the patient began to complain of the taste of the antiseptic. After this time the size of the cavity remained stationary, and it was decided to try to obliterate it by making a more extensive resection of several ribs, and an attempt was made to remove the dense tissue, but it was only partly successful. After a time quantities of bismuth paste were injected, which may not have been spectacular surgery, but was good treatment, as the patient made a fairly rapid recovery.

In September, 1919, she was again seen and gave a history of having given birth to two children in the intervening seven years. Latterly, she had complained of epigastric pain radiating to the right shoulder, no relation of pain to meals, no vomiting, and no jaundice, but x-ray examination showed a high diaphragm on the right side with a higher convexity than normal.

An operation was advised and accepted. A tumor underneath the liver was discovered. The immediate area was packed for nine days when the cyst,

at a second step, was enucleated with considerable bleeding. This cyst also showed echinococcus. After a slow recovery, due to the drainage, she left and has not been heard of since.

DISCUSSION

DR. MARTIN W. ROAN (Bismarck, N. D.): Dr. Campbell has given us the life history of this parasite, which is the smallest tapeworm known in domestic animals and man. He has told us of the different segments and that the distal segment gives off as high as 5,000 ova. That this condition affects the liver more frequently than any other organ is probably due to the fact that the parasites or ova are ingested and then passively conveyed through the lacteals or walls of the small intestine directly to the liver, or from the intestinal wall by way of the portal vein.

The geographic distribution of the echinococcus is very interesting, inasmuch as it is more frequently found in a cold country like Iceland. Its next most frequent habitat is Australia, and occasionally it is found in Europe, Asia, and Africa, and, very rarely, in North America. There is quite a contrast between the countries from the standpoint of geographical location, as one is a very cold country (Iceland) and another quite a warm country (Australia). This probably can be readily explained by the fact that in Iceland the people use dogs for all purposes, the summers are short, and no doubt the sanitary conditions under which the dogs are kept are not of the best.

I have seen very few cases of echinococcus cyst and have had only two in my own practice, in one of which, as in the case reported by the essayist, I blundered into a large cyst containing several pints of material, which came from the under surface of the liver and probably from underneath the peritoneum. This case before operation was diagnosed as a mesenteric cyst, but upon making an incision the cyst was found to be attached to the abdominal wall, in fact we opened directly into it. Of course we had the daughter cysts and slimy material coming from the cyst. The cavity was evidently sterile, because after drainage, which lasted about three months, the patient recovered and remained well. This was ten years ago.

The second case, a girl, aged 22, that came under my observation had been diagnosed as an appendiceal abscess. It was opened at McBurney's point and drained, and the surgeon was surprised to find a clear fluid, slimy, and some mortar-colored substance oozing out. A diagnosis of echinococcus cyst was made by us. The patient had a high leucocyte count because she had been infected when she was operated on for supposed appendicitis.

When she entered the hospital she was in a state of general peritonitis, lingered five days, and died. Death no doubt occurred because of septic peritonitis. This was probably due to breaking down of the cyst with consequent infection of the peritoneum.

DR. CAMPBELL (closing): I purposely avoided making any reference whatever to the statistics as they related to echinococcus, for more than one reason. One reason is that I remember quite well, when a much younger man than now, visiting the warden of a penitentiary, a retired physician, whom

I asked to give me some statistics regarding reformation of criminals. He told me: "Young man, there are three different kinds of lies: First, the ordinary white lie which all doctors use as their stock in trade; second, a damn lie, and, third statistics." The statistics which we have bearing on the question of echinococcus infection seem to be especially impracticable just at present, when one considers the statistics given out in Germany of 67 to 70 per cent of animals slaughtered in the abattoirs having echinococcus infection, and note that their general rule is that the incidence of echinococcus in humans bears a definite proportion to the amount of this infection found in food animals. Iceland has always been our classic example of generalized echinococcus infection, and Australia in places runs up some 60-70 per cent infection. On the other hand, in this country we have hardly any available statistics regarding the incidence of the echinococcus except those of Stiles. This authority reports that in the abattoirs of

Kansas City there was at one time as high as 10 per cent infection. That hardly seems probable, but, on the other hand, if we were to ask for reports from all of the members present who have blundered across cases of echinococcus cyst, I think the majority of you would have found them, just as I have blundered across echinococcus cysts, but no report regarding these has been presented in the literature.

I have also purposely avoided mentioning certain tests for echinococcus which have been developed in recent years, because they are still properly in the hands of special investigators, and the discussion of them had best be kept within the ranks of specialists who are most capable of judging their practicability; for instance, some men say that the presence of certain large mononuclear blood cells is pathognomonic, and others say that they are able to fix a complementary body in the blood which is present only in the case of echinococcus invasion.

PREVENTIVE MEDICINE

BY ALFRED N. BESSESEN, JR., M.D.

AND

DANIEL H. BESSESEN, M.D.

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Many lives end as a result of chronic disease which has developed gradually from childhood. It is the constant dropping of water that wears out the stone: likewise, it is the constant feeding of small infections, the constant disturbance of functional disorders which finally undermines and destroys the one thing most precious to all,—health. It is this gradual punishment, so mild that it is not recognized, which, just as certainly as the passage of time, injures the kidneys, reduces the tonicity of the heart, eats into the valves, hardens the arteries, lowers the vitality of every tissue of the body, and induces senile conditions. This is not a new process, but has been carrying on since life began and will continue to do so. Its progress is not steady and even: at first it is very, very slow, but as time goes on, as the years increase, it gathers speed until the momentum cannot be stopped. The person dies suddenly or lingers an invalid a long or a short time. Like a large rock, gathering speed on an incline, at first very small pressure will stop it, but when full speed is attained it crushes through tremendous obstacles, tearing down huge trees. So in disease, if the condition is arrested early, only a minor amount of care and treatment are necessary; and likewise, in the last stages, all the benefits of medical science are of little avail in stemming the onslaught. The

time has come when preventive medicine, rather than curative medicine, is being practiced.

The average length of life ranges between 48 and 50 years. This span has increased in late years mainly because of the better care which babies have received. There is also, however, an increase in the adult life expectancy. This increase has resulted from earlier recognition of disease and better methods of therapy. Perhaps as high as 75 per cent of all disease is caused by infection, much of which is of a chronic nature. There are other forms of pathology, especially anomalies, functional and constitutional disorders, and neoplastic diseases, the early recognition and relief of which will give added years, ease, and happiness to life and increased efficiency to the worker. Many of these diseases come on one insidiously, individuals being entirely unaware of the presence of any illness until it has developed into a really serious condition. Most people do not call a physician or have an examination until after having tried all the home remedies and find these of no avail. In fact, most chronic diseases show very few subjective symptoms: beginning heart disease, beginning nephritis, beginning arteriosclerosis, or increased blood pressure have their origins and may progress to a very serious state without any annoyance to the individual. In other words, the

person is not cognizant of the fact that his very foundation is being gradually washed away until the superstructure crumbles to the ground.

In the treatment of these conditions; namely, chronic heart diseases, hardened arteries, hypertension, nephritides, chronic arthritis, all of which shorten life, cause lingering invalided conditions, the early elimination of all infections is absolutely necessary. Individuals may continue for years with infected tonsils, teeth, sinuses, with infectious conditions of the genito-urinary tract without apparent change in their physical condition; but all the time these infections are eating away their vitality. Patients must understand—must be made to see the importance of removing these infectious centers. The removal of tonsils and extraction of teeth are often questioned by the patient on the basis that these organs are infrequently troublesome. They do not know or understand that one single attack of streptococcic sore throat may leave them invalided for life with a severe heart condition or other points of infection. Acute arthritis or chorea is caused by similar sources. Every time the individual bites on some firm substance with an infected tooth, some of the infectious material is pressed into the tissues. In like manner every time the individual swallows, the soft palate lifts up, the fauces close, and the tonsils are pressed between the pillars, and infective material is squeezed into the tissues. This constant flow of infective material from inflamed teeth or tonsils is a great handicap for the individual to overcome. Metastatic infections may occur through the blood and lymph streams enlarging the nodes, affecting the joints, muscles, heart, vessels, all parenchymatous organs, or pass through the alimentary canal by hematogenous or contiguous dissemination—in the case of tonsil, teeth, and nasal and mouth infections—to the gall-bladder, stomach, duodenum, appendix, and through elimination in either form of dissemination produce injuries to the kidneys. Gonorrhoea often leaves a focus of chronic infection somewhere in the genito-urinary tract, which acts as the same detriment as other foci of infection. These conditions are cleared up with great difficulty, and the patient should be instructed that he must not expect a rapid cure and, at the same time, should be impressed with the importance of securing a cure. Neisser states that next to measles, gonorrhoea is the most widespread of all diseases. Fully 60 per cent of all operations on women for relief of conditions due to infections are directly responsible to the gonococcus. This infection is responsible for 25 per cent of all childless mar-

riages. It is also stated by Child that 80 per cent of supposedly cured men show gonococci in the semen and that cultures of the seminal fluid give the best index of cure. The importance, therefore, of careful observance in the treatment of cases suffering from gonorrhoea is self-evident, and too much emphasis cannot be placed on this point. Prophylaxis is the best preventive. If the disease is to be cleared up, prophylaxis must be emphasized by physicians and early attention from competent men sought by the patient. Circumcision of men will greatly decrease the possibilities of venereal infection, gonorrhoeal and syphilitic, as well as chancroidal, and is a marked addition to cleanliness.

These chronic infections, in addition to vitiating the organism and placing the patient open to pneumonias and other general infections, cause much physical distress and weakness. In our opinion, the frequency of appendicitis, cholecystitis, and ulcers of the stomach and duodenum would be greatly decreased if early foci of infection were taken care of promptly, and in like manner, the frequency of chronic conditions, as those of the heart, vessels, and kidneys, would be markedly decreased or at least much delayed in their appearance. It is the doctor's duty to see that his patients—those who come to him for attention—should understand thoroughly their importance. Too frequently, through fear that the patient will feel that his advice is for his own gain, the physician will fail to talk to his patients and warn them of these dangers.

Such functional and constitutional diseases as tuberculosis, diabetes, syphilis, and anemias are insidious in their onset and may cost the patient years of life. This is only another reason why complete physical examinations made each year, will catch many diseases in their infancy and put an end to them: by checking up on minor defects prevent the development of many chronic diseases.

Early vaccination against smallpox with repetition every five years is cheap insurance against one of the most serious of all infectious diseases. The necessity of vaccinating infants is sometimes questioned by mothers, due to an erroneous impression that the nursing child is immune. Vaccination at this time is very seldom attended with severe reactions, the child generally showing only a one-day aversion to feeding and many giving no indication whatsoever of any constitutional disturbance. With the advent of antitoxin for diphtheria a most wonderful stride was made in medicine and placed in the hands of medical men a protection against another very

serious contagious disease. But even with antitoxin this disease causes a great number of deaths, particularly from the ages of six months to twelve years, during this most susceptible term of life. Too frequently residual heart changes and tendencies to nervousness persist. Toxin antitoxin as a preventive of diphtheria has now taken a place similar to that of vaccination in smallpox. Toxin antitoxin is given in three injections about a week apart. In young children there is practically no reaction, and in young adults, if a reaction does occur, it will in all likelihood be very mild. By means of the Schick test, the young adults who need toxin antitoxin may be determined, and every child from six months to twelve years of age should be given the advantage of this treatment. The typhoid inoculation for those who are in the vicinity of questionable sources or are apt to contract this disease should be used regularly every three to five years.

Tumor growths, which are becoming more and more remarked about, are only to be benefited by early recognition and surgical removal. Too frequently patients permit these growths to gain rapid ground and report too late to obtain cure or even palliation in some cases. The most common locations for malignancies are the stomach, uterus, and breast. Masses, pain, or ulceration in any part of the body should lead these patients to investigate the reason; for, to effect a cure, a diagnosis is imperative, and delay is fatal. Patients frequently delay attendance of a medical

clinic for fear of the diagnosis of cancer, yet knowing that early diagnosis is their only hope of any relief.

Periodic physical examinations lead to better health in the community and a closer understanding between the physician and the patient, which is of value when symptoms of disease present. An interesting observation is made by Cook who writes as follows: "The most striking proof of the definite value and benefit of the periodic examinations, is the experience of the Metropolitan Life Insurance Co. This company was the first to offer its policy holders periodic physical examinations. From 1914 to 1922, 63,000 periodic physical examinations were made. In order to obtain as long an experience as possible, the policy holders who took the examinations during 1914-1915, 5,987 in all were intensely studied in the light of subsequent experience. This group had an experience of 33,629 years and showed 217 deaths as against an expected death loss of 412 according to the American Experience Table, or an actual mortality rate of 53 per cent. The lower death rate was for practically every age period the most favorable being between the ages 40-60 inclusive."

All these forms of prevention are tried and proven and, if advantageously used through periodic physical examinations carried out every year, will most certainly decrease the chronic diseases developing later in life, as well as increase the health and strength of the individual.

PROCEEDINGS OF THE MINNEAPOLIS CLINICAL CLUB

Meeting of September 21, 1925

The regular monthly meeting of the Minneapolis Clinical Club was held at the University Club on Monday evening, September 21, 1925. Dinner was served at 6:00 P. M., and the meeting was called to order by the vice-president, Dr. Hayes.

The minutes of the May meeting were read and approved.

The Secretary read the tentative program for the year and the names of those who were to appear on the programs.

Dr. Archie Beard read a paper entitled "Causes of Death in Diabetes since 1923."

DISCUSSION

DR. BEARD: I would like to ask if the pediatricians are having good results in acidosis since the use of iletin?

DR. ANDERSON: In the past the prognosis in diabetes in children has been very poor. The child could usually live only a comparatively short time. In the three cases we have observed at the General Hospital results so far have been most satisfactory. One of the chief difficulties in the past has been that it was impossible to give enough food to make the child grow and at the same time to keep him from developing acidosis. We are able at the present time, to do both of these things with the aid of insulin.

DR. PHELPS: How about cataract? Does the use of iletin have any tendency to prevent the development of cataract?

DR. BEARD: I do not believe it has made very much difference. We have had children and elderly people who have had cataract since the use of iletin. None of them has had diabetes more than one year. Keeping them sugar-free on iletin does not seem to do a bit of good. By putting them on a diet they did clear up slightly. I have never seen any marked improvement over the old method before iletin, and I do not think it has changed our results very much. So far as arteriosclerotic gangrene is concerned, it must be remembered that he has just as much arteriosclerosis in the pancreas, cerebral vessels, or vessels of the leg. We have all hoped that under the use of iletin these patients could be sugar-free and would not be as liable to develop arteriosclerosis. You have to treat the general condition, and, secondarily, they are very easily controlled on a diet without iletin. I think we have had better results since using iletin on the gall-bladder cases than we had before. Whether it is the general treatment of the patient, I do not know, but with patients operated on for gall-bladder and stones, there is not the high mortality there was before.

Dr. Kenneth Phelps gave the following account of his trip to England this summer:

I went to London and attended the meeting of the English-speaking ophthalmologists of the world. There were men there from Holland, France, Austria, and the United States. There were about 700 altogether, and probably 250 of them were from the United States. At least 50 per cent of the papers were read by Americans, and the other 50 per cent came from England. The impression Dr. Anderson got of the pediatricians, I got of the ophthalmologists. They knew pathology, comparative anatomy, and bacteriology probably much better than we do, but when it comes to the practical things to do for the comfort of the patient I would trust myself to an American doctor.

One interesting feature of this meeting was a symposium on the evolution of vision. It came about the same time that the discussion on evolution was going on in this country. It was surprising to note how much space they were giving in their papers to this. This symposium on binocular vision was very interesting. There were physiologists, anatomists, psychologists, and clinicians taking part in the discussion.

The convention ended in a most elaborate banquet in the Guild Hall which was put on in the manner only the English know how to do.

The work I saw in London was of a very high class. The men on the hospital staff give a lot of time to their clinics, often working four to five days a week. They use the slit lamp and corneal microscope in most of their cases, and they feel that it is going to be of some value eventually. I heard Chevalier Jackson, at the British Medical, talk about four solid hours, and he held his audience pretty

well. He gave a complete demonstration of bronchoscopy. Most of the men in England are not doing very much in the line of bronchoscopy. They do not seem to have the cases. There is one thing they do have more of, and that is malignancy. I never realized there were so many cases of carcinoma of the larynx and esophagus as I saw in London. Their work in total removal of the larynx is probably better than we do in this country, but in the average things, such as septums, tonsils, etc., it seems to me they were behind this country. In Scotland it seemed to be better than in England.

Dr. Kenneth Bulkley read a paper and gave a pathological demonstration of "Oxyuris and Trichocephalus Appendicitis." This was illustrated with numerous lantern slides.

DISCUSSION

DR. McCARTNEY: I want to thank Dr. Bulkley for his paper, which I enjoyed immensely. I have been under the impression that, although these parasites occurred quite commonly in the appendix, they were not supposed to be in any way responsible for any inflammatory processes that might take place there. It is certainly evident from Dr. Bulkley's slides that they can predispose to it, if not actually cause it, and cause a good portal of entry for pathogenic bacteria.

DR. WEBB: I feel that this paper has been instructive, illuminating, and valuable from many standpoints. After the profession had accepted the appendix as a cause of disease a great wave of appendectomies passed over this country. The appendix was removed too frequently. When I was a surgical interne, and later as house surgeon, definite organized follow-up systems were first organized in this country and the results were beginning to show that many appendectomies were performed without value. Dr. Gibson, of New York, published a long series of cases in one of the medical journals and a wave of conservatism followed until the internists were parting with their cases of pain in the right lower quadrant with great reluctance, and surgeons were heard to boast of the number of months since they had removed a so-called chronic appendix.

We have known for a great many years of the presence of these organisms within the lumen of the appendix, but Dr. Bulkley's research has shown beyond all question that these organisms can cause a chronic inflammatory process which can produce a chronic pain, and that this process may at any time become dangerous to the life of the patient.

In the future when a surgeon decides not to operate upon a patient with chronic pain in the right lower quadrant, or an internist insists upon instituting bowel management, we shall raise our eyebrows and ask them if they have searched the stools for ova and parasites and have ruled out the possibility of one of these worms prowling about under the mucosa of the appendix.

FLOYD GRAVE, M.D., Secretary.

THE JOURNAL-LANCET

Represents the Medical Profession of
Minnesota, North Dakota, South Dakota and Montana
The Official Journal of the
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The Hennepin County Medical Society
The Soo Railway Surgical Association
and The Sioux Valley Medical Association

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THE SPOILED CHILD

We have lately noticed in the public press that a great deal of attention is given to the bringing up of children, and if the press has finally awakened to this intense subject, perhaps something may be done after all. Perhaps, and we use the word advisedly, fathers and mothers will learn that it is absolutely necessary to give some of their time, at least, to the growing child. But in order to do this successfully the parents must be in a measure under some control by their own volition, and this is not a very frequent circumstance although doubtless there are many fathers and mothers who really take a live interest in the welfare of their children, who chum with them, visit with them, and bring them up in the way they should go. On the other hand, there are an enormous number of children who have grown up like weeds, without the cultivation or the same preservation and protection that flowers and plants receive, so that we need not hesitate to enlarge upon the subject of the spoiled child.

The real question, of course, goes back not only to what the parents are but what the previous ancestors were, in the growth and development of the present-day children. If their ancestry is good, their environment good, and their parents attentive and interested there is but little question that the children will follow in the same

footsteps. But when the ancestry and environment are more or less obscure and the parents are negligent, pleasure-seeking, indifferent, and neglectful, what can the children expect in the way of discipline, personal influence, or instruction? This latter type of children are often or commonly seen under the doctor's care. They have all sorts of hereditary defects which are plainly mapped out on their faces. And even if the parents are willing to devote some time to the training and development of their children, these defects will be in evidence; they cannot be removed because they came from way back in the ancestral age.

The place where the children's growth and attainments are really started is in the home; and where the home influence is good there need not be much worry about the children thereafter except that a hidden weakness may develop in young adult life, which may be carried on to such a degree that the individual breaks down and becomes anything but well trained.

In many families there is no discipline; the children are indulged in everything. The parents shirk all responsibility, and do not take the time even to make the children mind their elders, nor do they make themselves their children's companions. These children are allowed to run wild; and then the parents and the neighbors wonder at the result. The *Kansas City Times* says it is a real job to help a child build up its character, and many parents are selfish and unconcerned. When the child grows up unmannered and unattractive many parents blame the outcome of the child's condition to the schools, which is a very unjust accusation. The teachers in our public schools have to deal with just this type of children; and when they are finally brought to court, as they often are, they give a perfect picture of spoiled, selfish, undisciplined children growing into men and women wholly lacking in the ability to maintain decent standards of living.

In spite of the fact that there may be a bad line of heredity and an improper environment, many of these children would grow out of some of their inherent defects and could readily be made amenable to discipline if they were properly looked after in early life. Any physician who keeps a record of his patients will appreciate the reasons why children are bad or why they are good. A recent history of the young man in New York who married a woman who was part negro discloses a sordid and disreputable prelude in which the man blames the woman and the woman blames the man; yet probably neither of them is responsible, but their parents are.

On the other side of the question is the effort of the so-called reformers to bring about a change in the world's children. These reformers are mostly of the feminine type in the male and the male type in the female; they work and attempt to reform, and as a rule their theories are bad, or at least they are very much undigested. But still they go on with what they consider their duty in order to bring about the world's reformation. Alexander Black says, in his last book, "there will always be pushers who favor the greatest annoyance to the greatest rule." And these are those who are trying to reform the conditions of the world which are beyond reformation because the reformers begin too late in life with their subjects.

THE LIFE OF SIR WILLIAM OSLER

The editor is so much impressed by the review by Dr. William H. Welch, of Baltimore, on Sir William Osler, whom he calls "the physician and humanist" that he is forced to borrow, from the *Saturday Review*, some of Welch's observations and conclusions.

This "Life of Sir William Osler" was written by Dr. Harvey Cushing, one of our greatest living surgeons, who knew Osler intimately and was associated with him for years at Johns Hopkins. Anyone who has read or heard Dr. Cushing's talks will appreciate his manner of writing this biography.

Osler was born in Canada, and he died at Oxford in 1919 after he had been through four important universities,—McGill, Pennsylvania, Johns Hopkins, and Oxford; and in all four he established his reputation and showed his attractive qualities of mind, heart, and character, and he attained the highest eminence as a clinician and teacher. The personal contact with Osler was very delightful. He had many friends. He had an engaging character, he had the humanism which goes with the real man, and through his historical and bibliographical studies and his extraordinary power, by example and precept, he inspired devotion and influenced ideals of conduct, especially among young men. Consequently, he lives as one of the great men of the period, and his name will probably be found with all of the scientific men that have been written about for the past fifty years.

Osler was a tremendous worker, and his interests were in his medical societies and his medical friends. Probably there are others like him in this respect, but sometimes they neglect their family life for their medical life. His years

were crowded with work, incidents, and expressions surpassing many others that have gone before. Osler was a great clinical teacher although he never materially improved or promoted many new medical ideas; but he followed medical ideas with great persistence so that he was helpful to all who read his many manuscripts. Much of his writing was journalistic: editorials, book reviews, obituaries, and brief notes on men, books, and questions of the day, travel news letters, and the like. And it is surprising how well written and interesting are many of the fugitive pages.

Osler's writings were mostly concerned with some medical angle, that is, he did not abandon the writing of medical articles as did many other medical men before his time. He kept up his interest and his devotion to medicine throughout his life. His book on "The Early History of Medicine" should be in every man's library, if it is now obtainable, because it lays the foundation for the study of the early history and the early medical men. His published papers and monographs in the field of medical biography and bibliography ("bio-bibliography" he called it, following the French usage), although less popular than his general addresses, are his most important contributions outside of clinical medicine. "In a field where it is difficult for scholarship to escape the dryness of dust, Osler was never dull, and as Sudhoff, most eminent living medical historian, as quoted by Garrison, remarks 'an essay of Osler's is worth many ponderous tomes of dry erudition.'"

Osler's last years of life, particularly after he left Johns Hopkins and went to Oxford as regius professor, were those of a man about to break in health. He was practically at the end of his physical rope, and during the World War he lost his only and beloved son, which was another blow to his keen mind and one that undoubtedly hastened his death.

Sir William Osler was one of the first men to build up the general clinical idea, that is, to have other men associated with him in the study of his cases in Johns Hopkins Hospital, and he practiced the Teutonic method, but he soon enlarged upon that and improved its technic until it became an American institution. He speculated a good deal about the employment of full-time men in Johns Hopkins University and was very much opposed to the idea at first. Later in life he modified his impressions of the whole-time man, but he never gave up the fundamental fact that it was an unwise or an uncertain and speculative method.

The Life of Osler in these two volumes is worth any man's time, and those who have read it are convinced that it is one of the greatest two-volume editions of the day.

SCARLET FEVER SERUM

Antitoxic scarlet fever serum has recently been released by the U. S. Public Health Service. From Klebs and Löffler, who, in 1883-84, demonstrated the specific cause of diphtheria, and von Behring, who, in 1890-92, demonstrated the efficacy of diphtheria antitoxin, to Dochez and the Dicks, who, in 1923-24, demonstrated a hemolytic streptococcus as the essential etiologic factor in scarlet fever and developed an antiserum, is a period of four decades; and this perhaps well measures in years the difficulties attending the isolation, identification, and culture of the organism from its closely related strains.

The first step was the demonstration of the causative factor of scarlet fever. Much preliminary work had been done by such men as Schultz and Charlton, and others, even as far back as 1918, and later by Dochez, working with Blake, who did a great deal of work on the varieties of hemolytic streptococci. It was finally demonstrated by Dochez and the Dicks that a particular strain of hemolytic streptococcus is the specific cause of scarlet fever. Following this was demonstrated the relative immunity or susceptibility of individuals to the toxin of this specific organism by means of skin tests similar to the Schick test.

The second step was the development of an antiserum, and for this the Dicks deserve special credit. Although the announcement of the discovery of diphtheria antitoxin, occurring early in the era of modern medicine, was perhaps more startling, that of scarlet fever is no less significant, nor is the serum less remarkable in its clinical results. These two are outstanding achievements of modern biochemistry. Like diphtheria antitoxin, the scarlet fever serum should be used as early as a diagnosis is made. Its use after the seventh day is of relatively little value and for the complications secondary to scarlet fever has thus far been disappointing. But its early use prevents the complications incident to scarlet fever, such as otitis media, mastoiditis, nephritis, and myocarditis; and the results so far achieved indicate that if used early the deaths from scarlet fever would be negligible instead of from 10 to 40 per cent as they have been up to the present time.

The third step will naturally be the development of reasonably easy laboratory methods of differential diagnosis and, consequently, quarantine and control of the disease. If we could have, instead of the present relatively blind and unscientific methods of quarantine control by means of clinical symptoms, desquamation, etc., definite methods of culture of the discharges from the nose, throat and ears, a definite advance would be made. It is perhaps not too much to prophesy that within the next few years scarlet fever will be under just as definite and scientific control from the public-health standpoint as diphtheria is to-day.

O. K.

MISCELLANY

A COUNTRY DOCTOR: A TRIBUTE

In a small Missouri town a country doctor has died after 50 years of community service. He held a record of never refusing to visit a patient, even though he knew no fee would be forthcoming. It is estimated that he lost a fortune through unpaid doctor bills. He lived and worked under this plan for half a century.

That community has lost a man greater than presidents or judges or wealthy philanthropists. And that man has left a monument more lasting to his memory than any ever built of stone or marble. His name may never be inscribed upon granite, nor written upon history's pages. It has a better place; it is engraved upon the hearts of common men.

Generally the world looks with a sort of tolerant scorn upon a man who has such poor business sense that he will not rate his services for what they are worth in dollars and cents, but somehow down in our hearts, do we not know better?

No doubt this country doctor got much more out of life than many men far more successful in material wealth than was he. He got the satisfaction of performing daily a task that he loved; he got the joy of knowing that he could alleviate human misery and pain: he got the sweet reward which always comes to those who follow their star. He cheated no man; he only helped. He did not tear down, not even human illusions; he built bodies and souls. And a kindly death came while he was seated at the bedside of a patient and took him hence, where we may hope his helpful soul goes on working through eternity.

It has become the fashion to scoff at men like this. We moderns generally judge a man's success, not by the good he has done, but by the dollars he has accumulated.

But even those who laugh loudest know deep within themselves that the best joy in life comes, after all, in service to others, the best happiness lies not in what we get, but in what we give.—St. Paul Daily News.

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| NEWS ITEMS |
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Dr. D. W. Gross has moved from White, S. D., to Danville, Ill.

Dr. A. M. Fisher has moved from Bismarck, N. D., to Inglewood, Calif.

Dr. M. R. Schneller has moved from Mott, N. D., to New England, N. D.

Dr. O. N. Meland, of the Warren (Minn.) Clinic, has moved to Los Angeles, Calif.

Dr. James Grassick's "History of Medicine in North Dakota" will be ready for distribution this month.

Dr. A. V. Fankboner, of Motley, has accepted the position of superintendent of the Lenont Hospital at Aurora.

Dr. Thomas F. Quinby, of Minneapolis, accompanied by his wife, has gone to Spain to spend the winter.

The citizens of Granite Falls have been asked to subscribe \$30,000 for stock in the proposed hospital for that city.

Drs. Griffith, Wright, and Sigler of the Huron (S. D.) Medical Society are responsible for the program of the December 3d meeting.

Dr. Alexander McRae has resigned his position as superintendent of St. Luke's Hospital of Duluth, a position he has held since 1899.

Dr. G. A. Larson, of Fargo, N. D., has gone to Vienna to spend eight months in eye, ear, nose, and throat work. He will also visit Paris and Berlin.

Work has been begun on the addition to St. Joseph's Hospital at Dickinson, N. D. The addition will add twelve rooms and a chapel to the present building.

The next quarterly meeting of Board of Medical Examiners to examine physicians desiring to practice in North Dakota will be held at Grand Forks, on January 5.

The Federal Board of Hospitalization for Veterans of the World War have recommended an appropriation of \$200,000 for a Federal hospital at Fargo, N. D.

The Miller bequest of \$530,000 for a memorial hospital in Duluth, made in 1916, has increased to \$744,000. The hospital cannot be erected for lack of funds to operate it.

Dr. Julius Jensen, of Kensington, has taken over the work of Dr. O. V. Ophelm, of Starbuck, for several months during the latter's absence for postgraduate work.

Dr. J. W. Stacey, who has been practicing a short time at St. Thomas, N. D., has moved to Crystal, N. D., and become associated with Dr. B. Thorlackson, of that place.

The Western Surgical Association, to which many surgeons of Minnesota, the Dakotas, and Montana belong, holds its next annual meeting at Wichita, Kas., on December 26 and 27.

Dr. Ernest F. Allison, a 1924 graduate of the St. Louis University School of Medicine, who took his internship work at St. Barnabas, Minneapolis, has begun practice at Kensington.

Dr. H. W. Haddow, of Chippewa Falls, Wis., and Dr. Elton H. Smith, of Minneapolis, have become associated with Dr. Iver S. Benson, of Montevideo, and they have organized the Montevideo Clinic.

A cripple who died in St. Paul last month at the age of 35 and was supposed to have no property, left an estate of \$30,000, accumulated as a newsboy, to three Twin City hospitals for crippled children.

The winter meeting of the Sioux Valley Medical Association will be held on January 19 and 20. The program will follow that of last year, which gave so great satisfaction. It will be clinicodidactic in character.

A memorial shaft was erected last month in Crystal Lake Cemetery, Minneapolis, in honor of Dr. Hugo Hartig, who died in Minneapolis last month. Dr. Hartig was, at the time of his death, commander of the Department of Veterans of Foreign Wars.

The seventh annual meeting of the Association of Resident and Ex-Resident Physicians of the Mayo Clinic was held at Rochester on October 19-21, and was a very delightful and profitable meeting. The membership of the Association is now over 360.

The American Board of Otolaryngology held an examination at the Cook County (Chicago) Hospital last month. Out of 143 who took the examination 120 passed, and 23 failed. The next examination will be held in Dallas, Texas, on April 19, 1926.

Dr. D. L. Scanlan, of Volga, S. D., has gone to California for the winter, taking his first long vacation since he began practice in Volga, twen-

ty-five years ago. Dr. G. V. Brimmer, of Sioux Falls, S. D., will have charge of Dr. Scanlan's practice during his absence.

Dr. C. B. Strang died last month at Duvall, Wash., at the age of 54. Dr. Strang graduated from the Minnesota College of Physicians and Surgeons, class of '96, and formerly practiced at Hudson, Wis., and at Lemmon, S. D. He recently moved to Washington.

At the annual meeting of the Interurban Academy of Medicine of Duluth and Superior, held last month at Duluth, Dr. D. R. Searle, of Superior (Wis.) was elected president; Dr. J. F. Hirschboeck, of Duluth, vice-president; and Dr. G. J. Hathaway, of Superior, secretary.

Dr. J. J. Ahlfs has sold his practice at Erskine and moved to Bemidji, where he has formed a partnership with Dr. D. J. Martin. Both Dr. Martin and Dr. Ahlfs are graduates of the Medical School of the University of Minnesota, the former in the class of '21 and the latter in the class of '22.

Three Cloquet physicians and two dentists have formed the Cloquet Clinic. They will occupy a new building erected to meet their needs. The following are the physicians of the Clinic: Drs. R. M. Eppard, R. G. Spurbeck, and A. B. Stuart. Drs. W. L. McDonald and M. C. Whittemore are the dentists of the Clinic.

Dr. Wilson A. Allen, now of Rochester, came to Minnesota sixty years ago, landing at Minniska, on the Mississippi, going thence to Plainview by stage. The weather was beautiful far into December and flowers bloomed until December 2. Dr. Allen moved to Rochester in 1872 and has practiced there since that date.

Dr. Thomas R. Martin, of Duluth, died last month at the age of 43. Dr. Martin was a graduate of the Medical School of the University of Minnesota, class of '07. He went to Duluth fifteen years ago to take charge of the State Health Department Laboratory, and later joined the Duluth Clinic as the head of the Department of Internal Medicine.

The November monthly meeting of the Grand Forks (N. D.) District Medical Society, held on November 18, the attendance was large. The subject of "Goiter" was presented by Drs. Ruth Mahon, H. H. Healy, and James Grassick. A general survey of the prevalence of the disease in Grand Forks and vicinity showed that 40 per cent of the school children are more or less affected by it.

The Hennepin County Tuberculosis Association is doing very effective work, mainly, of course, in Minneapolis. Last month it sent attractive and instructive posters (six in a set) to 1,500 firms in the city, and these posters were studied by many thousands of employes in these establishments. The Christmas Seals which make possible this and like health work should be bought by everybody.

At a reception held at the home of Dr. and Mrs. S. M. White, on November 20, 1925, in honor of Dr. Berglund, the new chief of the Department of Medicine of the Medical School of the University of Minnesota, all the past chiefs of this department were present, Dr. Charles Lyman Greene, of St. Paul, Dr. L. G. Rowntree, of Rochester, as well as Dr. S. M. White, the retiring chief of the department. The members of the Department of Medicine, as well as of the Administrative Board, were guests.

A NEW TUBERCULOSIS NEWS SERVICE

A medical news service is to be sent to physicians of the Hennepin County Medical Society, twice a month by the Hennepin County Tuberculosis Association. The first issue appeared November 15. The purpose of the publication will be the means taken by the Tuberculosis Association of giving up-to-the-minute information on progress being made in the fight against tuberculosis—the type of information which the busy physician in general practice will appreciate having reach his desk from authoritative sources.

The medical committee of the Tuberculosis Association, which includes twenty-five physicians, who are also members of the Hennepin County Medical Society, will authorize the publication of material covering the medical and scientific aspects of the tuberculosis problem.

One of the first large cities in the country to establish a medical news service on tuberculosis was St. Louis. A. W. Jones, secretary and manager of the Tuberculosis Society of St. Louis, started the series last spring.

The St. Louis' service was planned to cover eight subjects, including such topics as the private physician in the control of tuberculosis; sources of infection in tuberculosis; modes of infection in tuberculosis; resistance and immunity in tuberculosis; history in the diagnosis of tuberculosis; physical examination in the diagnosis of tuberculosis; x-ray in the diagnosis of tuberculosis; the laboratory in the diagnosis of tuberculosis; tuberculin in the diagnosis of tuberculosis; tuberculosis in infancy and childhood; rest, food, climate and altitude in the treatment of tuberculosis.

The consideration of clinics, sanatoria and public health nurses in the control of tuberculosis, and methods in the prevention of tuberculosis, in addition to the topics above-mentioned, will be covered in the news service going out under the auspices of the Hennepin County Tuberculosis Association.

Mercury Vapor Lamp Wanted

Wanted to buy a used air-cooled mercury vapor lamp. State make, serial number, hours used, and price. Address 318, care of this office.

X-Ray Generator for Sale

A Victor-Wantz X-Ray Generator, 10-inch spark gap for 220 direct current, can be bought at a bargain. Address 325, care of this office.

Position Wanted

Young lady, graduate stenographer, registered experienced nurse, desires position in doctor's office or clinic. Address 320, care of this office.

Office Space Wanted in Minneapolis

An eye and ear specialist wants to rent office and share reception room with a general practitioner in Minneapolis. Address 322, care of this office.

Location in North Dakota Wanted

Where a good practice can be developed from the start. By a capable, experienced, general practitioner, aged 40. Address 304, care of this office.

Medical Typist Wants Piece Work

A competent medical typist in Minneapolis will do piece work in evenings and at other spare time at a very low charge. Address 327, care of this office.

Expert Laboratory Technician Wants Position

Has had three years' experience in a hospital of 65 beds and a large clinic and one year in general city laboratory work. Address 316, care of this office.

Practice in Minnesota Offered

A practice can be had in a town of about 400 or 500 in a large and growing community in Northern Minnesota by purchasing a small amount of office furniture. Address 305, care of this office.

Technician Wants Work in Minneapolis

Can do all kinds of laboratory work, and is experienced in most kinds of x-ray work and diathermy. Has assisted in surgical work. Best of references. Address 324, care of this office.

Wanted—Position by Laboratory Technician

Graduate of recognized school, capable of doing blood counts and chemistry, urinalysis, gastric analysis, tissue technic, and some bacteriology. Open for appointment January 1. Address 328, care of this office.

Minneapolis Office for Rent

For rent a doctor's office including use of waiting-room and laboratory in fast developing location at 50th and France Ave. So., Minneapolis. Also apartment adjoining office can be had if desired. Address H. E. Hine, 519 Marquette Avenue.

Practice and Office Equipment for Sale

The practice and equipment of a physician recently deceased is offered for sale in a good city near the Twin Cities. Good opportunity for a physician who can speak German. Will give terms if desired. Address 312, care of this office.

Physiotherapy Technician Wants Position

I have four nurses who have just completed a private course in Physiotherapy and general office work. Can fill office position by October 20. For further information, write Dr. Iver S. Benson, Montevideo, Minnesota.

Position Wanted

A registered nurse, who is a graduate of the Chicago Lying-In Hospital (1924) and has had institutional experience in obstetrics, a year and a half work in anesthetics, some experience in x-ray work, desires a position in a hospital or clinic in Minneapolis. Address 323, care of this office.

School of Physiotherapy

Regular technician's course in Physiotherapy and X-Ray including Laboratory and General Office work. Duration of Course, 4 weeks.

For further information write to the Montevideo Clinic School of Physiotherapy, Montevideo, Minn., First National Bank Bldg.

Fine Opening for Physician

In a Minnesota town of 300 in a splendid dairy section and large territory. Fine office with electric light, modern plumbing, and bath-room. Rent only \$15, and house rent low. Will guarantee \$200 a month for several months. German or Scandinavian preferred. Last physician left with view to going to the Twin Cities shortly. Address 309, care of this office.

Large Practice for Sale in South Dakota

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A young Norwegian physician and surgeon who has had good surgical training, for a Scandinavian community where there is a good hospital. Opportunity excellent for the right man. Unmarried man preferred. Address 308, care of this office.

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THE RECOGNITION AND TREATMENT OF URINARY INFECTION*

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I shall discuss here only some of the more recent advances in urinary infection, and the treatment of various types of the disease.

It was formerly believed that renal infection was always ascending. Later the pendulum swung to the viewpoint that such infection was always descending. Recently we have modified our viewpoint since we have come to know that most cases of renal infection are of the descending type, but that there is also a definite type that is ascending.

Graves, working with Quinby, has shown by animal experimentation that with a full bladder ureteral peristalsis may be so diminished that the urine may ascend from the bladder up the ureter as far as the renal pelvis. It can be readily inferred that, if the urine is infected, bacteria could ascend to the kidney in this manner and infect it secondarily. I am under the impression that in many cases of distended bladder secondary to prostatic obstruction, pyelonephritis results from the infection in the bladder, because of weakening of the ureteral peristalsis by long-standing back pressure, particularly if catheterization has been intermittent.

We are all familiar with the type of cystitis secondary to acute urethritis, in which only the portion of the bladder adjacent to the prostatic urethra becomes inflamed. Occasionally such an

infection may involve the entire bladder, apparently ascend the ureter and infect the kidney secondarily. Fortunately, however, in most cases the infection is localized to the trigone and usually disappears with improvement in the condition of the urethra.

Ascending infection, frequent in the female, occurs with chronic urethritis or relaxation of the urethra. As a result of relaxation infection easily passes from the urethra into the adjacent bladder mucosa. This type of infection explains a large number of cases of so-called irritable bladder in which very little can be seen on cystoscopic examination other than slight congestion of the mucosa.

However, most cases of infection in the urinary tract are of the descending or hematogenous type. Most cases of so-called cystitis have had their origin in some distant focus of infection, the infection being carried to the bladder by the blood stream and the kidney. The kidney itself may be but slightly affected and may rapidly become normal, while the infection in the bladder may persist and become chronic. At examination some time after the original infection there may be no evidence of disease in the kidney, which probably explains a great many cases of recurring attacks of cystitis. The patient may have symptoms lasting several weeks, followed by their disappearance and reappearance for varying intervals.

*Presented at the thirty-eighth annual meeting of the North Dakota State Medical Association held at Fargo, N. D., May 18 and 19, 1925.

Many cases of recurring urinary infection are undoubtedly due to focal infection, and the patient should be carefully examined for possible evidence of such focus. This means, of course, a careful roentgen-ray examination of the mouth, even if all the teeth may have been extracted, and examination of the nose and throat, even if tonsils and adenoids have been removed. It is not unusual for patients to say that all their teeth are out, and yet for the roentgenogram to reveal the presence of a number of infected roots. Similarly, the patient may give a history of a previous tonsillectomy and careful examination disclose a septic tag which had not been removed. It is not at all unusual to have a patient claim that he has not had trouble with his throat, and then to find he has septic tonsils. The tonsils need not necessarily be large; small tonsils containing plugs of pus may be more virulent than large ones. It is true that sometimes tonsils and devitalized teeth will be sacrificed needlessly, but it may be impossible to distinguish between the guilty and the innocent, and, in order to insure removal of all foci, tonsils and teeth must be removed if they show any evidence of infection. Von Lackum has shown that chronic pyelonephritis, as well as infection in various distant tissues and organs, may be the result of a focus of infection in chronic prostatitis.

A comparatively common type of renal infection is characterized by single or multiple small cortical or subcapsular abscesses, and may produce but few, if any, urinary symptoms; its true nature is, therefore, easily overlooked. On reviewing the patient's history, there is almost always a recent definite attack of some form of skin infection which the patient may refer to as a boil or carbuncle. Subsequent to this the patient may have a sudden chill with fever and malaise and possibly, although not always, a dull ache referred to the area of the kidney. The fever may persist for weeks, without any other definite clinical data. Microscopic examination of the urine may reveal only a few pus cells or none. Tenderness over the kidney is usually of little practical value, and roentgen-ray and cystoscopic data are, as a rule, not of much practical importance in diagnosis. In a few cases, however, when the abscess has extended toward the medullary portion of the kidney, there may be deformity of the renal pelvis visible in the pyelogram, together with reduction in the renal function. However, in most cases the clinical data will be obscure, and after excluding the involvement of other organs the history of a recent skin infection or a carbuncle is of the

greatest importance. Needless to say, in cases of doubt it is advisable to explore the kidney and, if an abscess is found, to drain it. On exploration there is usually secondary perinephritic involvement. The abscess in the kidney itself is often very small, situated under the capsule, and difficult to locate. This explains why there is frequently no bulging or marked tenderness in the area of the kidney. Drainage affords relief. There rarely are multiple areas of cortical infection in this type of case.

The so-called septic cortical nephritis described by Brewer is, for some reason, not seen nearly so often as formerly. This is described as being of hematogenous origin and is characterized by multiple cortical abscesses. The only renal infections of this type which I have observed in recent years have appeared subsequent to pyelography and were caused by obstruction of the renal tubules with the pyelographic medium or by the secondary irritation it caused.

The existence of so-called pyelitis of pregnancy is now being recognized more frequently. This condition doubtless explains the fever which occurs during pregnancy and which formerly could not be accounted for. The exact etiologic factors involved in such cases have not been definitely determined. Many observers have come to the conclusion that it is secondary to pressure on the ureter by the fetus. As the result of interference with urinary drainage the secondary infection is probably of hematogenous origin or the descending type. This condition can easily be relieved by introducing ureteral catheters to the renal pelvis and allowing them to remain for several hours, or in some cases for a day or two, but as a rule one or two catheterizations will remedy the trouble.

In the treatment of urinary infection it is of considerable importance to know whether the urine is acid or alkaline. An important point in the diagnosis of urinary infection is never to be satisfied with the examination of specimens of urine passed by the female. A wrong diagnosis of urinary infection will often be made in this way. The possibility of extravescical contamination is considerable. It is not unusual to find one hundred pus cells to the field in the passed specimen and none at all in the catheterized specimen. Thus it is of fundamental importance to have a catheterized specimen in every case. This is not so much for the purpose of obtaining the reaction of the urine as to obtain the urine from the bladder uncontaminated. If the urine is alkaline, either retention or alkaline phosphatic cystitis is present. While retention may be either

in the bladder or in the ureter and renal pelvis, in most cases it is in the bladder. Vesical retention may be due either to prostatic obstruction or disease in the spinal column. It should be remembered that even though no evidence of prostatic enlargement is found on rectal examination, there may be marked prostatic obstruction protruding into the bladder. Urinary retention with a negative rectal examination is often caused by disease of the nerves supplying the bladder and may be the only evidence of a lesion in the central nervous system. Marked alkaline reaction of the urine, therefore, is evidence of either retention or alkaline phosphatic cystitis. The latter being excluded, the retention is due either to prostatic and urethral obstruction or to a lesion in the cord. The urine may also be alkaline in the presence of stones or malignant tumor in the bladder. There is either urinary retention with these conditions or an invasion by a secondary organism which has the power of making the urine alkaline.

Alkaline phosphatic cystitis comes under this group and, although not a common disease, is frequently very misleading. It is usually characterized by hematuria, ulcerative cystitis and granulomas, which may be easily confused with neoplasm. It can be controlled by acidification of the urine and topical applications of silver nitrate. That it is caused by a specific organism has been shown recently by Hager and Magath. Although Rosenow has shown that bacilli are a factor in stone formation, this is the first example in which a direct cause has been definitely observed.

If the urine containing pus is acid and if on culture no bacteria are seen, the possibility of tuberculosis must be considered. While other types of infection may be present with acid urine and sterile cultures, this is, nevertheless, quite characteristic of renal tuberculosis. The vesical involvement with renal tuberculosis is usually so severe as to cause considerable dysuria. Rarely do these patients sleep throughout the night. Therefore, with a history in the adult of pus in the urine, frequency, urine acid in reaction and bacteria-free on culture, renal tuberculosis is the strongest possibility. The exact diagnosis is made, of course, by finding acid-fast bacilli in the urine, in much the same manner as we examine the sputum, and should be found in 75 per cent of the cases.

In cases of bilateral pyelonephritis the urine is usually acid, but on culture bacteria are always found and bacillus coli usually. Bilateral pyelonephritis is undoubtedly a much more com-

mon disease than was formerly believed. The urinary frequency and dysuria are often as marked as in cases of renal tuberculosis. The differential diagnosis depends largely on whether the bacilli of tuberculosis are found in the urinary sediment and on whether a deformity is seen in the pyelogram. When pyelonephritis has persisted for many years it is eradicated with difficulty. It is my custom to inform the patient suffering from this disease that one-third of the patients get well following treatment; one-third are markedly improved; and the remaining one-third are not helped by present methods of treatment. The treatment to-day consists of, first, removal of all possible foci of infection; second, internal medication, such as hexamethylenamin and ammonium chlorid, hexylresorcinol and forced fluids; third, local treatment, such as vesical irrigations and lavage of the renal pelvis, and dilatation of strictures; and, fourth, intravenous medication with hexamethylenamin, mercurochrome, and acriflavin.

As previously stated, one cannot look too carefully for possible foci of infection in these cases, and anything which could possibly act as a focus should be removed. Lavage of the bladder and of the renal pelvis has given, unquestionably, much symptomatic relief and has been of more or less permanent benefit to the patient. It is our custom to inject 5 to 10 c.c. of silver nitrate into the pelvis of the kidney with the patient in the Trendelenburg position, and allow it to remain in the pelvis for at least five minutes by plugging the catheter.

Hunner has called attention to the possibility of stricture in the ureter as a factor in such infections. Ureteral dilatation is frequently seen in the urogram and may be explained as the result of both mechanical and inflammatory dilatation. That strictures are common with pyelonephritis must be recognized, and in these cases it is well to dilate the ureter thoroughly. How permanent the relief may be from such dilatation is open to question in many cases.

Internal medication has not been very efficacious. Hexamethylenamin has been largely discarded in such conditions because it is of value only in acid mediums. More recently its use has been revived in conjunction with ammonium chlorid, which acidifies the urine more effectively than any other drug. Leonard has shown recently that *in vitro* hexylresorcinol is probably the most powerful urinary antiseptic, to be taken internally, yet advocated. The drug has, unfortunately, received such newspaper notoriety that the laity, as well as the medical profession,

have been led to believe that it is efficacious in all urinary infections. Unfortunately, it has not proved to be of such value *in vivo* as had been hoped for. Leonard has stated that it is more efficacious as a urinary antiseptic than as a renal antiseptic. Since chronic pyelonephritis is a disease affecting the parenchyma of the kidney, it would hardly come within the province of this drug. Clinical experience has failed to show many cases of pyelonephritis in which hexylresorcinol has succeeded in removing all the infection. It has been my experience in a few cases of pyelonephritis that some symptomatic relief resulted after large doses of hexylresorcinol had been given over a long period of time. However, the value of this remedy has been greatly exaggerated; it has been effective in but few cases of chronic infection of the urinary tract.

Intravenous medication in cases of urinary infection has received a marked impetus since the use of intravenous mercurochrome was begun. As a result of unfortunate notoriety in both lay and medical press, many general practitioners are using intravenous mercurochrome promiscuously and without a careful study of its indications and contra-indications. There is no doubt that in some cases of sepsis cures following the use of intravenous mercurochrome have been almost miraculous. It should be remembered, however, that it is not without danger when used intravenously and should be employed only as a last resort and then only with the greatest precautions. It has been our experience that it is of the greatest value in acute, rather than chronic, infections. Furthermore, it is of particular value in acute infections of the urinary tract that have not responded to the usual treatment. It is seldom of any value in chronic infections and is, therefore, of little benefit in chronic pyelonephritis.

The intravenous injection of gentian violet has been of little aid in combating urinary infection, even though coccal infection is present. Intravenous injections of acriflavin have also not been of much aid. In persistent acute pyelonephritis, I have found that daily intravenous injection of 5 c.c. of urotone containing 5 per cent hexamethylenamin is frequently of value, and it has the additional advantage of not causing reaction. In some acute cases of pyelonephritis I have also found that considerable temporary benefit may be derived from intravenous injection of Fischer's solution.

Stricture of the ureter resulting from infection in the ureter has recently been the subject of much discussion. It was formerly thought

that ureteral stricture rarely occurred except as secondary to renal tuberculosis. Largely owing to the investigations of Hunner, it is now recognized that ureteral stricture is more common than we had previously believed, although but few urologists agree with him as to its frequency. Hunner believes that it is comparatively common, particularly in females, and that it is a common cause of obscure abdominal pain and distress. He claims that the ureteral stricture can be diagnosed by introducing a catheter bearing a wax bulb into the ureter and ascertaining the existence of a so-called hang on withdrawing the bulb. This evidence is not generally accepted as being sufficient to make a definite diagnosis. It would be only logical to assume that if there were a stricture in the ureter, there would be dilatation immediately above it. In order to demonstrate this clinically, it is necessary to make a urogram. Unfortunately, however, the normal ureter is distensible, and when overdistended there may appear to be slight dilatation in the ureterogram. Consequently, minor degrees of apparent dilatation are interpreted differently by various observers. It has been my experience that, in order to make a diagnosis of ureteral stricture, there must be undisputed dilatation in the portion of the ureter above the stricture, together with some evidence of pyelectasis.

Whether such strictures can always be cured by dilatation has not been conclusively demonstrated. There is no doubt that many observers are ascribing vague abdominal complaints to so-called stricture of the ureter and subjecting the patient to needless dilatation when no stricture exists. On the other hand, when dilatation of the ureter has been demonstrated resulting from stricture, as occurs with chronic pyelonephritis, ureteral dilatation has proved of definite value.

Hunner has also recently called attention to an obscure type of a real cystitis which he has termed "elusive ulcer." This is characterized by a slight superficial erosion of the bladder mucosa, together with marked submucous infiltration and induration. Such ulcers, when they occur singly and when there are no other areas of infection in the urinary tract, may be resected with at least temporary relief, as Hunner described. However, as this clinical entity is not common, many types of inflammation and ulceration of the bladder are being confused with the elusive ulcer, and patients subjected to needless surgical treatment. Multiple simple, superficial ulcers of the bladder are much more common than the elusive ulcer. This condition may be present in

conjunction with a mild degree of pyelonephritis. An ulcer of the bladder will almost always respond to medical treatment; it may be long drawn out, however, and it may be necessary to try a great variety of medication before relief is obtained. It is of fundamental importance to remove all possible foci of infection, as Bumpus has shown experimentally. It is necessary to try out a number of mediums for bladder lavage, such as mercurochrome, phenol, and silver iodid emulsion. In some cases continuous lavage with acid fuchsin for three or four hours daily has been of value. Some of these patients seem to have improved by rendering the urine acid and placing them on a diet high in protein. With the more infiltrating type of ulcer the more superficial methods of treatment are of no value. In some cases fulguration gives more relief than any other treatment, although it may not necessarily insure eradication. In six of the more resistant types mercurochrome was given intravenously, with relief in but one case. In this one, however, there was a striking recovery, following years of suffering and the use of practically every other available agent. However, I would not advise intravenous mercurochrome as a routine method of treatment for this condition, particularly because of the severe reaction and danger connected with its use.

I have gone over this broad subject rather hurriedly. In recapitulation: first, it may be of value to determine whether the urinary infection is ascending or descending, and next, whether the urine is acid or alkaline. If the reaction is acid and the culture negative the diagnosis is probably renal tuberculosis. With infections of the descending or hematogenous type, the removal of all foci of infection is imperative. The use of internal medication with drugs, such as hexylresorcinol, has not proved to be very efficacious. Mercurochrome given intravenously should be reserved as a last resort in the very severe cases of infection. Stricture of the ureter is most commonly present with chronic pyelo-

nephritis, and in such cases, is often relieved by means of dilatation. Stricture does not occur as frequently as some observers would lead us to believe, however. Finally, any form of intravenous medication should be used cautiously. We shall undoubtedly see great developments in intravenous treatment in the near future, but in the meantime one should use it conservatively.

DISCUSSION

DR. FREDERICK H. BAILEY (Fargo): There is just one point that I would like to discuss and that is the thorough, painstaking, systematic examination of these cases. Often the patient presents himself for examination with the history of some urinary infection. He has been treated for months with so-called urinary antiseptics without any checking up of the upper urinary tract. I agree with Dr. Braasch that we should keep in mind the point of frequency in the young adult. I think we always have a right to call it renal tuberculosis unless it is proven that it is not. I think if we assume that attitude we shall save many tragedies in this type of case, for the only treatment is radical surgery.

In chasing down foci of infection these patients will all say that they have just come from the dentist, and the teeth are all right, and that they never had a sore throat. The dental problem, I think, should be investigated. All pulpless or devitalized teeth should be condemned. It often is difficult to get the co-operation of the dentist, but if we are going to get results we must carefully and diligently search for foci of infection. In the chronic cases the removal of the foci alone will not clear them up. If we treat them with silver nitrate lavage five or six times it will relieve them, but they return in a few months with the same old story. That is the usual history of pyelonephrosis.

Dr. Braasch mentioned the work of Dr. Hunner in connection with strictures. I do not suppose anyone else finds as many as Dr. Hunner does, but I think they are frequent in women where the ureter passes through the broad ligament. Also in the cases due to intramural causes there is no real stricture but dilatation facilitates drainage.

QUESTION: Are not intestinal lesions sometimes a cause of cystitis?

DR. BRAASCH (closing): I place intestinal lesions last among the foci of infection. I suppose in cases of cystitis it could be a cause, but I would put it last in the list. All patients should be subjected to the routine examination.

POST-OPERATIVE CLINIC*

By ARTHUR L. HERMAN, B.Sc., M.D.
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DIABETIC GANGRENE OF THE FOOT

CASE 1.—K. W., aged 55. This patient was admitted to the hospital November 23, 1923, with gangrene of the toes of the right foot. A blood-

*Presented at the Sixteenth annual meeting of Minneapolis, St. Paul, and Sault Ste. Marie Railway Surgical Association, Minneapolis, Minnesota, December 11 and 12, 1923.

sugar estimation made at this time showed .405 per cent sugar. A 24-hour specimen of urine contained 48.14 grams of sugar. In order to get the patient in the best possible pre-operative condition it was decided to place the patient on a diet sufficiently high in calories to supply her needs and to burn the excess sugar with fairly large doses of insulin, if

necessary. Accordingly she was placed on a diet of protein 60 grams, fat 100 grams, and carbohydrate 20 grams, thus giving her a total of about 1,300 calories in twenty-four hours with a fatty acid to glucose ratio of about two to one. She was given about sixty units of insulin in twenty-four hours. Under this regime the diacetic acid and acetone, which had been present in the urine in large quantities, gradually disappeared. The sugar also diminished, and on the fifth day after admission she was sugar-free. The blood chemistry showed the blood sugar at the same high level as at admission. Amputation of the leg was performed November 28, 1923. At the patient's insistence the leg was taken off below the knee instead of above. The urine showed rather large quantities of sugar for the first three days after operation, but since then the urine has been consistently sugar-free. The blood sugar dropped to .3 per cent. The use of insulin was discontinued for a time, but upon failure of the blood sugar to drop further it has been resumed. At present the patient is on a diet containing about 1,500 calories. She is getting thirty units of insulin daily. A recent blood-sugar reading was .286 per cent. The flaps show fairly good union although there is some sloughing at the lateral angle of the wound.

Discussion by Dr. Eitel: As a rule, in a diabetic gangrene, amputation above the condyles is the operation of choice. In this case the patient objected strenuously to the high amputation and with the benefit of insulin available, the chance of deviating from the rule was taken. At this time the patient is getting along as favorably as can be asked for. It may be that in the future with the judicious pre-operative use of insulin we may be able to amputate lower than we have formerly thought advisable.

COMPOUND FRACTURE OF TIBIA AND FIBULA WITH INFECTION

CASE 2.—This patient received injuries October 20, 1923. He had compound fracture of the left leg with the bone protruding about 6 inches, and the bone was markedly comminuted. This picture (exhibiting picture) shows the proximal fragment of the tibia protruding through the skin. The patient was in another hospital for two weeks with a Steinmann pin through the heel in an attempt to secure reduction. He had a very marked infection, and amputation was advised. The patient refused to have it done. When he came into this hospital, about seventeen days after the accident, there was a very marked suppurating wound about the size of the palm of the hand on the middle aspect of the leg with the tibia protruding about six inches. Amputation was performed about 8 inches below the knee. There was considerable drainage. The infection evidently had traveled up the fascial planes. There was drainage for about ten days; then the wound gradually healed, and he apparently has good flap union at the present time.

DR. F. GREGORY CONNELL: I would like to ask if there was any infection where the pins were put into the heel?

DR. HERMAN: No, there was not.

FRACTURE OF HUMERUS WITH OVER-LAPPING OF FRAGMENTS

CASE 3.—On the 6th of November, 1923, this man received an injury of the left arm, fracturing the humerus. The first plate shows marked overriding of the proximal fragment, and he had marked impairment of motion. He could not extend the arm any further than about that angle (illustrating), or halfway, and it was impossible to secure approximation of the fragments by manipulation. Open operation was performed about nine days after the date of injury, a respiratory infection preventing earlier operation. The fracture was reduced and no internal means of retention were employed. The arm was first put up in modified extension, and about two weeks after the operation the arm was forcibly flexed and retained in acute flexion without moving the fragments.

Here is another picture of the fracture showing the marked comminution that had taken place and the splitting of the distal fragment so that it extends into the joint. At operation one of these fragments was found to be completely rotated so that the articular surface pointed anteriorly.

COMPOUND FRACTURE OF TIBIA AND FIBULA WITH BONE NECROSIS

CASE 4.—This man was injured on September 11, 1923. He had a compound fracture of the left leg at the distal third. He was not in this hospital. A Steinmann pin was inserted through the os calcis, and extension was applied for nineteen days before he came to us. His wounds were extremely painful, and he could not tolerate the extension any longer, so the pin was removed, and he was discharged from the hospital about a month after admission. His leg was in a cast. Drainage continued and he was admitted here October 24, between five and six weeks after the injury, with considerable drainage from the posterior surface. The leg is about an inch shorter than the other. There is apparently good alignment. It was treated simply by immobilization and changing of dressing. In about three weeks after admission marked swelling and fluctuation were noted on the anterior surface of the leg, and he had a temperature of 102°. The abscess was incised, and considerable pus was released. About three weeks after this, drainage still persisting, the fracture was explored, and a portion of necrotic bone was found and removed, the cavity curetted, and a through-and-through drain was inserted.

DR. EITEL: (examining the leg): Good union has evidently taken place, and in due course of time the patient should make a satisfactory recovery.

METASTATIC ABSCESES

CASE 5.—On August 26 this young man sustained an apparently slight injury to the little finger of the left hand, and a very slight swelling about the finger-nail followed. About two weeks later he developed an abscess on the arm below the axilla. This was promptly drained. Several weeks passed when considerable swelling, fluctuation, and redness

appeared above the clavicle. This was incised, and considerable pus removed. A little later an abscess made its appearance in the axilla.

It should be mentioned that this patient sustained a dislocation of his left shoulder over two years ago, and has had more or less trouble since then in keeping the head of the humerus in the glenoid cavity; but was able to do considerable hard work prior to his infection.

This picture shows a marked destruction of the glenoid cavity and small masses of necrotic bone which were removed by a transverse deltoid in-

cision and the joint and axilla thoroughly cleaned and properly drained. One of the interesting features is that he is very prone to develop hiccoughs. He had these before the injury was received.

During the last three days marked swelling, as you see, of the forearm, developed which will very likely go on to formation of another abscess. What the final outcome of this case will be is difficult to predict. For the present we shall keep the infected parts properly drained.

A BRIEF HISTORICAL AND MEDICAL SKETCH OF THE HOT SPRINGS OF ARKANSAS, AMERICA'S NATIONAL HEALTH RESORT*

By COLONEL L. M. MAUS

Medical Corps, U. S. A., Retired

HOT SPRINGS NATIONAL PARK, ARKANSAS

Singular as it may appear, it is possible that less than 5 per cent of the 200,000 American physicians really know that the Hot Springs of Arkansas have belonged to the United States Government for nearly one hundred years, and at the present time, are under the direct control of the Secretary of the Interior.

It is also equally probable that even a smaller percentage of the general profession of the country are aware of the fact that the waters of this famous health resort are highly radio-active, and that the brilliant therapeutic results which have been achieved in the relief of many apparently hopeless cases sent here, are due to radium gas which these waters contain.

Early last spring the medical societies of Hot Springs and Garland County, in which this resort is located, organized a Medical Intelligence Bureau for the purpose of extending to the medical profession of the country reliable and fuller knowledge of the values of these waters in the treatment of diseases, and appointed the author of this paper intelligence officer.

The narrative of Hot Springs, which has been gathered from Indian tradition, and the reports of early Spanish and French explorers, forms one of the most interesting and romantic pages in the colonial history of our country.

The report of De Biedma, who accompanied Hernando De Soto on his famous expedition through the territory now occupied by the southern states, and across the Mississippi River in 1539-41, clearly shows that this distinguished explorer visited Hot Springs at that time, and spent

several months there in the recuperation of his command. This interesting report may be found in a volume of the Louisiana Historical Society, published in May, 1850.

The earliest pioneers and settlers learned that Hot Springs was regarded by the native races as the "Land of Peace," a neutral ground, where warring tribes could enter without molestation and enjoy the benefits of the healing waters.

Could we visualize this famous health resort centuries preceding the pre-Columbian era, no doubt, we would see processions of sick and disabled natives from distant sections of the country, wending their way back to the "Hot Lakes of Cayas," the name by which this resort was known during the period of De Soto's visit.

It will, no doubt, also prove of interest to learn that President Thomas Jefferson sent a scientific commission to investigate and report upon the "Remarkable Hot Springs on the Ouachita," in 1804, one year after the Louisiana Purchase, which included Arkansas. Mr. William Dunbar, a scientist of Natchez, and Dr. George Hunter, with a detachment of United States troops, were delegated to perform this work.

In 1818 the land upon which these springs are located was ceded to the United States by the Quapaw Indians. In 1832 they were taken over by our government, through an act of congress, and dedicated to the American people as a general sanitarium for all time. And thus the people of Arkansas can justly claim that, within the borders of their state, was created the first national park of America.

*Presented at the forty-fourth annual meeting of the South Dakota State Medical Association held at Sioux Falls, S. D., May 21 and 22, 1925.

BRIEF DESCRIPTION

Located at an altitude of 600 feet above the sea and almost in the geographical center of the state, the Hot Springs of Arkansas, found nestling in the foothills of the Ozark Mountains, presents a picture of beauty unsurpassed among the picturesque resorts of the old and new worlds.

The surrounding mountains, which form a part of the Ozarks, are particularly impressive in their beauty and have been fittingly named by Professor Branner as the "Zig Zag Range." Since the government has taken actual charge of the Hot Springs National Park, on which the springs are located, great improvement has taken place in the way of beautiful mountain drive-ways and attractive walks along the mountain side, where picturesque views from sheltered resting places may be obtained.

When first described, in 1804, seventy-one openings were found on the mountain side, from which the hot waters issued, varying in temperature from 130 to 150 degrees Fahrenheit. A deposit of tufa, from six to eight feet in thickness, encrusted the mountain slope, consisting largely of calcareous matter, which in recent years has been covered by earth and set out in grass, flowers, and shrubs. Geologists estimate that 2300 years were required to form this crust.

With the arching over of the creek which flows along the foot of Hot Springs Mountain, and the disappearance of the heavy coat of tufa, few of the old pioneers would recognize our present modern health resort, should they return from the long ago.

CLIMATIC CONDITIONS

The climate conditions of Hot Springs are equable and may be regarded as unusually desirable for residence throughout the year. The winter season is just sufficiently bracing to be invigorating, while the spring and fall are ideal. The midsummer is usually warm and at times dry, but is tempered by a constant breeze from the mountains, which makes sleep refreshing.

The climate of Hot Springs, with its sunshine and bright blue skies, may be likened to that of fair Italy, during all seasons of the year; for it is quite rare at any time during the winter months to experience more than a few days when the thermometer falls below the freezing point.

Protected against the wintry winds by the mountains on the north, east, and west, and a free exposure to the south, our climate may be classified as semitropical or at least mildly temperate. Here flowers and shrubs of a semitropical nature grow in the open air during the winter

months, although they are occasionally nipped by an unexpected frost. The winter temperature ranges slightly below that of New Orleans and of many other southern cities.

CHEMICAL COMPOSITION OF THE WATERS

Many official chemical analyses have been made of the waters of these springs since they came into the possession of the United States. The most thorough and satisfactory of all of the 46 springs was made by Prof. Haywood, Bureau of Chemistry, Agricultural Department, 1901.

Prof. Haywood found very little difference in the mineral content of the 44 springs, which varied from 270 to 290 parts per million. Two cold springs in the group, Nos. 44 and 45, were found to contain an astonishingly low mineral content, 36.4 and 43.7 per million parts, or less than one seventh of that contained in the hot waters, which he pronounced exceedingly low. The small per cent of magnesium, calcium, and silica in the cold springs was the principal cause of this reduction.

It was found that the principal ingredients of the hot waters consist of the bicarbonates of calcium and magnesium, sulphate of sodium, and silica, which constitutes about 93 per cent of the entire mineral solids. Besides these there are small quantities or traces of the chlorides of ammonium, lithium, potassium, sulphates of magnesium, strontium and barium, nitrite and nitrate of sodium, iodide and bromide of potassium, manganous bicarbonate and ferric oxide, and alumina.

RADIUM AS A FACTOR

Previous to the discovery of radium considerable controversy had arisen in regard to the cathode stream, associated with the *x*-ray and supposed to be its parent. Later it was shown that the radiation from pure uranium possessed characteristics similar to those of the *x*-ray. Finally it was found that uranium emitted three types of radiation, known as the alpha, beta, and gamma rays.

Relying upon this fact Madame Curie proceeded to separate this unknown chemical substance from a sample of uranium deposits, known as pitchblende, presented to her by the Austrian Government. Pitchblende consists mainly of uranium, but also contains small quantities of other rare elements. The various steps resorted to in the separation of radium, by Madame Curie, from the uranite deposits, parallels in romance the search for the Holy Grail.

Separating one substance from the other through chemical processes and the use of the electroscope, she finally succeeded in running

down this precious substance which was named "radium." In these investigations she found that two very active substances were present in the granite residues, the other one, Polonium, named in honor of the land of her birth.

While the salts of radium appear to have been supplied in very minute quantities throughout the globe, its presence in the form of gaseous substance is quite common to many sources of water supply. In 1904 Prof. B. B. Boltwood, of Yale, made examinations of 44 specimens of the waters of Hot Springs and found all of them radio-active. Samples from nine of the springs showed radio-activity to a marked degree. Boltwood states that these waters are as radio-active as any of the spas of Europe. This opinion was concurred in by Professors Hunt and Franklin, of Harvard, in 1913.

PHYSIOLOGICAL STUDIES

As far back as 1890 the late Dr. Edward L. Keyes discovered that the baths of Hot Springs had the quality of increasing the body temperature a degree or more during the first ten minutes of immersion. He even found that a foot-bath would produce the same result. (See "Keyes and Chetwood," p. 226, 1900.) These observations were followed up by a number of the local physicians, who found the same results. The late Dr. Martin of Hot Springs details a number of interesting tests on this point and ascribes the rise in temperature and increased cell activity to the radium emanation in the water. (See *Southern Medical Journal*, March, 1916.)

The following conclusions were reached after a careful number of tests made by the director of the Levi Memorial Hospital, this city:

1. Immersion in a Hot Springs bath of 98 degrees for ten minutes will cause a rise in body temperature of at least one degree.

2. A person who has had a vapor bath of three minutes will show a rise in temperature of two or more degrees above normal. This pyrexia gradually subsides in about one hour.

3. Coincident with the rise in temperature there is an increase in the leucocytes from 2,000 to 4,000 c.m. with 10 per cent increase in the polymorphonuclear cells. Estimation of the opsonic index shows it to be about 6 to 1; that is, about double.

4. The increase in leucocytes was not due to the mere concentration of the blood solids, but was determined by estimations of the plasma volumes; the plasma volume was kept practically constant by giving the subject fluids to make up for the dehydration due to perspiration.

5. The theory is that the rise in blood temperature is due to the increased cell activity caused by the radium emanation known to be in the water; the greatest rises in temperature were noted in the vapor baths, because of the ease of absorption of these substances by inhalation in the pulmonary circulation.

GENERAL EFFECTS OF MINERAL AND THERMAL WATERS

The beneficial action of mineral and thermal waters, as a rule, when used externally, depends on the action of the peripheral nerves and ends of the organs of the skin, and through them on the central nervous system.

A series of hot-water, or hot-air, baths increase nitrogen elimination, urea elimination keeping pace with the excretion of nitrogen, while uric acid is also excreted in a greater quantity.

Taken internally the water enters the blood and reaches the most minute capillary. It changes the consistency as well as the composition of the fluids, and acts as a diluent and diuretic, as well as a sudorific. The circulatory system is stimulated, and renewed vigor is given the nervous system.

The above remarks refer especially to the ordinary non-radio-active mineral and thermal springs. The action of radio-active waters is entirely different. Here cell activity is the paramount action.

Many years previous to this discovery the physicians of Hot Springs were aware that there was some physiological action of the waters not understood by them. Some of them regarded the waters as magnetic, others as allotropic, and all of them realized that there was some potent agency at work beyond scientific investigation.

The ability to eliminate drugs seems to be greatly increased through the effects of these waters, and it was for this reason, no doubt, that patients suffering from syphilis were enabled to take such heroic doses of mercury and iodide of potassium without any unfavorable effects, as discovered by the early resident physicians.

The waters of Hot Springs also have a peculiar action in forcing into the circulation malarial parasites which were contained in the system but were apparently latent. The physicians of Hot Springs inform me that quite a number of patients from the South reach this spa suffering from general poor health,—rheumatism, neuritis, and poor nutrition,—upon whom blood examinations were made with negative results. After the lapse of a week's bathing the circulation was

apparently filled with parasites, which had no doubt been thrown out by the cell activity induced by the water.

SPECIAL DISEASES RELIEVED OR BENEFITED
THROUGH THE USE OF THE THERMAL
SPRINGS OF HOT SPRINGS, ARKANSAS

In view of the physiological effects of the waters of Hot Springs, it is of special interest to the profession to know what diseases and disorders are benefited through their use. It can be stated with absolute certainty that all patients suffering from diseases resulting from the various toxic poisons introduced or created in the system, or from defective elimination and faulty metabolism, are relieved or greatly benefited through the use of these waters.

Hence we find cured or benefited many patients who are suffering from gout, chronic rheumatism, and arthritis, the various forms of neuritis, affections of the kidneys, gall-bladder, bile passages, stomach, intestinal canal, luetic infection and skin diseases, especially of the squamous variety.

Patients suffering from chronic malaria, anemia, metallic poisoning, arterial sclerosis, high-blood pressure, and the early stages of locomotor ataxia are frequently relieved or greatly improved.

Women suffering from neurathenia, insomnia, and functional disorders of the uterus and appendages, such as dysmenorrhœa and amenorrhœa, frequently find great benefit through a course of the baths. The sedative action of these waters has been especially efficient as a means of promoting sleep among those habitually suffering from insomnia.

Hydrotherapy has a decided advantage over direct therapy, as it is applicable to those in good health, as well as to the sick. Change of water, air, scenery, are of untold benefit if the spa is judiciously selected. Health resorts are particularly valuable to a large class of semi-invalids who really need a change from direct therapy, and many patients who have been faithfully visiting a physician at home for months or years frequently lose all their ailments during a month's sojourn at some suitable health resort.

Hydrotherapy has become extensively practiced among the medical profession of England and Europe for centuries, and the technic of the science has been brought to a high stage of perfection. It is a common practice for the metropolitan physicians, over there, to send their patients to this or that spa as an aftermath to the

treatment at home, and especially where favorable results had not been obtained.

Patients sent to this resort should be advised to consult a physician before taking the baths. A thorough examination should be made in order to ascertain the condition of the four emunctories. These waters are very active in their powers of elimination, and it is possible that danger might result to patients affected with chronic diseases of the kidneys, liver, arteries, or heart, who are suffering from poor elimination, unless the baths were most judiciously prescribed as to temperature and duration, during the early part of the treatment.

We may reasonably attribute a great many diseases and disorders to defective elimination and faulty metabolism, and, therefore, before taking the baths special attention should be given the condition of the skin, kidneys, bowels, and lungs, in order to learn whether they are properly functioning. Many patients who visit Hot Springs find out too late that they have made a serious mistake in ignoring a preliminary examination.

Probably there is no other thermal health resort in the new or the old world more abundantly prepared for the treatment of hydrotherapy in all its phases than Hot Springs, Arkansas, and certainly none with such an unlimited quantity of radio-active waters with such a high degree of temperature.

The resort is provided with twenty or more bathing establishments, containing the most modern bathing and physiotherapy equipment. Some of these bath houses are palatial, costing from two to three hundred thousand dollars and built in the Moorish or Mission style of architecture.

While the bath houses are owned by private individuals or companies, the inspection of their management is conducted by a medical officer of the Public Health Service, who is also Superintendent of the Interior. These regular inspections insure thorough protection to patients as far as health of the attendants, cleanliness of tubs, and general sanitary conditions of bath house are concerned.

For many years succeeding the great Civil War, Hot Springs acquired a nation-wide reputation for the cure of syphilis, to such an extent that still, in many quarters, the impression exists that the patronage of this resort is largely made up of this class of patients.

I have made a careful study of the statistics furnished me by the resident physicians, many of whom have practiced here for years, and find that the number of syphilitic patients treated at

this resort does not exceed 10 per cent of other general diseases. Hot Springs has grown into respectability during the past generation in company with hundreds of other towns, located in

the West and Southwest, as a result of the changed social conditions, resulting from laws affecting intemperance, gambling, and the red-light district.

EXHIBITION OF X-RAY PICTURES IN TRAUMATIC CASES: FRACTURES OF HIP*

By CHARLES A. DONALDSON, M.D.

MINNEAPOLIS, MINNESOTA

We have here an x-ray picture in a most interesting case that I would like to show further, but this I am unable to do. This young man gives a story that while hunting he was seized with a sharp pain in the hip and fell to the ground; he pulled his leg vigorously and got up and walked. He went home and continued to play football until someone noticed that he was not in normal condition, and he was brought back to the hospital. This is the only view we have of him. When I sent back for more views of the case he had departed from the hospital. It is clearly shown in this picture that he has a complete separation of the head of the femur at the epiphysis with absorption of the neck. But that feature is not the primary object in relating this case. I show it for another purpose, and that is we very often have an impaction of the neck of the femur without any line of fracture, and we are very much puzzled because of the injury. You will notice that at this point I have drawn a line directly across the lower part of the lesser trochanter. In these cases you will always find the lesser trochanter displaced up. I do not believe we ever have that finding without fracture and shortening.

I have no other view in this case. I was very much disappointed that we were not able to follow the patient further.

FRACTURES OF VERTEBRÆ

I have here pictures (showing pictures) of one or two cases of fracture of a vertebra. In these cases we obtain much better information from the lateral than from an anteroposterior view. We have here the lateral view and also the posterior view. In this case there is some difficulty in recognizing the fracture.

An interesting story was told at one of our x-ray meetings in Chicago. A paper was read on the subject of spinal fractures, in which the

author reported the finding of fracture in the daughter of a physician, and at the close of the presentation one of the doctors said: "I wish you would examine my back. I injured it several years ago." They took him to the laboratory and found he had been walking around and doing work with a fracture of the spine! These cases escape our attention sometimes.

I want to call your attention to the position of the side view of 5th lumbar vertebra. The anteroposterior view of this vertebra is quite different from the other lumbar vertebæ. You will notice here that the bodies of the 1st to the 4th lumbar vertebrae are the prominent features, whereas the lamina of the 5th is the prominent feature. This is due to the fact that the 5th lumbar faces downward and forward. This drawing, taken from the "Army Manual," gives the relation, and I have indicated here the position necessary to bring out the body on the 5th. The ordinary position shows the lamina above and does not show the body. I remember that for a number of years I was impressed with the idea that the 5th was very different from the rest of the lumbar vertebrae, until I learned this fact. You have to go away below, a foot lower down than we ordinarily do, in order to get the correct angle for the anteroposterior view. With the correct angle for the 5th, you bring it out so that its body shows very much like the rest of them. After a verdict was rendered in a case involving the 5th lumbar I interviewed one of the jurors and was much interested in hearing what he had to say for himself. He said: "Well, you gentlemen proved that the plaintiff didn't have a fracture of the 5th lumbar, but we thought she was hurt enough so we gave her \$3,500."

Here again you see the 5th with only the lamina showing. The transverse processes are very different from those of the other lumbar vertebrae. If you want to read a good article on the 5th lumbar vertebra you will find that Dr. Paul B. Magnuson's paper read in Chicago in September,

*Presented at the Sixteenth annual meeting of Minneapolis, St. Paul, and Sault Ste. Marie Railway Surgical Association, Minneapolis, Minnesota, December 11 and 12, 1923.

1923, covers the subject in a most comprehensive way. Dr. Magnuson's statements in regard to the unossified portions of the 5th lumbar vertebra will cause one to hesitate to diagnose a fracture of this vertebra.

Every physician who has had occasion to examine x-ray films for fractures is familiar with the fact that frequently the fracture does not show in one direction, but is very distinct in another. This is one reason for the almost universal habit of taking extremities with two exposures at right angles to each other. Such cases offer no real difficulty. The ones referred to are those which reveal no fracture with the ordinary and regular x-ray examination. It frequently happens that fractures do exist in spite of such negative showing. These cases occur more often in the skull, the vertebræ, impacted fracture of the neck of the femur, and the os calcis, and more particularly fractures of the head of the radius.

The films shown this morning are for the purpose of demonstrating this, and the possible means of detecting such injuries. For the skull the position should be lateral, anteroposterior and stereo, probably also various diagonal views. The same is true of the vertebræ and the chest. It is usually impossible to get a lateral view of the neck of the femur, though sometimes one is fortunate. Always there should be a comparative view on a single film, of both femurs with the two in the same relation towards the target. The outstanding feature of this examination is

the relation of the lesser trochanter to the neck. When this distance is shortened one is justified in diagnosing a probable impacted fracture of the neck. The os calcis offers a similar difficulty, but here the side view is the easy one. An anteroposterior view is practically impossible. The text-books speak of having the patient stand with the feet upon the film and the target placed behind the patient's body at an angle. The difficulty of this procedure is the presence of the high-voltage wires and the proximity of the patient to them in such position. This is avoided by placing the patient on his back with the toes upright, bringing the target beyond the perpendicular line of the feet and at an angle towards the patient with the film underneath both heels. This gives a 45° angle, and in case of impacted fracture shows a thickening of the os calcis, which is quite striking as compared with the opposite heel.

The greatest difficulty is occasioned by the longitudinal fractures of the head of the radius. It is not uncommon to have these undiscovered upon a film taken at right angles. There are, however, three positions of the forearm that help to detect this fracture. All injuries about the elbow should include these three views. The elbow remains in the same position for all three. First, the forearm is placed upon the table with the palm down; second, with the thumb turned upwards; and, third, with the hand placed dorsal. This has been found very helpful, and I do not know of any such fractures which escape with such careful technic.

PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of October 21, 1925

The Minnesota Academy of Medicine held its regular monthly meeting at the Town & Country Club on Wednesday evening, Oct. 21, the meeting having been postponed one week on account of the Interstate Postgraduate Assembly meeting October 12-16, 1925.

The meeting was called to order by the President, Dr. H. L. Ulrich. There were 31 members and 2 visitors present.

The minutes of the September meeting were read and approved.

The following case reports were given:

1. Dr. A. W. Abbott (Minneapolis) showed an apparatus for holding a drainage tube in any cavity.

2. Dr. E. M. Hammes (St. Paul) reported two cases as follows:

1. Female, aged 30, married, seen in consultation with Dr. J. C. Ferguson, October 13, 1925.

The family and personal history were negative. The family stated that she had been perfectly well. She left her home on October 12, at 8 P. M. to take part in a musicale and to visit a friend. At quarter to one that night the door bell rang three times. When they opened the door they found the patient lying in front of the door apparently semiconscious, bleeding from the nose, with a little blood on her stocking and on the porch floor. The family thought she had been struck by an automobile and placed on the porch. However, there was no sand or dirt in her hair or on her clothes, and no evidence of violence or external injury.

Dr. Ferguson saw her at 10 o'clock that morning,

when her temperature was 102.° pulse 100. The patient was semiconscious, and her neck was slightly rigid. I was asked to see her about 8 p. m. that evening. The patient was still semiconscious, resistive, and gave the impression of a catatonic dementia precox. When her arm was lifted she would hold it in that position and gradually drop it. When an attempt was made to open her eyes she would hold them tight. She was definitely resistive. Her neck was rigid. She had a questionable Kernig. All reflexes were normal. There was no evidence of any bruise on the head or on the body. She continually rubbed her forehead with her hand as if she had a severe headache. Her temperature at this time was 102.5.° pulse 100, respiration 25, and her general condition was fair.

A lumbar puncture was done, about 35 c.c. of spinal fluid was removed, which was almost pure blood. Following the spinal drainage there was no special change in her condition. At 10 p. m. she died quite suddenly.

Permission was given for a post-mortem of the head only. Between the scalp and the occipital bone was a small diffuse hematoma about two inches wide and four inches long. On opening the skull there was a diffuse hemorrhagic exudate extending over both hemispheres, with a small blood clot under the left frontal lobe and a large blood clot about the size of a small egg under the right frontal lobe. The convolutions of both frontal lobes were quite macerated. The skull showed a fracture in the occipital region extending about three inches on the right side from the saggital suture longitudinally through the occipital bone. On the left side the fracture line extended from the saggital-lambdoid junction through the occipital bone into the foramen magnum. There were several short radiating fracture lines besides, beginning in the same area.

This patient evidently rang her door bell, fell, and the impact from the fall on the wooden floor was sufficiently marked to produce the occipital skull fracture with the marked contra-coup hemorrhage of both frontal lobes. The hemorrhage evidently was secondary to the fall and not primary, because its location and distribution were such as one would expect in a contra-coup lesion in relation to a blow in the occipital region.

2. The second case was a male, aged 42, seen in consultation with Dr. A. R. Comstock.

The family history was negative except that his mother died of gastric carcinoma. The personal history was negative. The present illness began during the last week in June, 1925, with intermittent pains and headache in the left frontal and occipital regions. This pain gradually became constant and increased in severity. About July 15 a diagnosis of sinus infection was made, and the left middle turbinate bone was removed. This gave no relief. By July 30 his left frontal headache was so marked that he had to discontinue work. The following day he was confined to bed. During that week he vomited twice. On July 27 he was examined by Dr. Morrison and Dr. Ahrens, of the Nicolle Clinic. All findings were negative except for a definite choked disc, more marked in the left fundus, loss of right abdominal reflexes, and a moderately increased right knee-jerk. The spinal fluid was under increased pressure, but normal otherwise.

Because of the choked disc, Dr. Strachauer performed a decompression operation over the left frontoparietal region. The intracranial pressure was found greatly increased, but no tumor or abscess could be located. The headache subsided and the patient seemed brighter. With the formation of a hernia cerebri a right hemiplegia with aphasia developed.

I first saw him on August 28, 1925, at St. Joseph's Hospital, St. Paul. He had a marked hernia cerebri at the site of the decompression operation. He had no headache and seemed bright mentally. He presented a right hemiplegia with the usual pathologic reflex changes. He was aphasic. On September 5, about 5 p. m., he developed a generalized convulsion. A lumbar puncture was performed and 40 c.c. of clear, normal spinal fluid under increased pressure were removed. The convulsions continued, the patient became comatose and died within thirty-six hours.

A post-mortem was negative throughout except for a tumor of the left frontal region immediately under the operative field. This was subcortical, about the size of a large walnut, and was found to be a glioma. The foramen of Magendi was patulous, and the ventricles were not distended.

The interesting points in this case are the fairly acute onset, the rapid progress, the marked intracranial pressure with choked discs, which is quite uncommon in frontal brain tumors. The obscure symptoms emphasize the difficulty of a proper cerebral localization in tumors of this region.

DISCUSSION

DR. A. SCHWYZER: Isn't it possible that some of the bleeding had occurred before this patient fell? When I saw the blood spread over the brain surface and no damage to the brain substance and no cause for the fall was known, I was reminded of two cases of spontaneous hemorrhage I happened to come across, which were very interesting. The first case, a young man, eighteen or nineteen years old, was asked by two friends to go in an automobile, and the three young fellows raced around the country. When he came home he had a terrific headache and suffered from severe dizziness. There was perhaps a trace of rigidity in the neck. We took him to the hospital and did a spinal puncture. A raspberry-colored fluid came out under markedly increased pressure. The patient recovered.

The other case was similar. A woman about 55 years old, gave some orders to her chauffeur, who answered in an impertinent way. The lady is of quick temperament and became very angry. She suddenly became dizzy and had to be carried to bed, and a terrific headache came on. There was no fever in her case, either. I took her to the hospital and made a spinal puncture. The spinal fluid was raspberry-colored and under increased pressure. Subarachnoid bleeding had occurred. Again, as in the other case, spinal puncture relieved the headache promptly, and the patient recovered readily.

There was no later trouble in either of these cases.

3. Dr. Arnold Schwyzer (St. Paul) reported a case of branchiogenetic cyst and showed *x*-ray plates.

History: When the girl, who is now thirteen years old, was born, a walnut-sized soft and painless swelling was noticed low down on the right side of the neck. It gradually grew to the size of a goose egg.

In April, 1924, when the skin over it became thin and bluish, it was opened by the family doctor, who mentioned that the contents were a pus-like fluid. From the beginning a large pulsating vessel was noticed along the median side of this mass.

Since the cyst was opened it has drained a watery and partly purulent liquid constantly. There is no pain. The swelling inward and downward from the fistulous opening persisted. It is somewhat emptied, especially on pressure and then fills out again.

Physical findings: Soft prominence to the outer side of the tortuous, very visibly pulsating large artery, which is the common carotid and runs near the midline at the level of the larynx to recede laterally again along the upper border of the swelling, which is soft and fluctuating. An irregular scar and tiny fistulous opening exists at the upper outer edge of this fluctuating mass. Thin pus can be expressed.

Remainder of the examination, negative. A stereoscopic roentgenogram, after moderately filling the sac with bismuth paste, shows it to reach about an inch below the lower border of the head of the clavicle. The inner two-thirds of the clavicle itself are bulged out over the mass and join somewhat at an angle with the outer third. This by itself proves the early appearance and considerable size of the cyst.

Operation on October 5, 1925, allowed us to peel the sac out of the depth without much difficulty, while at the site of the fistula it was intimately grown to a large vein. The size of the sac was that of a large hen's egg.

Microscopically the lining of the sac was a pavement cell epithelium of from fifteen to twenty cells thickness. The outer layers have a tendency to keratinization. The stroma underneath shows a shallow layer of dense round cells perhaps due to the suppuration; and underneath this layer we see unstriated muscle. The cyst is thus branchiogenetic.

Whether or not the cervical sinus itself could not form cysts is a matter of speculation. The marked downward growth of the third branchial arch causes overlapping over the fourth and causes the cervical sinuses laterally. From the third gill cleft the lower parathyroids originate and also the thymus. Kürsteiner under Langhans made serial sections of this area of the necks of new-born children and found that the thymus is liable to lose some of its tissue in its downward growth, leaving, besides the thymus chord, small heaps of the thymus tissue, at times forming little cysts. However, nothing is known that such cysts should become of macroscopic or even surgical importance. The branchiogenetic cysts come practically always from the second cleft.

The patient left the hospital a week after the operation with the wound apparently well healed.

DISCUSSION

DR. A. T. MANN: This is an extremely interesting case and reminds us of others which we have seen and some of which we have operated on. The last statement of the doctor, that because it was lined with thin or flat epithelium it could not be one of

the cysts in connection with the thymus, is of course true. The contents of a cyst are more fluid and mucoid when it arises from the inner portion of the branchial clefts and the lining of the cysts is more like mucous membrane with flattish or sometimes cuboidal mucous cells. In rare cases they may be more columnar in type. When they arise from the outer portions of the cleft, nearer the skin, they are lined with flattened cells more of the squamous type, and then the contents show more and more sebaceous material as it approaches the outer or skin ending of the cleft.

The embryonic remnants of the branchial clefts fairly often persist as cord-like or tube-like remnants. When they persist throughout we have a fistula leading from the esophagus high in the neck to its exit much lower in the neck, due to the great downward growth of the external portions of the branchial arches.

When portions of the tubular remnants remain imbedded in the neck, they form cysts whenever the activity of their lining cells produces secretions sufficient to distend their lumens. These clefts are always interesting. The neck portion has grown down a good deal faster than the inner portion so that they slant from the outside upwards and inwards and go a good deal higher than we would expect. The drum of the ear closes the first cleft. No cyst, so far as I know, has been reported in the first cleft. Most of these arise from the second or third. The only way to distinguish them after you find them is to see whether the line of the small tube-like projection which goes up to the esophagus, when it runs that far, goes above or below the styloid process and the stylohyoid ligament. In dissecting them out, we never know, until we go high into the neck, whether it is from the second or the third. It has to be followed up to that point before it can be distinguished.

I think the Doctor's method was very ingenious; to turn in the stump and thrust it through into the esophagus at a new point, seems to me a very admirable way of doing when the inner portion is cordlike and cannot be treated in the standard method, which is to turn the stump inside out by putting it through its own lumen into the esophagus.

DR. C. EUGENE RIGGS (St. Paul) gave the principal paper of the evening, entitled "The Dynamics of Personality."

DISCUSSION

DR. CHRISTISON: I do not believe it would be fair to let that masterly production go without comment. As an address on sociology, I have never heard anything to compare with it. It affects me particularly and peculiarly. I have been connected with social service work in St. Paul for a good many years. One of the subdivisions of our United Charities is a children's bureau, wherein we deal with delinquent, as well as with normal, children. The things that Dr. Riggs has told us are going to help me a very great deal in that work. I think he understands the psychology of childhood better than any one I have ever known.

I want to thank him personally for that paper.

DR. A. SCHWYZER: I arose from the same impulse that Dr. Christison did; that is, to express our thanks for this splendid address. That is not an

ordinary paper. That is an address to be read over in our families, and there is in it a good deal of matter that is good, not only for doctors, but for the members of their families and for laymen.

One great hope remains in what the doctor told us, that most of these defects are not really hereditary but are really accidental happenings under peculiarly unfortunate circumstances and are individual conditions that are not propagated.

There is so much wholesome philosophy in this study that I think I speak in harmony with everybody present if I thank the Doctor heartily for what he gave us tonight.

DR. H. L. ULRICH: Dr. Riggs raised the question of nature and nurture, which has been a subject for discussion ever since there have been biologists. For two years I have observed children going through the Child Guidance Clinic in Minneapolis. My work was to study the endocrinopathies in which we attempted to show that endocrine disturbance may have some bearing on behavior. We have not been able to demonstrate a single case in whom the endocrines are factors in the misconduct of the children. In practically all cases one could say it was nurture rather than nature.

The meeting adjourned.

—JOHN E. HYNES, M.D.
Secretary.

BOOK NOTICES

A TEXT-BOOK OF CHEMISTRY FOR NURSES. By Fredus N. Peters, A.M., Ph.D., illustrations, second edition; cloth. St. Louis: C. V. Mosby Co.

This text meets the requirements very well. It is easily read, readily understood, is printed on good paper, is well illustrated, and deserves the compliment of a second edition which has appeared in so short a time.

—A. W. DAHLSTROM, M.D.

CLINICAL FEATURES OF HEART DISEASE. An interpretation of the mechanics of diagnosis for practitioners by Leroy Crummer, M.D., Professor of Medicine, University of Nebraska. Introduction by Emanuel Libman, M.D. Physician to Mount Sinai Hospital; Professor of Clinical Medicine, Columbia University, N. Y. Cloth. Pages 353. Price \$3.00. New York: Paul B. Hoeber, Inc., 1925.

Doctor Crummer's book is an excellent text for both student and practitioner. In this day of electrocardiograms, polygrams, spirometers, x-ray, and other mechanical contraptions for the diagnosis of cardiac disorders we are apt to forget the proportionately important place occupied by the history, physical findings, and clinical observation.

Dr. Crummer takes up, in a concise and interesting way, history taking, physical examination, mechanical aids in diagnosis, cardiac irregularities, valvular diseases, pericarditis, cardiovascular renal disease, decompensation, treatment, cardiac neuroses, and cardiac emergencies.

A circular from the Surgeon General's Office outlining the methods for examining the heart and blood vessels of candidates for military service is given as an appendix. It gives the signs and symptoms of heart trouble which are considered compatible with military service and those which are not.

—LEWIS M. DANIEL, M.D.

THE HUMAN MACHINE: HOW THE BODY FUNCTIONS. By W. H. Howell, Ph.D., M.D., LL.D., Sc.D. Associate Director, School of Hygiene and Public Health, Johns Hopkins University.

HEALTH OF THE WORKER: HOW TO SAFEGUARD IT. By Lee K. Frankel Ph.D. Chairman National Health Council. The National Health Series, 20 vols. 18 mo. Flexible fabrikoid. Average number of pages, 70. Price per set, \$6.00 net; per volume, 30 cents net. New York and London: Funk and Wagnalls Company.

"The Human Machine:" "How Your Body Functions" gives in a concise, clear way the description of the body mechanisms. This little book written by an authority in physiology, W. D. Howells, illustrates how the medical man can, if he tries, deliver his message to the lay population.

"Health of the Worker" by Lee Frankel gives in a small compass, up to date measures necessary to protect the worker from the various industrial hazards. He emphasizes also that attention to the health of the worker makes for greater efficiency.

—L. F. RICHDORF, M.D.

THE PHYSIOLOGY OF MIND. An Interpretation Based on Biological, Morphological, Physical and Chemical Considerations. By Francis X. Dercum, M. D., Ph.D., Professor of Nervous and Mental Diseases in the Jefferson Medical College, Philadelphia. Second edition, Reset. 12 mo. of 287 pages. Philadelphia and London: W. B. Saunders Company, 1925. Cloth, \$3.50 net.

In this volume Dercum approaches the mind from a truly scientific angle. Hitherto the phenomenon of the mind has been approached as though it was altogether peculiar in its character and being; as though a difference essential and intrinsic separated the phenomena of the mind by a wide and hopeless gap from all other natural phenomena.

He devotes several chapters to the consideration of elementary responses to impacts and of the differentiation in the metazoa of the special structures for the reception and transmission of the impacts and for the resulting expression in motion. He goes on to demonstrate the nature of the transmission of impacts and shows it to be unmistakably electrical. He then takes up and explains how unconsciousness is a retraction of the neurones at their synapses. The functions of the thalamus, the synthesis of special sense impressions, the evolution and the nature of speech, the functions of the striatum, and general cortical syntheses are discussed at some length. Then he considers the play of hormones, the instincts, the various tropisms and the phenomena of pleasure and pain.

He also delves into the structure of protoplasm and its limitations. Just as the eye is not sensitive to certain parts of the spectrum, so protoplasm is insensitive to many impulses. Finally the reactions of the organism are considered in the light of Einstein's theory of energy.

Then he applies the principles developed in this thesis to the pathological conditions of the mind. He shows that psychology can be regarded only as a department of brain physiology. He designates the term *psychology* as superfluous. He places Freudism side by side with Christian Science, divine healing, hypnotism, and like procedures, and condemns its application as unscientific.

—W. A. SAWATZKY, M.D.

THE JOURNAL-LANCET

Represents the Medical Profession of
Minnesota, North Dakota, South Dakota and Montana
The Official Journal of the
North Dakota and South Dakota State Medical Associations
The Hennepin County Medical Society
The Soo Railway Surgical Association
and The Sioux Valley Medical Association

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W. L. KLEIN, *Publisher*

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DECEMBER 15, 1925

SCHOOL BOARDS HAVE POWER OF EXCLUSION OF SICK CHILDREN

A controversy arose in Austin, Minnesota, on the twenty-fourth of November, as to the power of the Health Commissioner to exclude sick children from attendance at school or admission to the swimming pool. The objection was made by an osteopath, E. J. Stoike, who sought a mandamus to compel the School Board to admit persons to the swimming pool who had certificates of health signed by him. Then the trouble began. There was a bitter fight; but Dr. C. C. Leck, who is chairman of the School Board's committee on health, is the man who had the courage to carry the case into court, and the presiding judge decided in favor of the School Board's attitude. The judge, in reading his decision, said he was not interested in the different methods of healing, but he outlined the definition of the various schools of healing as he found them in the dictionary. He further said that the School Board had the power to exclude the general public from the use of the pool and had the power to make certain rules and regulations if it permitted the public to use the pool. It had the power to engage Mr. Stoike only to issue permits and it had the right to employ only regular physicians to issue the certificates, and the School Board also had the power to name anyone it chose among the healers as examiners.

This decision is a very important one as it relates also to orders other than orders to school boards. For instance, in a church row in Freeborn County, the church trustees refused to allow a faction to use the church or bury its dead in the church cemetery. In this case Judge Kingsley held the trustees were within their rights, and that the only relief for the opposing faction was to bide its time and elect its own trustees. The judge further declared that in all decisions it was the basic principle that courts could not usurp the discretionary powers delegated to school boards, city councils, city boards of commissioners, etc. It was only permissible when those powers were used contrary to the law.

Mr. S. D. Catherwood, who represented the School Board, was backed by a number of law books, each containing opinions of various state and supreme courts that school boards were given discretionary powers and the courts refused to set aside these powers.

All these cases were not fought on technicalities but upon their merits; and that the School Board was within its rights of discretion when it passed the resolution refusing to accept any certificate of health that was not issued by one of the seventeen physicians named in the resolution, and adopted by the Council in Austin, was the decision of the court. It was only necessary for the School Board to issue this power to sign certificates to one physician rather than to issue them to all the physicians in the city; and the objection that Mr. Stoike has to this is that he was kept out of a job. All this in spite of the statute law which states the rights and powers of osteopaths.

Of course, this does not settle the matter by any means, because the probabilities are the question will come up at some other place and time and be fought over again. And unless the medical men are observant and support the position that they have maintained on merit alone it will cause not only unpleasant but unnecessary discussions. Apparently there have not been very many cases of this kind brought out, and if this case had been won by the osteopath it would have opened up all sorts of trouble for the city councilmen, as well as the general public.

MEDICAL ENTHUSIASM

Dr. Herman M. Johnson, the president-elect of the Minnesota State Medical Association, will again give up his time in order to get in closer touch with the medical societies throughout the state. So far he has visited but few sections in

Minnesota and those during his vacation time. He has adopted a rather unusual method of procedure in that he visits the doctors in their offices, talks over the situation with them, attempts to revive their interest in the medical profession, and urges them to attend their medical societies, and to overlook their present personal difficulties.

It has been known for a long time that many of the men who compose the smaller societies of the state are rather indifferent; that is, they hesitate about taking the time off to attend their county or district society meeting. This is not willful neglect but simply indifference, and it is a reflection on the whole medical profession. In some instances the members of a district or county society do not know who is the president of their organization, neither do they know the name of the secretary; and yet they claim to be members in good standing. But no medical man can be in good standing unless he devotes himself to the improvement of his own professional brethren and notably his own personal improvement. Too many of us are likely to sit by the fireside, or, more commonly speaking, over the oil burner, and reflect upon what the other fellow is doing, that is, criticizing him but taking no active part ourselves. This leads to disintegration, disorganization, and decay of the profession. A man has no right to criticize his brother member unless he is there in person to do it and unless he takes an active part in the management of his society. A small attendance on small and large societies has been the rule during the past year or two, and this might be easily overcome if there were perhaps a lesser number of meetings, and if each man was urged by the secretary of his local society to come and discuss a paper, or present a paper, either in full or in abstract, in person, and at least show a willingness to take part in his professional obligations.

Dr. Johnson invites criticism, suggestions, and comment upon how to improve the county societies and the state organization. Doubtless a good many men will disagree with some of his theories about what ought to be done to improve the state society, but they offer no substitute line of work and give him no suggestions as to what would be a better plan than the one he is working on with his large committee.

One of Dr. Johnson's efforts is to increase the membership of the state organization and that can be accomplished only by increasing the attendance at the county and district meetings. Any man who starts out to do medical missionary work in its true sense, as Dr. Johnson is doing, has no easy task. But he, fortunately, has

the enthusiasm and the active interest in the whole medical profession to undertake this short but decisive campaign.

A good many of the men outside the cities look upon the city man as one who is trying to get something out of them. They think that, when he comes to talk to them or when he is selected to talk to them on medical subjects, he is either patronizing them or is trying to exalt himself in their eyes, hoping thereby to get some referred business. This idea has been disproved, however, for the men who devote time to getting up papers, who are invited by the county societies to read papers or to give clinics, reap no benefit from the time they spend away from their own affairs. It is rarely a successful method of getting patients, for the average doctor in the country sends his patients to consultants that he hears about rather than to those whom he knows well personally. Of course, many have personal friends in larger towns, and undoubtedly their friendship promotes a good feeling and they are prompted to send their patients to a friend. As a rule, however, it does not work out very well, and as a matter of fact there is very little referred business from the country through the doctors. So the man who gives up time away from his business and takes the time to investigate and write a readable paper or present an interesting clinic does it from sheer love of the work and not for any personal advancement.

It is presumed, and it is probably true, that the medical profession as a whole is the most unselfish profession in existence. This is said from knowledge of men who do an enormous amount of work and who do a large percentage of charity work for which they get no credit but are often damned. Then, there has been a good deal of bickering, needless fault-finding, between members of the medical profession; and we might just as well admit one time as another that we have been very unwise in our comments and complaints of our fellow practitioners, for, as a rule, we do not know all of the circumstances of the controversy. To be sure, there are certain men in the profession and in the medical societies who are not altogether blameless, and these are taken care of individually, or should be, if they are not, by a board of censors or an investigating committee. All this discussion may not be very interesting, but the editor has clipped from a paper (*Columbia Jester*) the following anecdote which he thinks applies to the medical profession quite as well to any other:

"I consider myself rather good looking, especially when I'm 'all slicked up.'"

"I consider that I am just a little bit smarter than the other fellow. I understand the other fellow thoroughly, but I hardly think he is capable of reading character himself.

"I consider myself capable of giving sound advice to others, but I hardly feel that others are capable of giving it to me.

"I am a great hero—to myself.

"I am Mr. Everyman."

Another thing in which the medical profession is very lame is the matter of ethical advertising. Physicians are afraid, some of them, a few perhaps, to see their names in print for fear some other man will look upon them as advertisers. True, there are some men who do willfully and schemingly advertise themselves and their wares and occasionally THE JOURNAL-LANCET has been taken in by such men. Yet on the whole "It pays to advertise," and medical advertising can be done on the same ethical basis as other advertising is done, not by exalting oneself, but by exalting one's profession. And no one can find fault if the man who advertises rightly, by his deeds and by his merits, becomes more successful than his fellow who is unable to advertise because he hasn't anything to advertise.

The *Cleveland Trust Monthly* comments on advertising in this way: "Advertising pays to a startling degree. The wares of the merchant who fails to advertise lie on his shelves collecting dust, consuming his capital to ultimate bankruptcy; likewise the man who fails to draw attention to himself by using his brain power is allowing his intellectual wares to become cobwebbed with uselessness, and is headed for mental bankruptcy."

We think this comment applies just as well to medical men as it does to any other professional or non-professional men.

JOINT MEETINGS OF COUNTY SOCIETIES

On December seventh, in spite of the differences between the two cities and the views of each, the Hennepin County Medical Society and the Ramsey County Medical Society met together in one room. After the dinner they divided into their respective organizations, conducted the business of the evening for fifteen minutes, and then joined on common ground to listen to the papers of the evening. If this is any evidence of what may happen to other societies, THE JOURNAL-LANCET urges societies occasionally to get together in good fellowship and good friendship and join their issues so that they will know one another. This of course is a difficult problem, for there are men coming into the

cities (new men coming all the time), and it is almost impossible to keep up acquaintanceship with the latest man who comes to town. However, the frequent combined meetings of this kind will do more to promote such acquaintance and to help us know the other man as a good fellow than almost anything we know. Not only this, we are apt to get a better class of papers. One is selected from each society and given an opportunity to prepare and say something worth while. For instance, the first paper on the program of the above evening meeting was "The Present Status of Stimulation (so-called foreign protein) Therapy," by Dr. F. K. Schaaf, of Minneapolis. This paper was a résumé of the various methods of protein administration and took up many of the German preparations, as well as those of our own country. The paper served to promote a good deal of discussion and although the author met with some opposition he at least introduced the subject in a very able manner and gave us something to think about. This paper will appear later in THE JOURNAL-LANCET.

It is gratifying to know, too, that when the paper was under discussion there was no hesitancy about a man's coming out and expressing his own mind, probably for the reason that these men get together often enough so they can talk as they please without prejudice toward the author of the paper. They are simply giving their own opinions, which is the proper method of criticisms and discussion in a medical society.

The last paper of the evening was "Surgical Experiences in the Pharyngolaryngeal Area," by Dr. Arnold Schwyzer, of St. Paul. This very able paper was listened to with the most profound attention, and the material presented and his discussion of his subject and his lantern slides probably were the envy of many of the medical men, surgeons, and specialists who were present. Dr. Schwyzer has a very happy way of presenting his cases and shows in the preparation of his papers that he has his subject well in hand and has the facts to prove his successes or failures. There was very much commendatory discussion of this paper. No one could possibly controvert the facts presented.

Perhaps this so-called combined or joint meeting will be a stimulus to all societies to get closer together and carefully to select their programs. Some men, of course, would make the great mistake of saying they were not competent to read a paper; what they really mean is they are afraid to read a paper for fear it may be criticized or they may be criticized. This joint meeting proved the fallacy of this attitude.

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| NEWS ITEMS |
|------------|

The Memorial Cancer Institute of the University of Minnesota has received \$30,000 worth of radium for use in the treatment of cancer.

On Thanksgiving day, 1925, St. Paul did not have a single case of smallpox, while there were 26 cases in the city on the same day a year ago.

The North Dakota State Board of Medical Examiners will hold a meeting on January 5, to examine candidates for license to practice in that state.

Dr. Carl W. Stomberg, of St. Paul, a 1924 graduate of the University of Minnesota, was married in October to Miss Jessie Smith, also of St. Paul.

Dr. A. Torland has returned to Minneapolis after three years study in Oslo (Christiania), Norway, and will at once resume practice in eye, ear, nose, and throat work.

The Ancker Hospital, of St. Paul, will not build the auditorium authorized by the last legislature unless compelled by law to do so. The money will be used for other purposes.

Dr. Temple Burling, of Los Angeles, California, has located in Minneapolis as a general practitioner. He gives his reason for locating here that he did not like the climate of California!

Dr. Leo Fink, a 1924 Minnesota graduate and this year an interne at the University Hospital, was married last month to Dr. Lillian Mayer, of the Student's Health Service of the University.

Dr. John H. Carson, who formerly practiced for several years in Duluth, died last month in Los Angeles, Calif., at the age of 63. Dr. Carson was a graduate of McGill University, class of '81.

The program of the Huron (S. D.) Medical Society meeting on January 7 will be furnished by Dr. Port McWhorter (of Miller), Dr. R. H. Buchanan (of Wessington), and Dr. E. B. Taylor (of Huron).

The Sioux Valley Medical Society holds its next meeting in Sioux City, Iowa, on January 19 and 20, and an excellent program, composed mainly of clinics, is promised. We hope to publish the program soon.

At the monthly (December) meeting of the Yellowstone Valley Medical Society, held at Billings, Mont., Dr. C. F. Watkins, of Billings,

read a paper on Physiotherapy, and clinics were given by other physicians.

Dr. A. E. Benjamin and Dr. W. H. Aurand, of Minneapolis, were elected officers of the Professional Men's Club of Minneapolis last week. Dr. Benjamin was made president, and Dr. Aurand was elected to the Board of Directors.

Bids were opened last week for the construction of a building for the Mankato (Minn.) Clinic building, which will cost, equipped, over \$60,000. It will be 114x66 feet in size, and one-story high. It is to be completed by June 1, 1926.

Dr. John F. Cummings, who recently withdrew from association with Dr. D. J. McMahon, of Breckenridge, has joined Drs. Leuty and Fitzgerald, of Morris, who have formed a Clinic in that city. Dr. Cummings is a 1922 graduate of the University of Toronto.

At the annual meeting of the Ramsey County Medical Society, held last week, the following officers were elected: President, Dr. C. C. Chatterton; vice-president, Dr. F. J. Savage; secretary-treasurer, Dr. A. G. Schulze; trustee of building fund, Dr. Robert Earl.

At the October meeting of the Minnesota State Board of Medical Examiners, seven physicians were licensed on National Board certificates. These seven physicians were recent graduates of Rush (2), University of Virginia (2), Harvard (1), University of Nebraska (1), and University of Oregon (1).

The following officers were elected at the annual meeting of the Mitchell (S. D.) District Medical Society, held at Mitchell last week: President, Dr. R. A. Kelly, Mitchell; vice-president, Dr. W. J. Maytum, Alexandria; secretary-treasurer, Dr. F. J. Tobin, Mitchell; censor, Dr. R. G. Willy, Kimball.

The Northwestern District (N. D.) Medical Society met at the Leland Hotel, Minot, November 14th. The meeting was given over to a report of the Committee on Fee Bill, which was presented by Drs. E. M. Ransom and A. D. McCannel. About thirty members were present and the proposed bill elicited much general discussion.

At the annual meeting of the Red River Valley (Minn.) Medical Society, held last week at Crookston, the following officers were elected: President, Dr. Alex Dunlop, Crookston; vice-president, Dr. A. Shedlov, Gully; secretary-treasurer, Dr. M. O. Oppegaard, Crookston; delegates, Drs. M. O. Oppegaard and Dr. H. M. Blegen (Warren).

The report in the Minneapolis daily papers of last week that Dr. George G. Eitel is to erect a clinic building in connection with the Eitel Hospital, is somewhat misleading. Dr. Eitel has let the contract for a six-story office building near the present hospital building. Some of the offices have been leased by physicians, and the first floor has been tendered, free of rent, to the Hennepin County Medical Society for an assembly room and library.

NORTHWESTERN PHYSICIANS ADMITTED TO
FELLOWSHIP IN THE AMERICAN COLLEGE
OF SURGEONS IN 1925

MINNESOTA

Barney, Leon Ambrose, Duluth
Bumpus, Hermon Cary, Rochester
Bratrud, Edward, Warren
Curtin, John F., Minneapolis
Davis, Benjamin Franklin, Duluth
Fansler, Walter A., Minneapolis
Gosslee, Gilbert L., Moorhead
Hansen, Erling W., Minneapolis
Hempstead, Bert E., Rochester
Humphrey, Wade R., Stillwater
Peterson, Victor N., St. Paul
Stocking, Fred Foster, Milaca
Sweetser, Theodore H., Minneapolis
Ward, Archibald W., Minneapolis

MONTANA

Shields, James Charles, Butte
Smith, Lee Whitmore, Butte

NORTH DAKOTA

Moore, John Harris, Grand Forks
Movius, Alfred H., Jamestown
Wiig, I. C. J., Wahpeton
Wood, William W., Jamestown

SOUTH DAKOTA

Delancy, William A., Mitchell
Gregg, John B., Sioux Falls
Jackson, Robert J., Rapid City
Paulson, Andrew J., Watertown
Rider, Albert S., Flandreau
Stern, Monte A., Sioux Falls

HOSPITALS IN THE NORTHWEST APPROVED BY THE
AMERICAN COLLEGE OF SURGEONS

MINNESOTA

100 or more beds

Abbott Hospital, Minneapolis
Ancker Hospital, St. Paul
Asbury Hospital, Minneapolis
Bethesda Hospital, St. Paul
Charles T. Miller Hospital, St. Paul
Colonial Hospital, Rochester
Deaconess Hospital, Minneapolis
Eitel Hospital, Minneapolis
Fairview Hospital, Minneapolis

Gillette State Hospital for Indigent Children, St. Paul
Kahler Hospital, Rochester
Maternity Hospital, Minneapolis
Minneapolis General Hospital, Minneapolis
Mounds Park Sanitarium, St. Paul
Northern Pacific Beneficial Association Hospital, St. Paul
Northwestern Hospital, Minneapolis
St. Barnabas Hospital, Minneapolis
St. John's Hospital, St. Paul
St. Joseph's Hospital, St. Paul
St. Luke's Hospital, Duluth
St. Luke's Hospital, St. Paul
St. Mary's Hospital, Duluth
St. Mary's Hospital, Minneapolis
St. Mary's Hospital, Rochester
St. Paul Hospital, St. Paul
Swedish Hospital, Minneapolis
University of Minnesota Hospital, Minneapolis
Winona General Hospital, Winona
Worrell Hospital, Rochester

50 to 100 beds

Hill Crest Surgical Hospital, Minneapolis
Immanuel Hospital, Mankato
St. Gabriel's Hospital, Little Falls
St. Joseph's Hospital, Brainerd
St. Joseph's Hospital, Mankato
St. Luke's Hospital, Fergus Falls
St. Raphael's Hospital, St. Cloud
Shriners' Hospital for Crippled Children, Minneapolis
Warren General Hospital, Warren

35 to 50 beds

Morgan Park Hospital, Duluth
St. Andrew's Hospital, Minneapolis

NORTH DAKOTA

100 or more beds

Bismarck Evangelical Deaconess Hospital, Bismarck
Grand Forks Deaconess Hospital, Grand Forks
St. Alexius Hospital, Bismarck
St. John's Hospital, Fargo
St. Luke's Hospital, Fargo

50 to 100 beds

St. Joseph's Hospital, Minot
St. Michael's Hospital, Grand Forks

SOUTH DAKOTA

100 or more beds

Chamberlain Sanitarium and Hospital, Chamberlain
McKenna Hospital, Sioux Falls
Methodist State Hospital, Mitchell
Sacred Heart Hospital, Yankton
St. Luke's Hospital, Aberdeen

50 to 100 beds

Bartron Hospital, Watertown
Lincoln Hospital, Aberdeen
Luther Hospital, Watertown
Lutheran Hospital, Hot Springs
Moe Hospital, Sioux Falls
New Madison Hospital, Madison
Peabody Hospital, Webster
St. Joseph's Hospital, Mitchell
St. Mary's Hospital, Pierre

MONTANA

100 or more beds

Columbus Hospital, Great Falls
 Holy Rosary Hospital, Miles City
 Montana Deaconess Hospital, Great Falls
 Murray Hospital, Butte
 St. James Hospital, Butte
 St. Patrick's Hospital, Missoula
 St. Vincent's Hospital, Billings

50 to 100 beds

Northern Pacific Beneficial Association Hospital,
 Glendive
 Northern Pacific Beneficial Association Hospital,
 Missoula
 St. Ann's Hospital, Anaconda
 St. John's Hospital, Helena
 St. Joseph's Hospital, Lewistown
 St. Peter's Hospital, Helena

PHYSICIANS LICENSED AT THE OCTOBER (1925) EXAMINATIONS TO PRACTICE IN
 MINNESOTA

| Name | School and Date of Graduation | Address |
|-----------------------------|--------------------------------|---------------------------------------|
| UPON EXAMINATION | | |
| Armstrong, Harry G. | U. of Louisville, M.D., 1925 | St. Luke's Hospital, St. Paul, Minn. |
| Balch, Franklin Greene, Jr. | Harvard, M.D., 1923 | Mayo Clinic, Rochester, Minn. |
| Bowles, John Herschel | Rush, M.D., 1925 | Mayo Clinic, Rochester, Minn. |
| Decker, Walter Joseph | Washington U., Mo., M.D., 1923 | Mayo Clinic, Rochester, Minn. |
| Fenger, Ejvind Palmer K. | U. of Minn., M.B., 1924 | Oak Terrace, Minn. |
| Fink, Leo William | U. of Minn., M.B., 1924 | University Hospital, Minneapolis |
| Giere, Richard Waldorf | U. of Minn., M.B., 1925 | Hamm Bldg., St. Paul, Minn. |
| Hedemark, Truman Albert | St. Louis U., M.D., 1925 | Ancker Hospital, St. Paul, Minn. |
| Heiberg, Emmett Anderson | U. of Minn., M.B., 1925 | Ancker Hospital, St. Paul, Minn. |
| Lindsey, Maude Louise | Washington U., Mo., M.D., 1924 | St. Mary's Hospital, Rochester, Minn. |
| Olson, Chester Jerome | U. of Minn., M.D., 1925 | Belle Plaine, Minn. |
| O'Reilly, Bernard Eugene | St. Louis U., M.D., 1925 | Ancker Hospital, St. Paul, Minn. |
| Paul, Louise Mary | U. of Minn., M.B., 1925 | 504 Ridgewood Ave., Minneapolis |
| Pierce, Alano E. | U. of Minn., M.B., 1924 | Minneapolis General Hospital |
| Shepard, Chas. Edward | U. of Minn., M.D., 1924 | Le Mars, Iowa |
| Sundberg, Rudolph Herbert | U. of Neb., M.D., 1925 | Ancker Hospital, St. Paul, Minn. |
| Wahlquist, Harold F. | U. of Minn., M.B., 1925 | 3310 Fremont Ave. So., Minneapolis |
| Wall, Mark Henry | U. of Minn., M.B., 1924 | 510 Essex St., Minneapolis |

THROUGH RECIPROACITY

| | | |
|----------------------------|------------------------------------|---------------------------------------|
| Bannick, Edwin George | U. of Iowa, M.D., 1920 | 426 Sixth St. S. W., Rochester, Minn. |
| Beach, Watson | Detroit Col. Med., M.D., 1924 | Mayo Clinic, Rochester, Minn. |
| Burling, Fred Temple | Rush, M.D., 1923 | Decorah, Iowa |
| Chumley, Charles Lawrence | U. of Tenn., M.D., 1924 | Rochester, Minn. |
| Cumming, John Frederick | U. of Toronto, M.B., 1922 | Abercrombie, N. D. |
| Dugan, Lawrence F. | Marquette, M.D., 1924 | 320 Sycamore, Milwaukee, Wis. |
| Dworsky, Samuel David | U. of Minn., M.D., 1924 | 1228 Upton Ave. No., Minneapolis |
| Fahr, Geo. Edmeston | Wuerzburg, Ger., Dr. of Med., 1909 | 400 5th St. S. E., Minneapolis |
| Fawcett, Wm. Crozier | Western Ontario, M.D., 1901 | Starkweather, N. D. |
| Greenlee, Daniel Paul | U. of Pittsburgh, M.D., 1924 | Rochester, Minn. |
| Horton, Bayard Taylor | U. of Va., M.D., 1922 | Rochester, Minn. |
| Hutchinson, Dorothy Wilder | U. of Pittsburgh, M.D., 1924 | 2007 Portland, St. Paul, Minn. |
| Hyslop, Orton Chas. | Northwestern, M.D., 1916 | Marble, Minn. |
| Jacobs, Minard Friedberg | U. of Mich., M.D., 1923 | Rochester, Minn. |
| Jensen, Julius | London, L.R.C.P., M.R.C.S., 1923 | Starkbuck, Minn. |
| Judge, Walter Thomas | U. of Iowa, M.D., 1924 | Graceville, Minn. |
| King, Harry Thomas | Marquette, M.D., 1924 | 2607 17th Ave. So., Minneapolis |
| Lapierre, Jean Thos. | Creighton, M.D., 1924 | 303 E. Hennepin Ave., Minneapolis |
| McNaugher, Wm. McMillan | U. of Penn., M.D., 1924 | Rochester, Minn. |
| Meng, Eleanor Lovejoy | Hah. Chicago, M.D., 1910 | Fergus Falls, Minn. |
| Meng, William Lucius | Hah. Chicago, M.D., 1910 | Fergus Falls, Minn. |
| Ortman, John Wessel | Creighton, M.D., 1924 | Pierz, Minn. |
| Pugliese, Francis Michael | U. of Penn., M.D., 1923 | Rochester, Minn. |
| Stuhler, Louis George | U. of Iowa, M.D., 1906 | Rochester, Minn. |
| Vicelli, James D. | U. of Colo., M.D., 1923 | Rochester, Minn. |

NATIONAL BOARD CERTIFICATE

| | | |
|-----------------------------|----------------------------|-----------------------------------|
| Anderson, Ernest Raymond | Rush, M.D., 1925 | 808 E. Franklin Ave., Minneapolis |
| Baumgartner, Conrad John | U. of Nebr., M.D., 1923 | Rochester, Minn. |
| Eskew, Don Carlos | U. of Virginia, M.D., 1924 | Rochester, Minn. |
| Fishback, Frederick Coleman | Harvard, M.D., 1922 | Rochester, Minn. |
| Hurt, Holcombe Harris | U. of Virginia, M.D., 1924 | Rochester, Minn. |
| Schutz, Elmer Scenas | Rush, M.D., 1925 | Mountain Lake, Minn. |
| Whitten, Merritt Bryant | U. of Oregon, M.D., 1924 | Rochester, Minn. |

Laboratory Technician Wanted

In a Minnesota City of 6,000. Must be able to use diathermic and X-ray machines. Address 336, care of this office.

X-Ray Generator for Sale

A Vietor-Wantz X-Ray Generator, 10-inch spark gap for 220 direct current, can be bought at a bargain. Address 325, care of this office.

Position Wanted

Young lady, graduate stenographer, registered experienced nurse, desires position in doctor's office or clinic. Address 320, care of this office.

Office Space Wanted in Minneapolis

An eye and ear specialist wants to rent office and share reception room with a general practitioner in Minneapolis. Address 322, care of this office.

Office Room in Fargo, N. D. for Rent

Office room with physician and dentist with laboratory privileges is offered at very reasonable rental in Fargo, N. D. Address 332, care of this office.

Medical Typist Wants Piece Work

A competent medical typist in Minneapolis will do piece work in evenings and at other spare time at a very low charge. Address 327, care of this office.

Drug Stock for Sale

Complete prescription stock and equipment, including shelf bottles and case, if desired. All live stock. Inventory on request. A snap. Address 329, care of this office.

Fine Minneapolis Office to Sublet Mornings

I will sublet my two offices and reception room to the right party mornings. Offices are completely equipped. Telephone and attendants are included. Address 331, care of this office.

Location Wanted

A German-speaking young doctor (age 34) desires a good location in a town of 600 or more; would prefer eastern part of North Dakota. Can begin work at once. Address 333, care of this office.

Technician Wants Work in Minneapolis

Can do all kinds of laboratory work, and is experienced in most kinds of x-ray work and diathermy. Has assisted in surgical work. Best of references. Address 324, care of this office.

Technician Wants Laboratory Work Mornings in Minneapolis

Has had four years experience in large hospital and large clinic, and is now engaged afternoons in Minneapolis. Desires work in forenoons in this city. Address 335, care of this office.

Minneapolis Office for Rent

A fine location for a new physician at 3734 Chicago Avenue. Office in a new modern building; waiting-room in connection with dentist. Call at above address or phone Locust 4386 or Locust 3759.

Wanted—Position by Laboratory Technician

Graduate of recognized school, capable of doing blood counts and chemistry, urinalysis, gastric analysis, tissue technic, and some bacteriology. Open for appointment January 1. Address 328, care of this office.

Position Wanted

A registered nurse, who is a graduate of the Chicago Lying-In Hospital (1924) and has had institutional experience in obstetrics, a year and a half work in anesthetics, some experience in x-ray work, desires a position in a hospital or clinic in Minneapolis. Address 323, care of this office.

North Dakota Practice for Sale

Has paid on an average for the past nine years \$8,500 annually without surgery. Good fees; large territory; on a transcontinental railroad and state highway. Am joining a group is reason for leaving. Address 330, care of this office.

Young Dentist Wanted

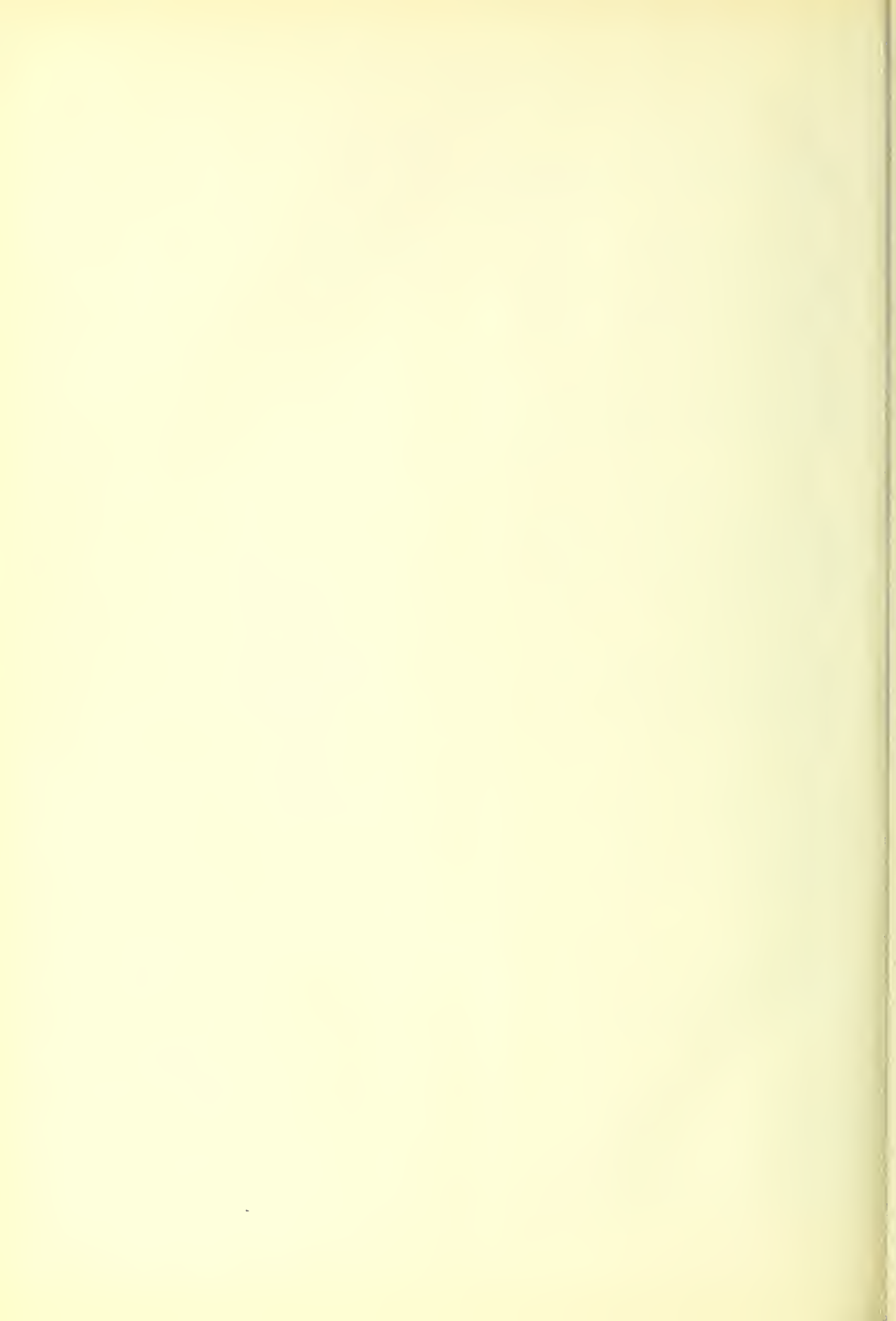
First-class young dentist to take charge of such work in an active well-established clinic in north-west city of about 8,000. No investment necessary with unlimited possibilities. Must have a clean, moral character and willing to work and co-operate in clinic practice. Address 334, care of this office.

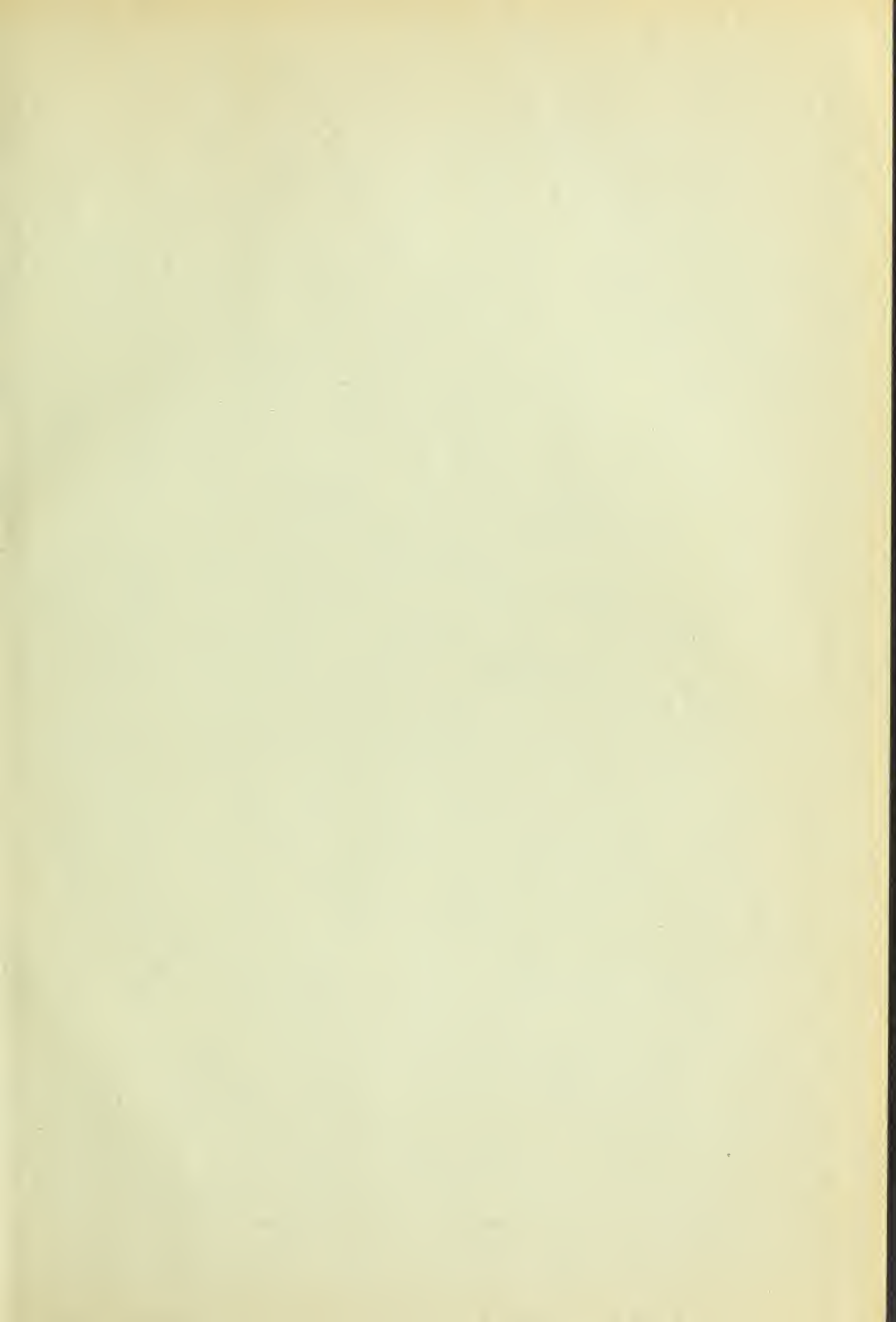
Minneapolis Office for Rent

For rent a doctor's office including use of waiting-room and laboratory in fast developing location at 50th and France Ave. So., Minneapolis. Also apartment adjoining office can be had if desired. Address H. E. Himelne, 519 Marquette Avenue.

Physician and Surgeon Wanted

A North Dakota town of 700 population wants a good doctor, young or middle-aged man preferred. Good farming community—mostly Scandinavian. Competition, 24 miles in two directions, 20 in third and 16 in fourth. Surgeon would have access to hospital 16 miles with opportunity to assist there at times. Good future for man who can do the work. Address 317, care of this office.







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